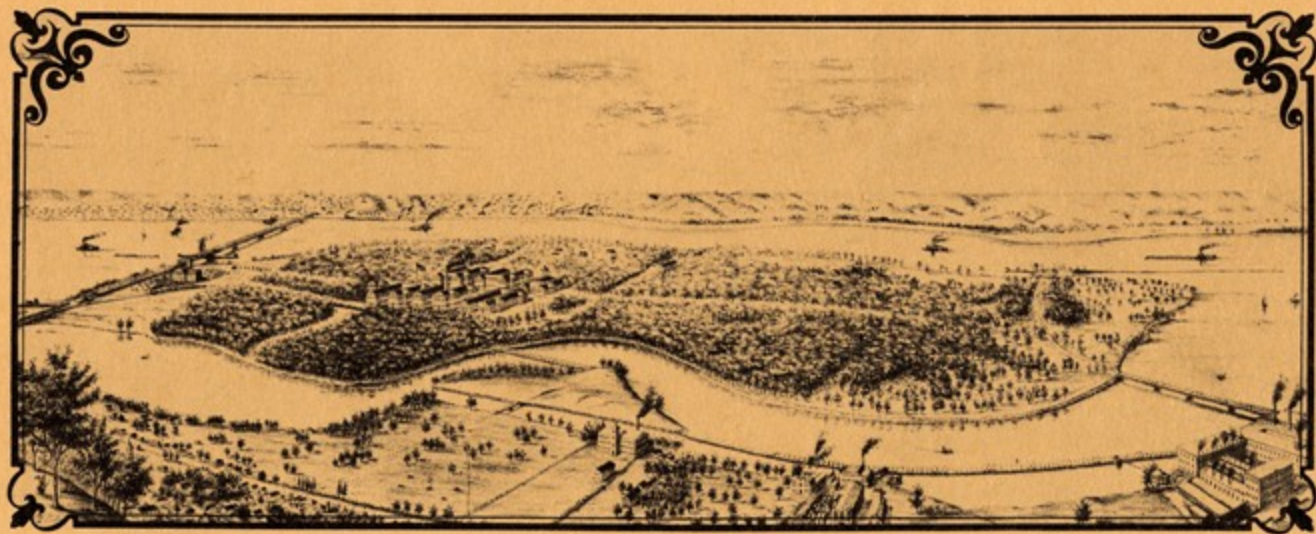


An Illustrated History
Of The
Rock Island Arsenal
And
Arsenal Island

Parts
One And Two

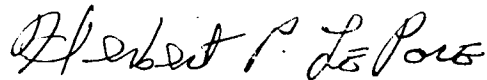


Rock Island Arsenal, 1876

FOREWORD

On 11 July 1989 the Rock Island Arsenal commemorated its designation as a National Historic Landmark by the secretary of the interior. Incidental to the National Historic Landmark commemoration, the AMCCOM Historical Office has published *An Illustrated History of Rock Island Arsenal and Arsenal Island, Part One, and Part Two*. Mr. Thomas J. Slattery is the author of this history and has presented a very well-written and balanced study of Rock Island's history prior to the twentieth century. Though initially printed separately, parts one and two were reprinted together in their entirety as one volume, at the request of the RIA Commander Colonel Richard W. Bregard, and the RIA Museum Director Mr. Daniel T. Whiteman.

Special thanks is extended to Mrs. Carol L. Secoy for providing exemplary editorial and administrative support for this history. In addition, gratitude is extended to the Field Printing Office for its professional assistance.



HERBERT P. LEPORE
Chief, Historical Office

AN ILLUSTRATED HISTORY
OF THE
ROCK ISLAND ARSENAL AND ARSENAL ISLAND
PART ONE

By
Thomas J. Slattery

Historical Office
U.S. Army Armament,
Munitions and Chemical Command
Rock Island, Illinois 61299-6000

1988

AN ILLUSTRATED HISTORY
OF THE
ROCK ISLAND ARSENAL AND ARSENAL ISLAND

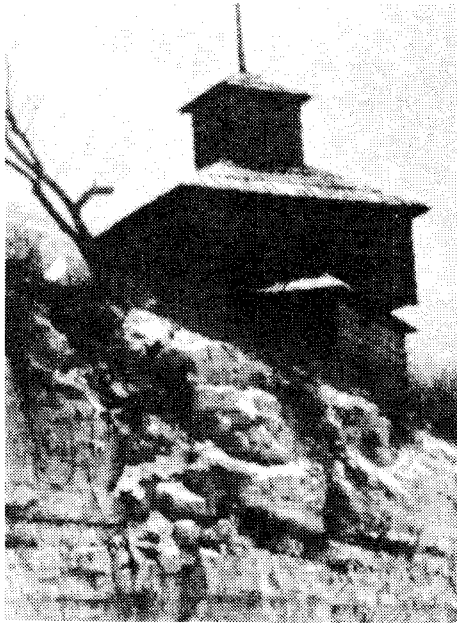
PART ONE

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Below: *Replica of Fort Armstrong Blockhouse dedicated during the Fort Armstrong Centennial Celebration held June 18-26, 1916.
(From AMCCOM-HO Archives)*

Right: *North of Old Stone Shops, on Rodman Ave., built over a twenty-five year period beginning in 1867.
(AMCCOM-HO)*



INTRODUCTION HISTORIC ROCK ISLAND

The history presently being preserved at the Rock Island Arsenal encompasses more than the history of the arsenal itself. It also includes the frontier history of Fort Armstrong, the regional history of Colonel Davenport, the regional history of Black Hawk, the history of the first bridge to span the Mississippi River, and the Civil War history of the Rock Island Prison Barracks. The entire island is listed on the National Register of Historic Places, and is known as Arsenal Island. In June 1988, the Secretary of the Interior designated the old stone buildings, which formed the 19th Century Rock Island Arsenal, National Historic Landmarks.

The history of Rock Island is divided into three successive eras: the regional history, and two periods of "permanent" U.S. Government occupancy on the island. The regional history includes those events prior to 1816 which led to the government establishing a military post on the island. The military post and the depot era of Fort Armstrong constituted the first "permanent" presence of the U.S. Government on Rock Island, and the establishment of Rock Island Arsenal was the second. Rock Island has made an indelible contribution to local history, as well as contributions to national history.

Below: Pere Marquette, a Jesuit Missionary, and Louis Joliet, trader and explorer, were the first Europeans to travel the upper Mississippi River. They entered the river from Green Bay by way of the Fox River-Wisconsin River portage route in 1673. (Illinois State Historical Society Office, Old Market Building, Galena, Illinois)



CHAPTER ONE ISLAND HISTORY PRIOR TO 1816

Rock Island was in the “backwaters” of American history in the days of the Old Northwest where the Mississippi River formed the western boundary of the United States. History seldom impacted on Rock Island in the middle of the 18th and early 19th centuries.

On the occasions when it did, it was in support of historical developments which were taking place up river at such places as Prairie du Chien, Dubuque, or Galena. The prospect of acquiring wealth initially attracted Europeans and white Americans to the fur trading area of Prairie du Chien and the lead region of Dubuque. French traders seeking to expand their Indian trade discovered that the most convenient portage, from the Great Lakes to the Mississippi River, was by the Fox River-Wisconsin waterway. At each end of the route important French fur trading communities developed. Prairie du Chien, at the mouth of the Wisconsin River on the Mississippi, and Green Bay on Lake Michigan anchored both ends of the Fox River-Wisconsin River portage route.

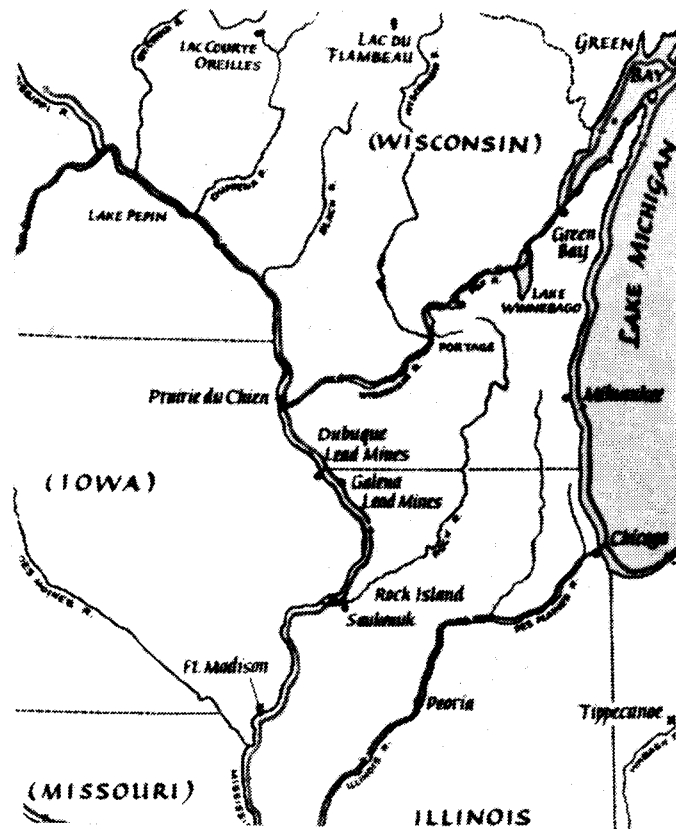
Prairie du Chien, not Rock Island, was

originally the leading fur trading post on the upper Mississippi River. However, it was not long before French-Canadian *voyageurs* and *coureur de bois* from Prairie du Chien, began extending trading operations down river. These French-Canadians established trade with various Indian tribes along the Mississippi River and its main tributaries.

Voyageurs were French Canadians employed by fur traders to transport “made goods” and canoes from the remote regions of the Old Northwest. A *coureur de bois* differed from a *voyageur* in that he operated without a French fur license, and he often illegally traded with the British. Often the *coureur de bois* was a French-Indian woodsman.

Early fur traders in the Rock Island area paddled a canoe called the *canot du nord* or North Canoe. The North Canoes were 20 feet in length and could carry as much as a ton of cargo besides its crew of eight *voyageurs*. The cargo primarily consisted of trade goods which were packed into 90 pound bundles for easier handling. The bundles contained the material needed for bartering such

Right: The Fox River - Wisconsin River Portage Route was a convenient fur trading route that linked the Great Lakes with the Mississippi River.
(Jo Davies County Historical Society, Galena, Illinois)



as cloth, kettles, traps, blankets, guns, ammunition, and whiskey.

Several French traders, and later British agents, referred briefly in their journals to the "big island" (Rock Island) at the bend of the Mississippi River near the "upper rapids". These early journals mentioned in greater detail the Sauk camp near the mouth of the Rock River and also Credit Island, an island which was situated a mile or so down stream from Rock Island.

French-Canadian traders seemed to prefer Credit Island to Rock Island as the site of their trading and established a small trading post on Credit Island. These traders extended credit to Indians in exchange for their promise of pelts. The island, so associated with this practice, became known as Credit Island. Later, British traders often set up their trading camp on Rock Island instead of Credit Island when trading in the vicinity.

Occasionally, after trading, a French Canadian *coureur de bois*, or a woodsman known as a *hiverant*, would spend the winter at the Sauk village on the Rock River. By living among the Indians, the trader not only established good relations with the Sauk, but he also protected his investment by serving as a reminder to the tribe of their debt. In 1763, France lost its colonial possessions in North America to Great Britain as a result of the French and Indian War. However, many of the French-Canadian traders and *voyageurs* continued to work in the fur trade, first for the British and then later for the Americans.

After the French and Indian War, the British Government in Canada continued the French practice of providing gifts to Indians. The tribes, which made pilgrimages each spring to the Canadian communities of Montreal and later Malden to council with their "great father", received presents. British medals and flags were presented to Indians who agreed to trade with British agents. Malden is situated near Windsor, Canada.

Foreign intrigues planned by British agents successfully brought most of the Indian nations of the Old Northwest, including those of the upper Mississippi River Valley, under the influence of the British. During the American Revolutionary War, almost every tribe of the Old Northwest fought as auxiliaries for the British.

In 1778, Sauk and Fox warriors were among the Indians who gathered at Montreal to receive British presents and medals.¹ Later in 1780, Sauk and Fox braves participated in an unsuccessful attack on the town of Pencoer, which eventually became St. Louis, Missouri. These Indians had joined a British force of soldiers, traders, and other Indians from Prairie du Chien in attacking Pencoer. Lieutenant Colonel John Montgomery, under orders from Colonel George Rogers Clark, led a combined force of American Rangers, and French, Spanish, and American settlers from St. Louis in a retaliatory strike against the Sauk village located at the mouth of the Rock River. Colonel Montgomery and his 300 men supposedly burned the Sauk village, making this action the westernmost conflict of the American Revolution.²

Later, under the provisions of the 1783 Treaty of Paris which ended the American Revolutionary War, the British ceded to the

Below: Voyageurs "Shooting the Rapids". Early fur traders used similar canoes in the Rock Island area. (Jo Davies County Historical Society, Galena, Illinois)



United States a huge western tract of land known as the Northwest Territory. The territory included the present states of Illinois, Indiana, Michigan, Ohio, Wisconsin, and part of Minnesota.

Britain, however, unwilling to give up its valuable trade with Indians of the territory, continued to operate its trading companies on American soil, from Canada. Long after the treaty was signed, British agents continued to trade along the upper Mississippi River Valley, including the Rock Island vicinity. British traders used their influence among the Indians to discredit their competitors, the American traders. The British Government in Canada, acting in its own interest, agreed to supply arms and ammunition to Indian leaders such as Tecumseh, who formed an Indian confederacy to counter the encroachments of American traders and settlers into the Northwest. The noted Sauk warrior, Black Hawk, was among the braves that joined the confederacy. As American settlers advanced through the frontier of the Northwest, they defeated the confederacy at Fallen Timbers, Ohio, in 1794 and at Tippecanoe Creek in 1811.

In dealing with the Indians of the Northwest

Territory, the United States Government established the precedence of negotiating formal treaties with the Indians to gain possession of land they occupied. These treaties defined and redefined boundary lines between advancing white settlements and retreating Indian tribes. In many of the treaties, provisions were added to reserve the right of the United States Army to establish forts at strategic locations within the newly drawn boundaries of the Indian territory. This chain of events formed a scenario which was repeated as the American frontier advanced through the Northwest territory.

Lead Mining and Other Trade with the Indians

In the 18th and early 19th Centuries, European trade with the Sauk and Fox Indians involved more than fur pelts. Although pelts were profitable, Europeans also traded for lead, corn, beeswax, feathers, and tallow.³ Lead was of particular importance to European and American traders. In fact, Sauk and Fox women were taught by Frenchmen to mine for lead and to operate crude furnaces near the Fox villages, which were close to the present city of Dubuque, Iowa. The Sauk of the Rock River region and the

Below: The 1840s lead mining community of Galena, Illinois. Note the smoke from the lead furnaces operating in the hills. (Alfred W. Mueller, Galena Historical Collection)



Fox Indians of both the Rock Island and Dubuque vicinities developed a brisk trade in lead with Europeans.

The French initially attempted to develop the lead region of northeast Iowa, northern Illinois, and southern Wisconsin. However, a series of Indian wars with the Fox Indian tribe severely hindered French mining efforts. Fox warriors periodically raided the fur and mining expeditions that traveled the portage route between Prairie du Chien and Green Bay. When not actually raiding the expeditions, they extracted a tribute from those that traveled the route. The Fox tribe, in order to survive a war of annihilation waged on them by the French, allied themselves with the Sauk tribe from the Saginaw Bay area of Michigan. Eventually, the two tribes migrated to the mouth of the Rock River near Rock Island.⁴

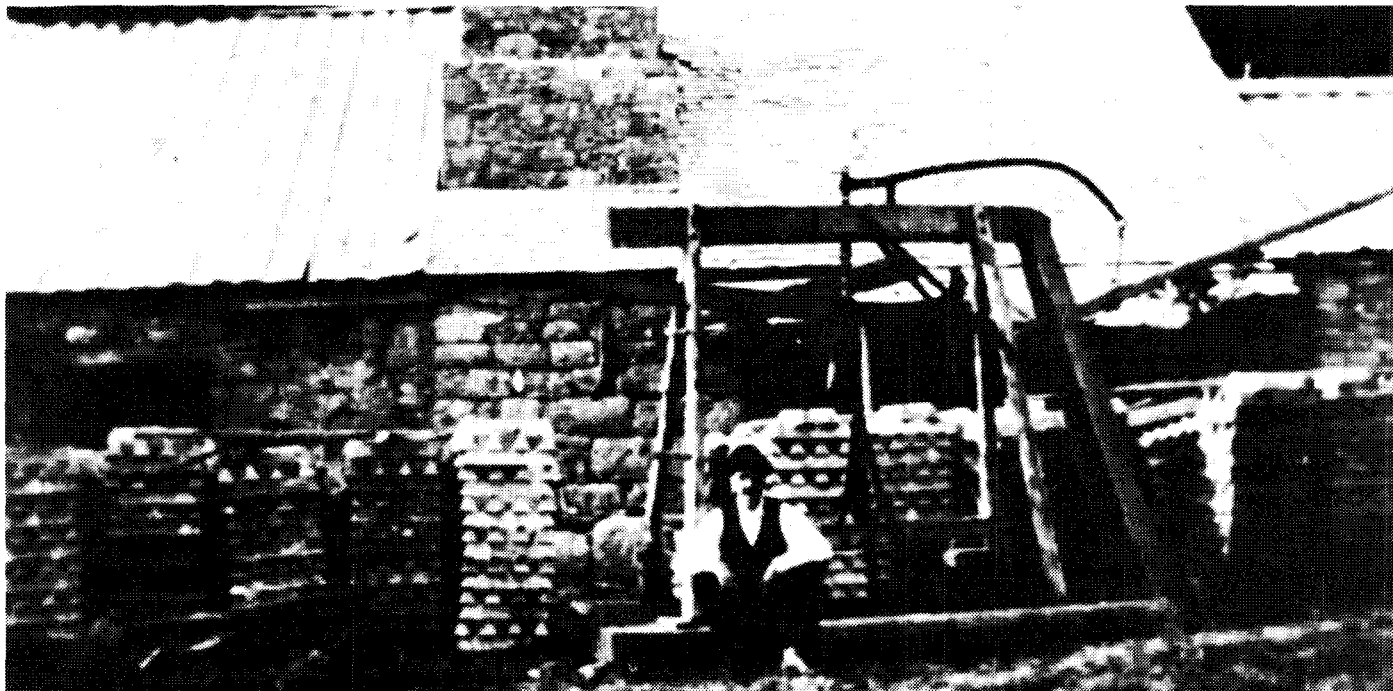
In 1788, the Fox Indians granted lead diggings near the present city of Dubuque to Julien Dubuque, a French trader. Miners such as Dubuque shipped lead down river to St. Louis instead of by portage to the Great Lakes.⁵

By purchasing the Louisiana Territory from France in 1803, the United States doubled its size, and opened the mouth of the Mississippi River to American commerce. The Mississippi River no longer formed the western boundary of the U.S., and by the early 1820s, speculators began leasing land in the lead region of the upper Mississippi Valley from the United States Government. Out of the mining area along the Fever River in Illinois grew the mining community of Galena. Numbering less than 50 persons in 1822, Galena's population rose to over 10,000 people a decade later. The sudden influx of miners resulted in clashes between the mining communities and Indians of the area. This led to the "Winnebago War" of 1827. A short-lived uprising led by Red Bird, a Winnebago chief, was easily put down by a show of U.S. Army Regulars.

Federal Government Acquires Rock Island

In 1804, Rock Island came under Federal control. President Thomas Jefferson instructed the Governor of the Indiana Territory, William

Below: Lead furnace near Galena. Note the 75 lb. lead "pigs" stacked behind the scale. (Alfred W. Mueller, Galena Historical Collections)



Henry Harrison, to acquire Indian lands which adjoined the Mississippi River and its tributaries. Harrison, later the ninth President of the United States, made an effort to obtain Indian land cessions. Through bribery, liquor, and threats, he succeeded in obtaining these lands and seized every opportunity to "negotiate" away the Indian lands.⁶

In November 1804, four Sauk chiefs and two Fox chiefs arrived in St. Louis to meet with Harrison regarding the release of a Sauk brave being held for killing a white man. Harrison, during negotiations for the release of this brave, persuaded the chiefs to sign a treaty which ceded to the U.S. a vast tract of land controlled by the respective tribes. The ceded land included territory on both sides of the Mississippi River, roughly between the Wisconsin River on the north and the Missouri River on the south; and extending east to the middle of the present Illinois River and west as far as the watershed region between Des Moines and the Missouri River. Both the Sauk villages on the Rock River and Rock Island were included in the land purchase.

In return, the Indians were to receive the

official protection and friendship of the United States, and were to be paid \$2,234.50 in goods, plus an additional guaranteed annuity of \$1,000 in goods to be received annually thereafter.⁷

A story regarding the unethical practices used by William Henry Harrison during negotiations with the Sauk and Fox chiefs has been included in several historical works of the Rock Island area.⁸ The minor chiefs supposedly told members of their tribes that they were inebriated during the majority of their stay in St. Louis. The chiefs explained that the \$2,234.50 of trade goods they were to receive from the Federal Government was instead given to Pierre Chouteau, a wealthy French fur trader, for payment of the chiefs' expenses. Chouteau witnessed the signing of the treaty and also served as host for William Henry Harrison during his visit to St. Louis. As for the brave being held by army authorities, he allegedly was shot while running from his guards.⁹

Later, a dispute over the meaning of Article Seven of the 1804 Treaty led to the undoing of the Sauk and Fox Indians in Illinois. Article Seven stated:

As long as the lands which are now

Below: An 1829 map of the U.S. lead mines in the upper Mississippi River region. At that time, the mines were worked by private individuals who paid the U.S. Government a tenth of all the lead manufactured for the privilege. Much of the lead was shipped down the Mississippi River, through the Upper Rapids at Rock Island, on its way to St. Louis. Fort Armstrong, Rock Island, and the Upper Rapids appear at the lower left corner of the map. (Wisconsin State Historical Society)



Below: *The Old Chouteau Mansion in St. Louis, MO.*

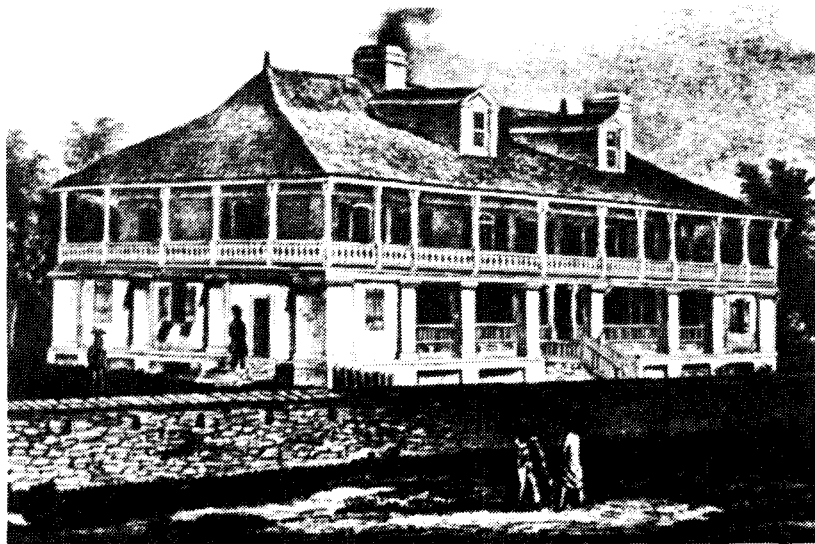
Right: *Brothers Pierre and Auguste Chouteau, early French fur traders who respectively participated in the 1804 and 1816 U.S. treaty negotiations with Sauk and Fox Indians. (Both photos from Augustana College Library Special Collections)*



Pierre Chouteau



Auguste Chouteau



ceded to the United States remain their property, the Indians belonging to said tribes (Sauk and Fox) shall enjoy the privilege of living and hunting upon them.¹⁰

The six chiefs who agreed to the 1804 treaty were supplied with liquor, however, not unknowingly. Liquor was certainly nothing new to the chiefs for Sauk and Fox Indians had been trading with French and British agents for over a century and a half. Many traders included liquor as part of the trade goods offered the Indians of the upper Mississippi River Valley.

The chiefs probably believed they were receiving free liquor in exchange for granting Americans the use of hunting grounds they already shared with other tribes. Furthermore, the White American concept of land as property was foreign to Indians. Adding to their confusion were the differences they encountered negotiating with American agents rather than Europeans. Europeans gave "presents" to the Indians after counseling them. They also readily extended them credit for pelts yet to be trapped.

The British especially ingratiated themselves with the Sauk Indians through the use of these tactics. The gifts and credit placed them in good favor with the Sauk, while at the same time indebting the Indians to the British for some future request or deed.

In contrast, the U.S. Government would not allow its agents to extend credit to Indians. United States agents were instructed to receive either pelts, land, or something tangible in exchange for their trade goods. For several years after the treaty, many Sauk braves believed that the \$1,000 annuities they received from U.S. agents were "presents" rather than payments for their land.¹¹ As experienced as the Sauk and Fox were in dealing with Europeans, they nevertheless struck a "bad bargain" with William Henry Harrison.

Rock Island Comes to the Attention of the U.S. Army

Lieutenant Zebulon Pike first brought Rock Island to the attention of the U.S. Army. In 1805,

Right: William Henry Harrison, the first Governor of the Indiana Territory which included Illinois, was appointed special commissioner to negotiate boundary treaties with various Indian tribes. Later, William Henry Harrison became the ninth President of the United States. (AMCCOM-HO)

Below: Excerpt from beginning paragraph of the 1804 Treaty with Sauk and Fox Indians cited below. Note that the purpose of the article was to bring the two tribes under U.S. influence by restricting the tribes' dealings with foreign powers. (AMCCOM-HO)

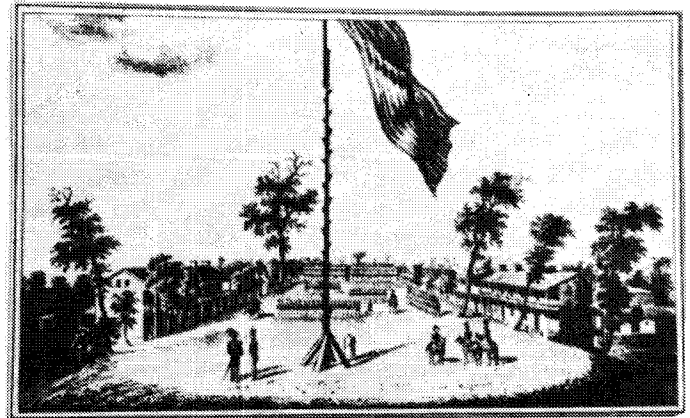


A Treaty between the United States of America
and the United States of Sac and Fox Indians

Articles of a Treaty made at St. Louis in the District of Louisiana Between William Henry Harrison, Government of the Indiana Territory and District and Commissioner Plenepotentiary of the United States for concluding any treaty or treaties which may be found necessary with any of the Northwestern Tribes of Indians of the one part, and the chiefs and headmen of the United Sac and Fox Tribes of the other part.

Article 1. The United States receive the United Sac and Fox Tribes into their friendship and protection, and the said tribes agree to consider themselves under the protection of the United States, and of no other power whatsoever.

Lower Right: Early U.S. Army posts near St. Louis, MO, such as Fort Bellefontaine, Camp Adams, Cantonment Miller, and Jefferson Barracks, served as the starting points for numerous military expeditions and exploratory ventures into the upper Mississippi River Valley. Jefferson Barracks is depicted in early sketch to the right. (Augustana College Library Special Collections)



he led an expedition up the Mississippi River from St. Louis. His instructions were to gather information regarding the river and to note potential sites for the construction of forts which were to be strategically located in the new territory. In addition, Pike was to record British activity among the Indians of the upper

Mississippi River Valley. Based on Pike's report, Congress passed legislation in June 1809 to reserve Rock Island, or "big island" as it was referred to in Pike's journal, as a federal military reservation.

Pike recorded several chance meetings with individuals and groups on his journey up the

Below: Lieutenant Zebulon Pike, who in 1805 led an exploring party up the Mississippi River, is pictured at the lower left. (Hauberg Museum, Black Hawk State Park)

Right: Winter lodge of Sauk and Fox Indians. (Hauberg Museum, Black Hawk State Park)



Mississippi River. In the vicinity of Rock Island, he met with James Aird, a fur trader from Prairie du Chien who operated a trading camp on Credit Island. Mr. Aird informed Pike that in 1781 or 1782 the Sauk village on the Rock River was burned down by about 300 Americans. This account corroborated the story regarding Colonel Montgomery's raid on the Sauk village during the American Revolution. According to his journal, Pike met with four canoes of Sauk warriors near Rock Island.

We met four canoes of the Sacs, with wicker baskets filled with young pigeons. They made motions to exchange them for liquor to which I merely turned the back of my hand.¹²

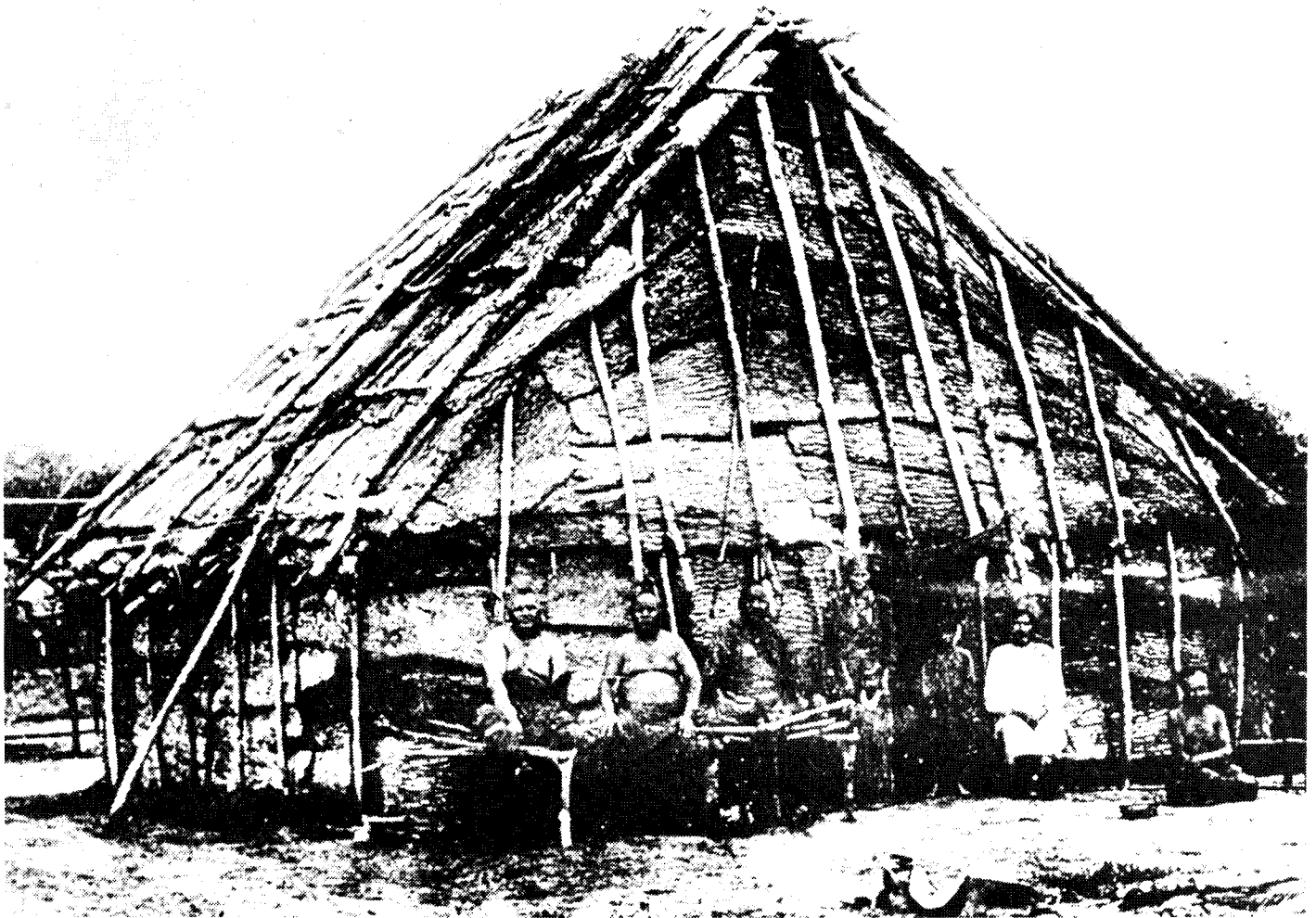
Another encounter with Sauk warriors was also included in the Pike journal. Pike mentioned in his journal a meeting he had with a Captain Many, who was traveling the river in search of Osage Indian prisoners among the Sauk and Fox Indians of the region. Captain Many told Pike that the Sauk expressed hostility towards Americans during his visit to their village near

Rock Island. Pike also wrote that a White American, working as a government representative, was living among the Sauk and Fox Indians of the Rock Island vicinity. The American was hired to teach the Indians methods of farming; but, according to Pike, was fired the following year for neglecting his job. The teacher's position was a provision of the 1804 treaty with the Indians.

Sauk and Fox Indians

Lieutenant Pike's journal supported the claim that Sauk and Fox warriors had a reputation for being hostile. When Fox and Sauk warriors controlled the Fox River-Wisconsin River portage, they were notorious for demanding tribute from those who traveled the route. They were also fond of "taking" pelts from neighboring tribes. French traders at Green Bay, tired of the hostile ways of the two tribes, formed an alliance with the Menominee, the Ottawas, and the Chippewas and forced the Sauk and Fox

Below: *Traditional Sauk and Fox summer lodge covered with tree bark. (Quad Cities Times Newspaper, Photo Archives.)*



from the area. Migrating to the Rock River in present day Illinois, the Sauk and Fox warriors in turn drove the Illini Indians from the Rock Island and Rock River regions.

In addition to defeating the Illini and nearly annihilating the entire Mascoutin tribe, the Sauk and Fox Indians also sent war parties out against the Menominees, the Sioux, the Pawnee, and the Osage, among others. Today, writers and local museum curators tend to emphasize the Sauk's planting, mining, and hunting skills rather than their fighting ability. However, the Sauk and Fox were proud of their reputation as fierce warriors.

American artist George Catlin referred to a Sauk village on the north banks of the Rock River as "Saug-e-nug" in his 1837 writings. This may explain the popular use of the term "Saukenuk" for the name of the village. Although neither tribe located its village on Rock Island, they frequently visited the island to gather berries, nuts, fish, and hunt game.

Black Hawk's British Band and the War of 1812

Sauk and Fox chiefs attempted to honor the 1804 agreement with the U.S. Government.

Below: Sauk warrior Black Hawk as painted by American artist George Catlin. The original painting by George Catlin is in the National Portrait Gallery, Smithsonian Institution, Washington, D.C. (AMCCOM-HO Archives).



However, when war broke out between the United States and Britain in 1812, a large band of Indians led by the Sauk warrior Black Hawk chose to fight as auxiliaries for the British. Black Hawk, also called Ma-Ka-Tai-Me-She-Kia-Kiak or "Black Sparrow Hawk" allegedly offered his services to American soldiers at Fort Madison; but the soldiers declined the offer. It was known that Black Hawk was displeased with the Americans at Fort Madison for refusing to extend him credit for winter supply goods. Therefore, when the British traders arrived at Rock Island, he readily welcomed them. These traders had a variety of gifts for the Indians and a confidential message for Black Hawk. The message, from a British colonel, urged Black Hawk to raise a war party and join the British force at Green Bay.

The British Colonel was Robert Dickson, a British trader active in recruiting Indians to aid the British in the War of 1812. He had long been a trader at Prairie du Chien.

Black Hawk raised the war party, traveled to Green Bay, and for a time fought as an ally of the

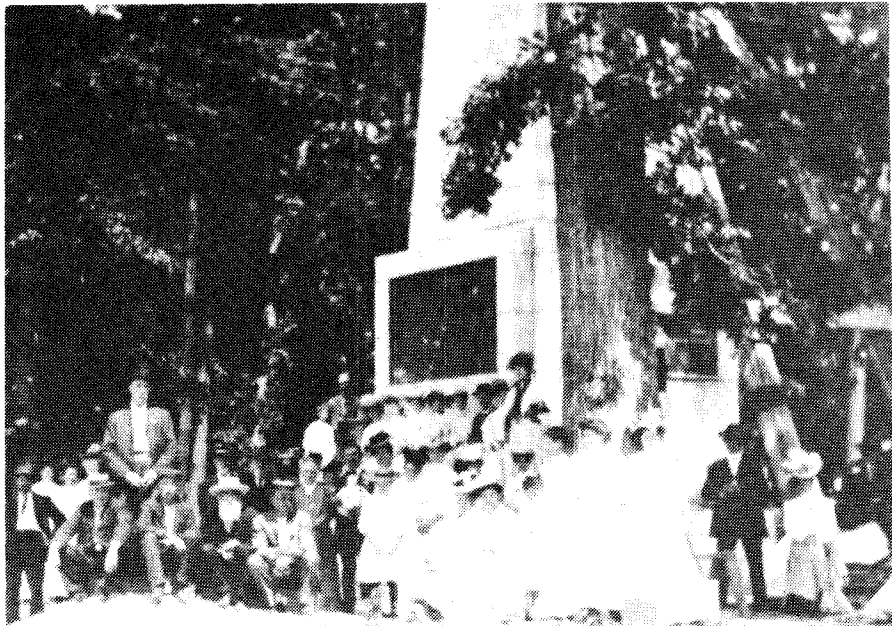
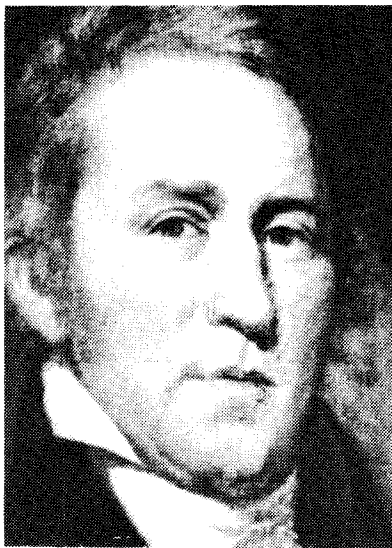
British during the War of 1812. Despite his desire to wage war down the Mississippi Valley, the British instructed Black Hawk to fight with their troops near Detroit. Black Hawk and his Sauk warriors were present during the Fort Dearborn Massacre of 15 August 1812. However, after initial success, the fighting did not go well for the British, and Black Hawk returned to his village on the Rock River.

Though he returned to the village, Black Hawk remained hostile toward the United States. On three occasions during the War of 1812, Black Hawk led Sauk warriors against U.S. military forces attempting to journey up river from St. Louis.

Governor William Clark of the Missouri Territory, and famous partner of the explorer Meriwether Lewis, organized the first expedition from St. Louis in 1814. Clark intended to build a fort near Prairie du Chien to protect American fur traders in the upper Mississippi River Valley, and to create a buffer protecting St. Louis from British and Indian attack via the Mississippi

Below: William Clark, Governor and Superintendent of Indian Affairs for the Missouri Territory. He supervised the U.S. Indian agents at Fort Armstrong. (Hauberg Museum, Black Hawk State Park)

Right: The 1905 dedication of the Illinois State Memorial commemorating the 1814 Battle of Campbell's Island. (Rock Island County Historical Society)



River.

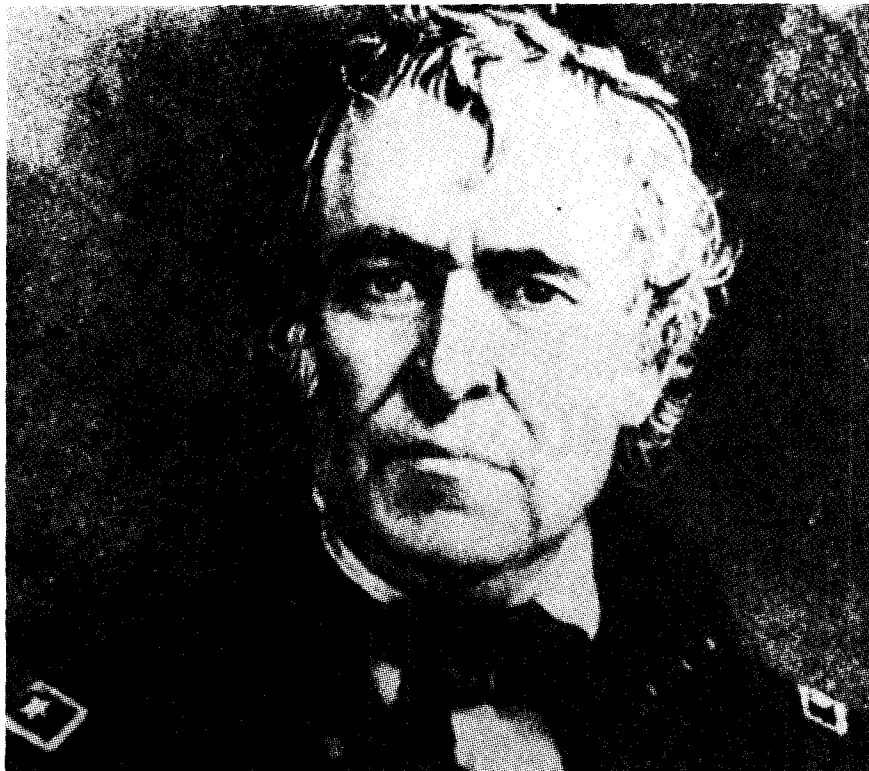
With the exception of a skirmish with Sauk Indians near Rock Island, Clark's expedition uneventfully made its way up river to Prairie du Chien. At Prairie du Chien, Clark's men erected a stockade and named it Fort Shelby. The detachment of American troops left behind at Fort Shelby were attacked by the British, forcing them to abandon Fort Shelby and return to St. Louis. As they returned to St. Louis, the troops were again fired on by Sauk warriors as they passed Rock Island.

An earlier attempt by American soldiers to strengthen the garrison at Fort Shelby also failed. Lieutenant John Campbell, with three keelboats loaded with 133 regular army and volunteer soldiers, embarked from St. Louis in early July 1814 for Prairie du Chien. On 19 July, Campbell's expedition departed Rock Island and immediately encountered bad weather. Forced ashore on an island six miles upstream from Rock Island, Campbell's vessel came under attack by Indians. Black Hawk and

other Sauk warriors had been trailing the three boats and ambushed the stranded craft. Lieutenant Campbell and several members of his crew escaped to another vessel. *The National Intelligencier* of August 1814 stated the number of killed and wounded in this engagement to have been thirty-six. Lieutenant Campbell and surgeon's mate Dr. Abraham Stewart were among the wounded.¹³ Black Hawk pillaged the abandoned keelboat, while Sauk braves scalped the mortally wounded and the dead left behind. Later, according to Black Hawk's own account of this incident, the Sauk warriors "put on the clothes of the dead soldiers and danced over their scalps". Black Hawk's account of this incident is recorded by Antoine LeClaire, a government interpreter and prominent businessman of the Rock Island area. According to LeClaire, Black Hawk stated that he gave the books and papers found on Campbell's boat to British soldiers.

Lieutenant Campbell's boat, partially destroyed by fire, remained at the battle site and

Right: Colonel Zachary Taylor who in the War of 1812 unsuccessfully led U.S. forces against Sauk and Fox Indians at the Battle of Credit Island. Nearly twenty years later, Colonel Taylor would lead U.S. Infantry Regulars to victory over Sauk and Fox Indians in the Black Hawk War of 1832. Eventually, Zachary Taylor would become the twelfth President of the United States. (AMCCOM-HO Archives)



for years was a landmark for river boats. Since this historic battle, the island has been referred to as Campbell's Island. The Illinois state legislature, around 1904, appropriated \$5,000 for a monument to be placed on Campbell's Island in commemoration of those who fought and died in the battle.

Zachary Taylor and the Battle of Credit Island

During the War of 1812, Zachary Taylor, later the twelfth President of the United States, led a reprisal attack against the Sauk of the Rock River region. In September 1814, as a Brevet Major, Taylor left St. Louis with 334 men, primarily militia and rangers, but also including a few regular army soldiers. His mission was to undertake a retaliatory strike against the Sauk to punish them for their attacks on the earlier American expeditions of Governor Clark and Lieutenant Campbell. However, before he could attack, his vessels were discovered. British artillery placed on Credit Island and Sauk musket fire riddled Major Taylor's vessels, forcing them to retreat back to St. Louis. Lieutenant Duncan Graham was the officer-in-

charge of the British troops who aided the Indians. Sergeant John Keating of the Royal Artillery Regiment earned a commission as a lieutenant for his efforts in the Battles of Credit Island and Fort McKay. Besides providing artillery, the British had gathered a large war party with Indians from other pro-British tribes to aid the Sauk and Fox in their fight against the Americans. Greatly outnumbered, there was little more Zachary Taylor could do but retreat.¹⁴

British Control of the Upper Mississippi River Valley

The rivalry between Great Britain and the United States for dominance over the Indians of the Northwest was a contributing factor to the War of 1812. The British in Canada, acting in their own self-interest without regard to the safety of Americans, began supplying arms and ammunition to Indians known to be hostile toward Americans. Congress considered British support of the Indians as one of the reasons for declaring war against Great Britain.

During the War of 1812, Great Britain temporarily gained control of the upper

Right: Sauk warrior Black Hawk was the leader of the last hostile Indian uprising in the State of Illinois, known as the Black Hawk War of 1832. Black Hawk stated that Rock Island supplied his tribe with fruits, nuts, and plenty of fish from the rapids. He said he spent happy times on the island and that a good spirit lived in a cave in the rocky bluffs beneath the fort. "But the noise of the fort has since driven him away and no doubt a bad spirit has taken his place."
Black Hawk's Autobiography
(AMMCOM-HO Archives)



Mississippi River Valley and the Great Lakes region of the Illinois Territory. American authority in the territory north of Fort Edwards collapsed. (The location of Fort Edwards is cited on the map on page 18). The war ended with the British in control of all the U.S. forts and the U.S. Government trading factories in the Illinois Territory above a line that stretched from Fort Edwards to Peoria.

Pro-British sentiment remained strong among some of the Indians of the Northwest after the war. Indians such as the Sauk and Fox continued to trade with the British after the War of 1812 and, as late as 1820, Sauk warriors such as Black Hawk continued to make their annual pilgrimage to Fort Malden, Canada, to receive presents during their visit with their "British Father." Five years after the end of the War of 1812, some Indians, such as the Sauk of Rock River, continued to display the British flag and British medals in their village. The British in Canada had cast a special silver medal to honor Black Hawk for efforts during the war.¹⁵

Major Morrell Marston, while commanding officer of Fort Armstrong, wrote to Jedediah

Morse in November 1820 that he considered it important that, as soon as possible, the government should exchange all British flags and medals the Indians had in their possession for American ones. He also wrote that the flags given to them ought to be made of silk which would make them as durable and portable as the British flags. According to Major Marston, these American flags should be large to match the size of the British flags.¹⁶

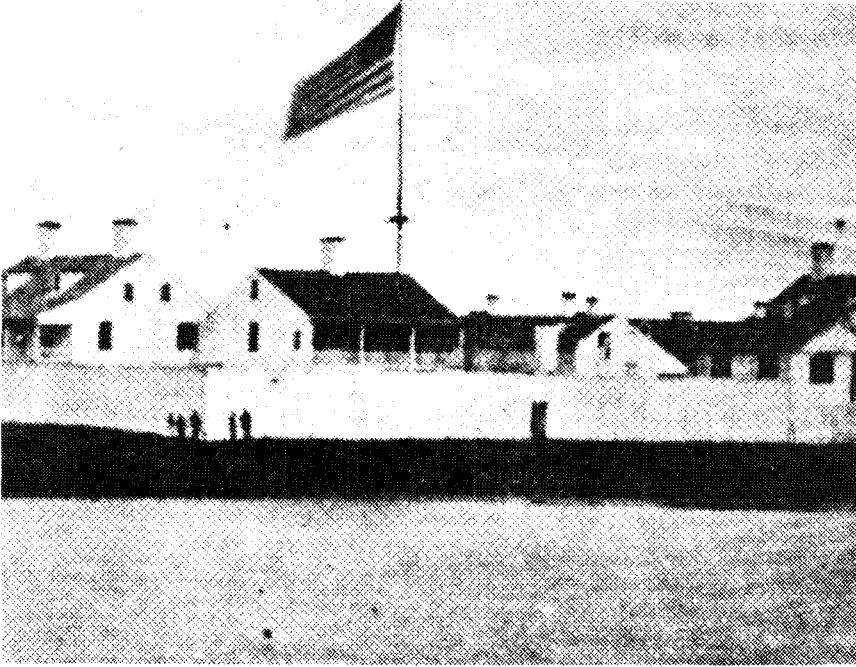
Treaty of Portages des Sioux

Though Black Hawk's warriors had been successful in thwarting American expeditions up river from St. Louis, the war was not totally successful for the British. On 24 December 1814, the War of 1812 concluded with the signing of the Treaty of Ghent. Though peace with the British was achieved, such was not the case with their Indian mercenaries or allies.

However, in 1815, President James Madison appointed Missouri Territorial Governor William Clark, Illinois Territorial Governor Ninian Edwards, and Auguste Chouteau, a St. Louis fur trader, as commissioners to negotiate treaties

Below: Often government trading factories were established at military posts. (Fort Howard at Green Bay was one such post. (AMCCOM-HO)

Right: A typical fur trader of the Northwest Territory. (Augustana College Library Special Collections)



with the principal tribes who aided the British during the War of 1812. Nine months later, in September 1815, the U.S. signed a separate peace treaty at Portages des Sioux with all but a few of the Indians who had fought for the British. Instead of attending the peace conference, the Sauk of the Rock River sent messengers to Canada to meet with the British. However, the messengers returned without a promise of aid from the British. Receiving no support from the British and fearing an attack by American troops, the Sauk of the Rock River agreed to peace terms in St. Louis on 13 May 1816. The treaty approved by Sauk leaders, including Black Hawk, reaffirmed the United States Government's claim to Sauk and Fox Indian lands according to the terms set down in the treaty of 1804.

Government Trading Factories

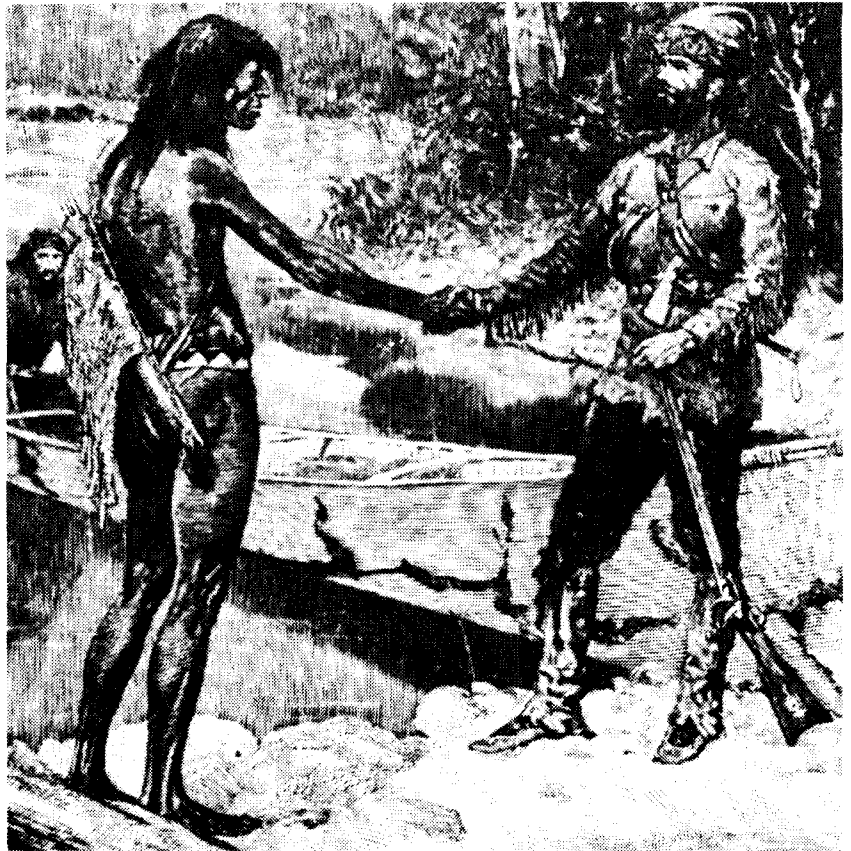
As early as 1795, 17 years before the War of 1812, the U.S. Government devised a plan to reduce the presence of private traders upon the Indians of the Mississippi River Valley. The Federal Government established a system of government trading factories and trading posts

in the Northwest. These government owned and operated trading houses made the Indians more economically dependent upon the United States, and by doing so, diminished the influence of foreign traders upon them. The government intended the trading factories to also provide the Indians with a more equitable deal than they had been receiving from private traders, especially the unscrupulous ones.

Unfortunately, the government trading factories were ineffective and too costly to maintain. They had higher overhead than the private traders, which may account for the fact that the government prices were usually higher than those of the private trader. In addition to being more expensive, the quality of the government goods was reported to be inferior to those of the private trader. The Indians continued, however, to trade with foreign agents and private American traders, though ostensibly under government control.¹⁷

A note written by Major Morrell Marston, the commanding officer at Fort Armstrong on Rock Island from August 1819 - June 1821, best expressed the Indian attitude toward attempts by the U.S. Government to compete with private

Right: Private traders regularly traveled to the Indian villages with their trade goods, contrary to the practice of government traders, who operated trading posts known as factories. (Augustana College Library Special Collections)



traders for their Indian trade. According to Major Marston, a typical reply by Indians in his vicinity, when informed that the President of the United States supplied the trade goods at the government trading houses, was:

You are a pasi-i-to (a fool), our Great Father is certainly no trader; he has sent those goods to be given to use, as presents, but his agents are endeavoring to cheat us, by selling them for our peltries.¹⁸

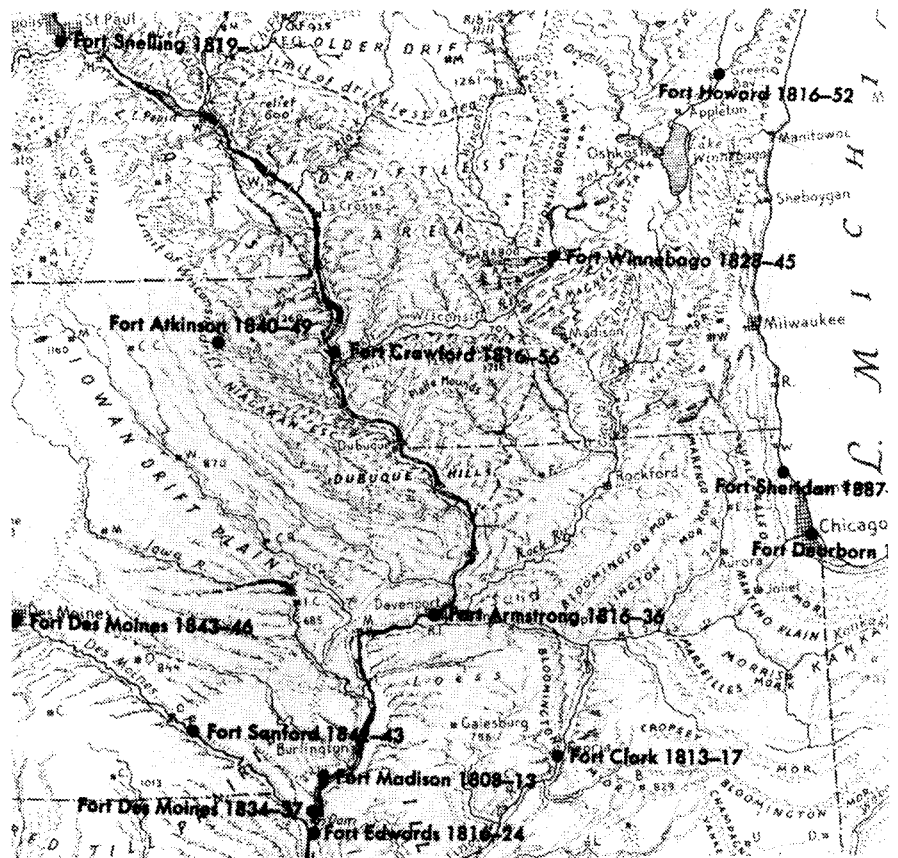
After the War of 1812, the U.S. Government reestablished trading factories at Prairie du Chien, Chicago, and Green Bay. In 1818, for example, the government added a trading house at Fort Edwards and, in 1819, it was operating independently. The high traffic of liquor traded to Sauk and Fox Indians between the region of Fort Edwards and Rock Island led to the establishment of the federal trading factory at Fort Edwards. The trading of liquor to Indians, though illegal, was however commonly practiced by French, Spanish, English, and American Traders. As an aside, Indians of the upper Mississippi Valley purportedly traded anything they possessed for whiskey. Those

Indians supposedly bartered away an entire season's worth of pelts, clothing off their backs, their weapons used for hunting, and their women, to traders for liquor.¹⁹

At the factories or trading posts, furs were sorted as to grade and quality, and treated and pressed into bales in preparation for shipment. Trading houses, such as the Fort Edwards factory, shipped pelts and skins of deer, bear, beaver, otter, raccoon, and muskrat down river to St. Louis. During the winter season of 1819, the Sauk and Fox Indians supplied five traders with nine hundred and eighty packs of peltries. They consisted of 2,760 beaver skins, 922 otter, 13,440 raccoons, 12,900 muskrats, 500 mink, 200 wild cats, 680 bear skins and 28,680 deer peltries. The estimated value of the furs was cited at \$58,000 dollars.²⁰ A manager supervised each factory and, at times had a staff that included clerks, laborers and interpreters.

Government trading factories were too few and scattered to have had any effective impact on the fur trading business of the Northwest. The government estimated that during their peak years the factories only handled 10 percent of the fur business. Indians saw little advantage in

Right: Fort Armstrong, Fort Edwards, Fort Crawford, and Fort Snelling formed a chain of military posts, built along the upper Mississippi River, in 1816-1819. The U.S. Army constructed them to control the Indians and their trade, and to keep the river open to commerce. (AMCCOM-HO)



trading at the factories. It was more convenient for them to deal with private traders who traveled to their villages than to transport their pelts on a long journey to one of the scattered government trading houses. In addition, the government trading factories did not extend credit or offer liquor. Government trading factories eventually lost out to the powerful American Fur Company of John Jacob Astor and were abolished in 1822.

Act of 1816 and the American Fur Company

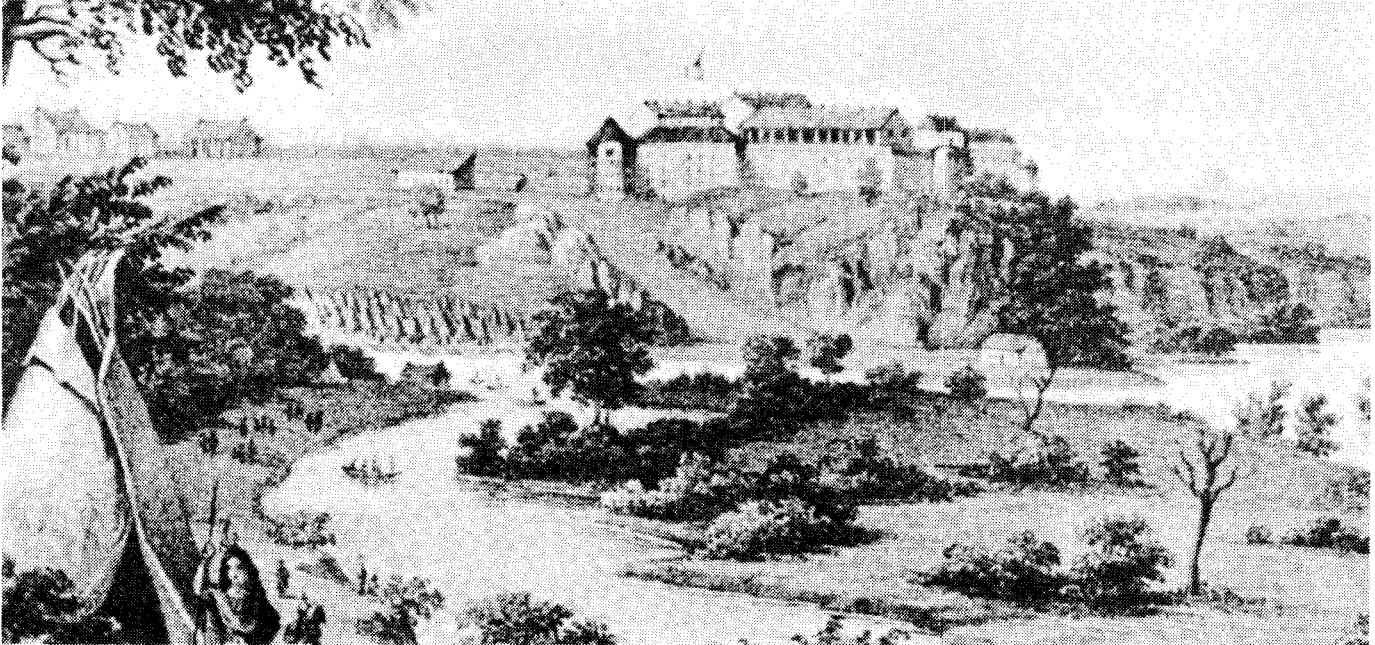
Congress passed the Act of 1816 that prohibited foreigners from engaging in trade with the Indians on American soil. John Jacob Astor, the leading American fur trading entrepreneur, lobbied for the passage of the bill. After securing the legislation, Astor immediately expanded the American Fur Company and set into motion his plan to control the entire fur trading business within the United States. He purchased the remaining third of the Southwest Company which he had earlier formed with Montreal merchants, thus making him the sole owner. Astor then acquired a number of trading posts of the British Northwest Company, which

were on American soil in the Great Lakes region of the United States, and secured the services of the best traders in the upper Mississippi River Valley and Great Lakes region in his effort to corner the fur trade. The beginning of the American Fur Company's operation in the Northwest in 1817 coincided with the army's establishment of a series of military posts throughout the region. Two agents of the American Fur Company in the Rock Island vicinity were Colonel George Davenport and Russell Farnham, both of whom played significant roles in Rock Island's history.

Army Establishes U.S. Authority in Valley

The War Department, acting in support of the Fur Trading Act of 1816, began that same year to reassert its authority over the Northwest. The U.S. Army planned to construct a chain of military posts through the upper Mississippi River Valley and the Great Lakes region. The purpose of constructing these posts was twofold: the forts provided safety for American fur traders; and, at the same time, prevented British and French-Canadian traders from operating in the area.

Below: Fort Snelling, built in 1819, was originally named Fort Saint Anthony Falls. In 1824, it was renamed for its first commander Josiah Snelling. The fort was situated on a high bluff at the confluence of the Minnesota and Mississippi Rivers. The construction of Fort Snelling completed a series of U.S. forts built to reestablish United States control of the upper Mississippi River Valley. Today, it is a historical site of the Minnesota State Historical Society. Fort Armstrong, at Rock Island, was another of these posts built after the War of 1812. (AMCCOM-HO)



During the period from 1816-1819, the United States Army reconstructed Fort Dearborn near Chicago, built Fort Howard at Green Bay, and constructed Fort Crawford at Prairie du Chien. These forts effectively prevented foreign traders from using the Fox River-Wisconsin Waterway portage to enter the Mississippi River Valley. In addition to Fort Crawford, two smaller posts were constructed in 1816-1817. They were Fort Armstrong at Rock Island and Fort Edwards at the mouth of the Des Moines River. In 1819, Fort Snelling, constructed at the confluence of the Minnesota and Mississippi Rivers, completed the series of forts along the upper Mississippi River Valley.²¹ The army strategically placed the forts where it did to impress the Indians and monitor their trade. Government Indian agencies were also frequently established at or near these military posts.

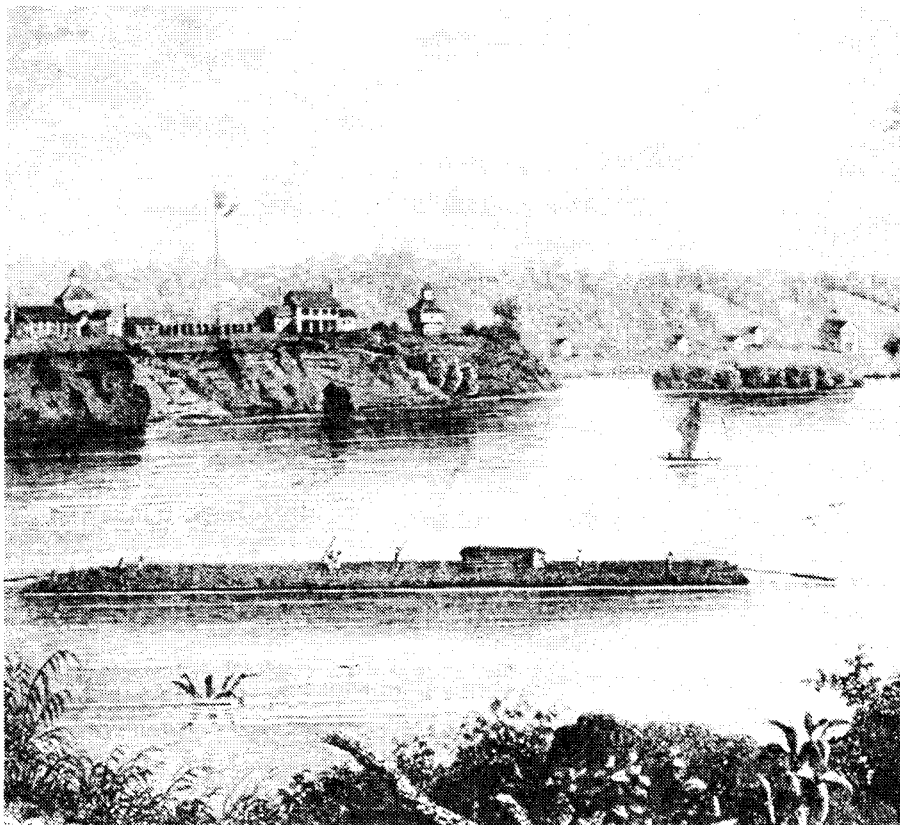
Indian Agents

Indian agents and their subordinate agents were the official civilian representatives of the U.S. Government at many of the forts of the upper Mississippi River Valley. Agents, such as

Thomas Forsyth at Fort Armstrong, provided a communication link between the Sauk and Fox Indians and the Federal Government. The duties of Forsyth and his subagents included administration of the government's treaty obligations such as the payment of annuities to the Sauk and Fox tribes. Forsyth's other duties included granting licenses for trade with the Indians; enforcing regulations pertaining to the fur trade; distributing presents to principal chiefs; and receiving visiting Indians. Indian agents also performed the difficult task of explaining new government regulations and correcting Indian misconceptions of past treaties.

An example of an Indian agent performing such duties occurred in 1818, when agent Thomas Forsyth informed the Sauk and Fox tribes that the annuities they had been receiving were not presents but actually part of the purchase price for their lands. Although many Indians continued to accept the annuities, some did not. Black Hawk among others, refused to receive any annuities after hearing Forsyth.²²

Right: *Fort Armstrong, active 1816-1836, was situated on the northwest corner of Rock Island, strategically placed to control both channels of the Mississippi River. (AMCCOM-HO Archives)*



CHAPTER TWO FORT ARMSTRONG: THE FIRST PRESENCE OF FEDERAL GOVERNMENT ON ROCK ISLAND

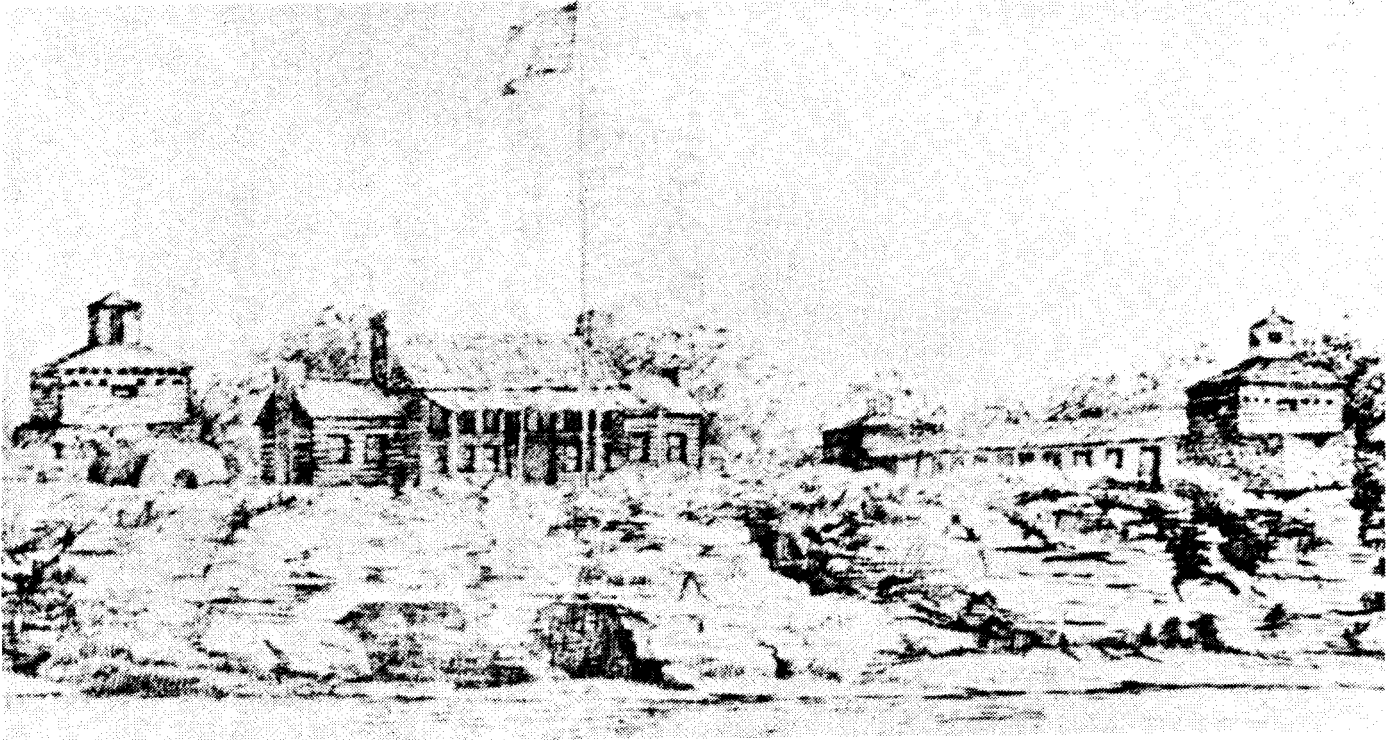
In the spring of 1816, Brevet Brigadier General Thomas A. Smith was dispatched from St. Louis to Rock Island. As earlier mentioned the War Department instructed the army to build a number of military posts on the upper Mississippi River to deter British and other foreign trading outfits from operating in the river valley. General Smith, remembering the defeats inflicted upon U.S. expeditions by Sauk and Fox Indians, selected Rock Island as a site for one of the forts.²³

Brigadier General Smith arrived at Rock Island in early May 1816 and chose the western tip of the lower end of the island as the construction site for the fort. From this site U.S. troops could observe the troublesome Sauk and Fox Indians; protect American fur traders; be kept apprised of any foreign intrigues; and keep open a line of communication and commerce to Prairie du Chien and other posts further up river.

On 10 May 1816, a detachment of troops from the U.S. 8th Infantry landed on the island and immediately began building a fort. Shortly thereafter, General Smith and a detachment of troops proceeded up river to construct Fort Crawford at Prairie du Chien. In General Smith's absence, Colonel William Lawrence assumed command of the construction site at Rock Island and, upon completion, the fort at Rock Island was named Fort Armstrong in honor of John Armstrong.

John Armstrong had been an army officer in the American Revolutionary War and later served as United States Secretary of War during President James Madison's administration. His role in the U.S. invasion of Canada during the War of 1812, coupled with the British retaliatory capture of Washington and their burning of the capital, led ironically to Armstrong's resignation as Secretary of War in 1814.

Below: View of Fort Armstrong. Note the absence of fortified walls on the sides facing the river. The 25' to 30' high bluffs provided sufficient protection. Also noticeable are the caves beneath the bluff that Black Hawk referred to in his autobiography. (AMCCOM-HO Archives)



Description of Fort Armstrong

In many respects Fort Armstrong represented the army's stock plan for building military posts on the western frontier. It had squared hewn timbers with dovetailed corners; and its blockhouses had an overhang and a monitored roof which provided a lookout station. Usually, buildings such as the barracks, which were made from hewn timber, formed the exterior walls of the fort. Noticeable was the fact these buildings had inward sloping shed-type roofs.

At many of the frontier military posts, pickets were stationed to guard against surprise attacks. In 1817, the army assigned Major Stephen H. Long, a topographical engineer, the task of charting the Mississippi River as far north as

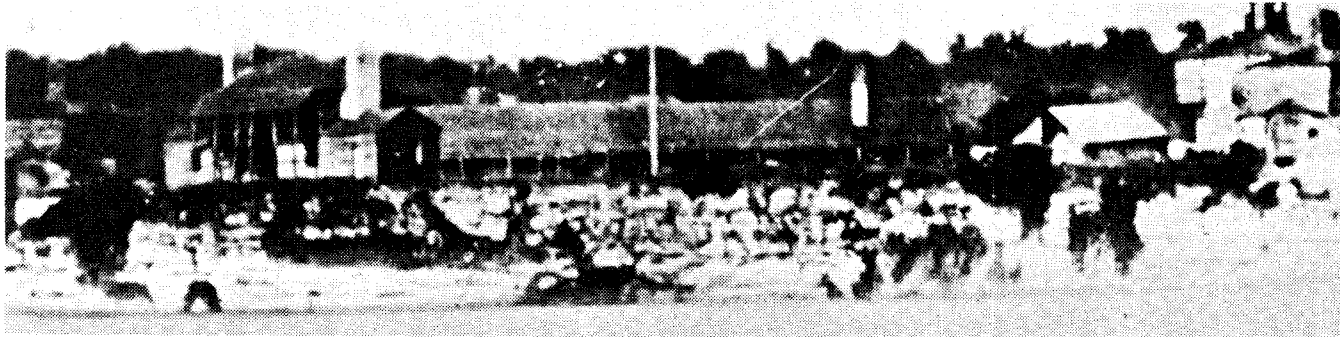
Prairie du Chien. On 2 August 1817, Major Long wrote in his journal probably the best description of Fort Armstrong. He wrote:

The Fort (Armstrong) is situated immediately upon the lower extremity of Rock Island, at which place the shores are perpendicular cliffs of limestone 30 feet high. In some instances the cliffs project over their base and even some parts of the Fort overhang the water.

Major Long elaborated with the following detailed description of Fort Armstrong:

The Fort (Armstrong) has two entire faces only, the other two sides being sufficiently fortified against an assault by the cliffs before mentioned. The

Below: Fort Armstrong, about 1845, probably during its last days as an army depot. Note that the fort had three blockhouses with the one towards the interior being the largest. (AMCCOM-HO Archives)



east face commences immediately upon the top of the cliff, where here is a Block (No. 1) 2 stories high and 21 feet square. The front upon this side is 277 feet including a Block House (No. 2) at the NE corner of the Fort 26 feet square. The North face forms a tight angle with the east and extends from Block House No. 2 to the North Channel of the River, where it is terminated by Block House No. 3 of the same dimensions as No. 1, presenting a front of this side of 288 feet. Both faces are flanked by Block House No. 2, the other Block Houses being placed in such a manner as to form a part of the Front of the two faces. The Block Houses are all two stories high, their second stories being placed diagonally upon the first. No. 2 has also a basement story which is used as a store house. The faces are made up principally by the rear walls of the Barracks and store houses. They are about 20 feet high and furnished with two rows of loop holes for muskets. The spaces between the buildings are fortified by walls of stone about 8 feet high supporting a breast work of timber 5 feet high.

The buildings ranged along the Faces contain 7 rooms 20 feet square upon each side; 8 of which are occupied as soldiers quarters, 3 as hospital, 2 as store houses, and 1 as Guard House. On the south and west

sides detached from other parts of the works are situated 2 other buildings (one word illegible) 64 feet long & 16 wide, containing four rooms each, designed for officers quarters. In the SW corner is a 2-story building with low wings designed as quarters for the Commanding Officer and Offices for the use of the Garrison. The body of the building is furnished with Piazzas on both sides, and the whole combines a degree of taste and elegance worthy of imitation at all other military posts in this part of the country.

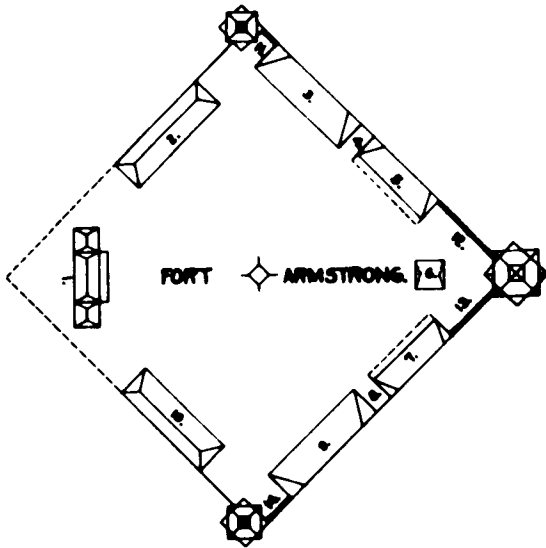
The works are constructed principally of square timber, the lower part of the block houses including embrasures (an opening for a gun in the wall or parapet) is of stone. The Magazine also is of stone, 7 by 10 feet in the clear, its walls 4 feet in thickness. Besides these, there are a few other buildings outside the Garrison, viz. a smith shop, sutler's and contractor's stores, a stable, etc.²⁴

Fort Armstrong's strategic position on the western tip of Rock Island's lower end provided the fort with command of both channels of the Mississippi River. Troops constructed fortifications only on the two sides of the post facing inland. Steep bluffs eliminated the need for two fort walls and one blockhouse. The three block houses of the fort anchored the walls which faced the interior of the island, and three companies of infantry were quartered in the barracks. Additional buildings housed the fort's

Below: Excerpted from a report by Major Morrell M. Marston, Fort Armstrong Commander, 1819-1821, to Major General Macomb, dated September 10, 1819. Note that Major Marston's report refers to the three blockhouses being equipped with three 6-pounders (cannons). (AMCCOM-HO)

EXTRACT FROM THE REPORT OF MAJOR M. MARSTON, OF THE 5TH REG'T
TO MAJOR GEN'L MACOMB— COMMANDING 5TH MILITARY DEPARTMENT.
DATED, FORT ARMSTRONG, ROCK ISLAND,
SEPT. 10TH 1819.

THIS FORT IS ABOUT 270-FEET SQUARE, WITH THREE BLOCK HOUSES, MOUNTING THREE 6 POUNDERS. THE BARRACKS ARE WELL CONSTRUCTED OF HEWN TIMBER, AND ARE SUFFICIENTLY EXTENSIVE TO QUARTER THREE COMPANIES. THE MAGAZINE IS OF STONE AND WELL BUILT. THE COMMANDING OFFICER'S QUARTERS CONSIST OF A CENTER TWO STORY BUILDING 28 FEET IN LENGTH, WITH WINGS OF ONE STORY 18 FEET IN LENGTH, AND PIAZZAS BUILT IN FRONT AND REAR. THE FORT IS BUILT ON THE LOWER POINT OF ROCK ISLAND AND UPON A PERPENDICULAR BANK OF LIMESTONE OF ABOUT 25 FT. IN HEIGHT; IT COMPLETELY COMMANDS BOTH CHANNELS OF THE RIVER. THE GARRISON IS A GREAT CHECK UPON THE INDIANS IN THIS COUNTRY AND FROM ITS CENTRAL SITUATION, IT APPEARS TO ME TO BE A STATION OF CONSIDERABLE IMPORTANCE: AN EXPRESS COULD REACH THIS IN TEN DAYS FROM COUNCIL BLUFFS, ON THE MISSOURI, AND IN THE SAME TIME FROM THE MOUTH OF THE RIVER ST. PETERS, AND FROM FORT DEARBORN, AND IN FIFTEEN DAYS FROM FORT HOWARD, AND FIVE FROM ST. LOUIS. THE SOIL OF THIS ISLAND APPEARS TO BE GOOD, AND IT CONTAINS A GOOD SUPPLY OF WOOD FOR FUEL AND OTHER PURPOSES. THERE IS ALSO AN EXCELLENT SPRING OF WATER ABOUT ONE HUNDRED YARDS FROM THE GARRISON. THERE IS ABOUT FORTY ACRES OF LAND IN THE VICINITY OF THE GARRISON CLEARED AND FIT FOR CULTIVATION.



SCALE 64 FT. TO AN INCH.



surgeon, interpreter, Indian agent, blacksmith, servants, officer, and commandant.

The Garrison at Fort Armstrong

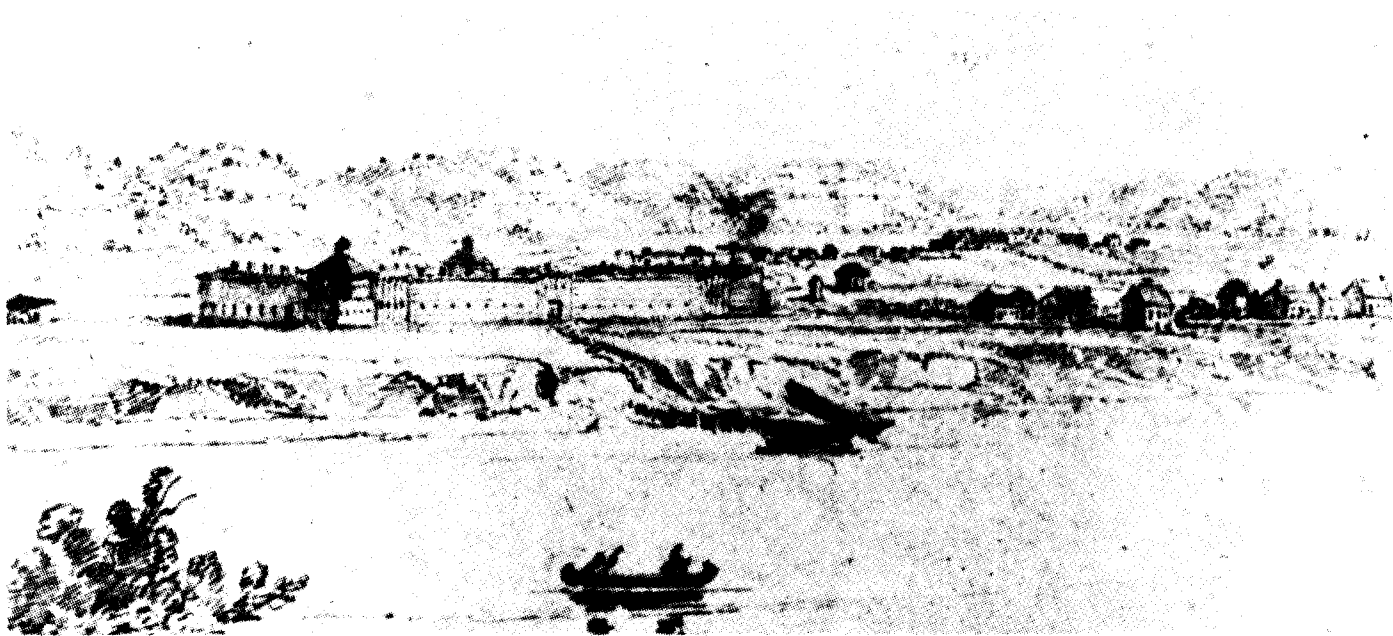
Nearly 1,000 men comprised General Smith's expedition, which constructed military posts near the mouths of three major tributaries to the Mississippi River. The expeditions were composed of 800 regular army soldiers and 150 laborers, which actually comprised at that time approximately 1/10 of the nation's standing army.²⁵

During construction, Fort Armstrong had a garrison of 600 soldiers; but, shortly thereafter its number was reduced to less than 200 troopers. Frequently, between 1824-1836, the garrison at Fort Armstrong fell below 100 soldiers.

Fort Crawford, located near the mouth of the Wisconsin River, had a garrison strength of approximately double the size of Fort Armstrong. Fort Edwards, the first of the three posts to be constructed, was situated near the mouth of the Des Moines River at the site of the present community of Warsaw, Illinois, and generally had a smaller garrison than Fort Armstrong. Its garrison strength consistently numbered below 100 men. In 1824, the U.S. Army closed Fort Edwards. However, Fort Armstrong continued as an active military post until 1836 and an army garrison remained at Fort Crawford until 1856.

The initial site selection of Fort Crawford, near Prairie du Chien, was poor. Spring floods forced the selection of a new site further back from the Mississippi River. Fort Crawford was abandoned briefly in 1826, but reestablished only a short time later with the construction of a new stone fort.

Below: Fort Crawford, near Prairie du Chien, Wisconsin, at the confluence of the Wisconsin River and the Mississippi River. Spring floods forced the selection of a new site farther back from the river. The post was abandoned briefly in 1826, but with the increasingly hostile Indian situation a new stone fort was constructed. (Davenport Public Library Special Collections)



The small army posts situated in the West, along the upper Mississippi River, were isolated from civilization especially during the winter months when the river froze over. Periodic stops by supply boats or mail couriers who arrived by river or by overland routes broke the isolation with news from the East. Each post, however, was also visited by an inspector general who attempted annually to conduct an inspection tour of all posts on the western frontier. His visits brought military discipline to the posts and raised the *esprit de corps* of troops whose spirit and training had eroded due to isolation and the lack of soldierly instruction.

From 1826 to 1845, Colonel George Croghan, a hero of the War of 1812, served as the inspector general of these outposts. Colonel Croghan annually toured the western frontier inspecting posts and preparing first hand comments of activities at the forts for inclusion in his official reports to Washington.

His inspection report of Fort Armstrong in August 1826 praised the post for the excellent deportment displayed by its soldiers. Colonel

Croghan attributed the discipline to the lack of whiskey available at Fort Armstrong during Major J.H. Vose's command. Major Vose enforced general orders which restricted each soldier's purchase of liquor to one gill ($\frac{1}{4}$ of a pint or four ounces). The four ounce daily ration from the post sutler was poured out at the mess hall door. Soldiers who received permission to purchase whiskey received a half-a-gill ration (two ounces) just before breakfast, and the remaining two ounces at dinner. Although general orders from the Adjutant General's Office restricted, then banned, the daily ration of alcohol at military posts, replacing it with coffee, the soldiers at Fort Armstrong and other installations managed to purchase a steady supply of liquor from other sources.²⁶

The life of a soldier at Fort Armstrong tended to be routine, especially during the winter months when the Mississippi River froze over and the river closed to navigation.

The soldiers, in addition to their military tasks of performing guard duty, drilling, and keeping the peace, served as carpenters, teamsters,

Below: A partial listing of the Commanding Officers of Fort Armstrong, 1819-1832. These officers commanded the fort during the events which led to the Black Hawk War of 1832. (AMCCOM-HO Archives)

FORT ARMSTRONG

| Commanding Officer | Date: From | To | Garrison: |
|---|------------------------------|-----------------------------|--|
| Capt. M. Marston, Fifth Infantry | Aug --, 1819 | Jun --, 1821 | Company F |
| Capt. S. Burbank, Fifth Infantry | Jun --, 1821 | Jun --, 1823 | Company D,E,F, and H |
| Maj. J. H. Vose, Fifth Infantry | Jun --, 1823 May 21, 1826 | Jun 4, 1825 Oct 9, 1827 | Company D,E,F, and H Fifth Infantry |
| Capt. J. Plympton, Fifth Infantry | Oct 9, 1827 | Apr 28, 1828 | Companies E and H Fifth Infantry |
| Capt. J. Green, Third Infantry | Apr 30, 1828 | Jun --, 1828 | Companies C and G Third Infantry |
| Capt. J. S. Nelson, Third Infantry | Jun --, 1828 | Aug 13, 1828 | Companies C and G Third Infantry |
| Capt. John Bliss Third & First Infantry | Jul 27, 1830 Sep 2, 1831 | Jul 26, 1831 May 4, 1832 | Companies D and H Third Infantry Companies C and K First Infantry |

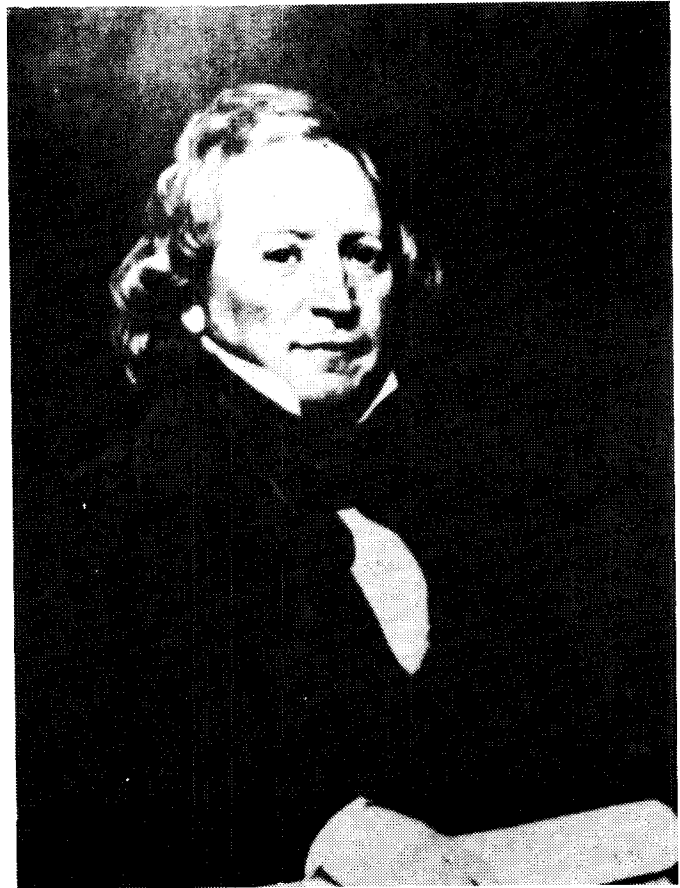
gardeners, hospital orderlies, blacksmiths, and livestock handlers. At times, a portion of the troops stationed at Fort Armstrong would be detached to either Fort Crawford or Fort Edwards. Soldiers also were frequently dispatched to the lead mining region near Galena and Dubuque. Officers stationed at Fort Armstrong, or at one of the other frontier posts in the Mississippi Valley, often went on furlough to escape the drudgery of frontier duty. Soldiers on furlough for more than a year without leave, however, were reported as deserting the army. Desertion and drunkenness among the troops were two of the more serious problems that the Commanding Officer of Fort Armstrong had to contend with on the frontier. Other problems included enforcement of regulations that prohibited foreign traders and the sale of alcohol to Indians. Periodically, soldiers who strayed

from the garrison were killed and scalped by Indians. One such soldier, John Haines, left Fort Armstrong alone to hunt on 27 September 1820. His body was discovered a week later, shot, scalped, and mutilated with multiple stab and club wounds. The army responded to such acts of violence by demanding that the responsible tribe, in this case the Winnebagos at Prophet's Town, turn over to them the guilty party. To ensure such action was taken, the army held five Winnebago chiefs as hostages until the murderers were delivered to them.

Colonel George Davenport and Antoine LeClaire

Two future entrepreneurs, George Davenport and Antoine LeClaire, became historically significant individuals. Davenport was employed as the post sutler at Rock Island and Antoine

Below: Russell Farnham, partner of Colonel Davenport. In 1826, they built an inn around which the village of Farnhamsburg, IL, developed. This site is now part of Rock Island, IL. (Hauberg Museum, Black Hawk State Park)
Right: Colonel George Davenport, foremost founder of Rock Island area. (AMCCOM-HO Archives)



LeClaire was hired as the interpreter for the Fort Armstrong commander and the Indian agent. Both of these men became prominent business leaders of the communities they later founded on each side of the Mississippi River opposite Rock Island.

In 1816, the army did not have a commissary department that provided personal items to soldiers. Instead, a private contractor was commissioned by the government to provide the items. George Davenport, as the agent for the private contractor, sold supplies to the soldiers stationed at Fort Armstrong. He had been a seaman, an army recruiting sergeant, and a post sutler. However, Davenport did not become wealthy until he started trading with the Indians. In 1818, he quit his post sutler position and devoted his time entirely to his Indian trade business. Davenport became a full-time trader the same year Illinois became the 21st state to be admitted to the union. In addition to his store on Rock Island, Davenport established several other trading posts in the area.

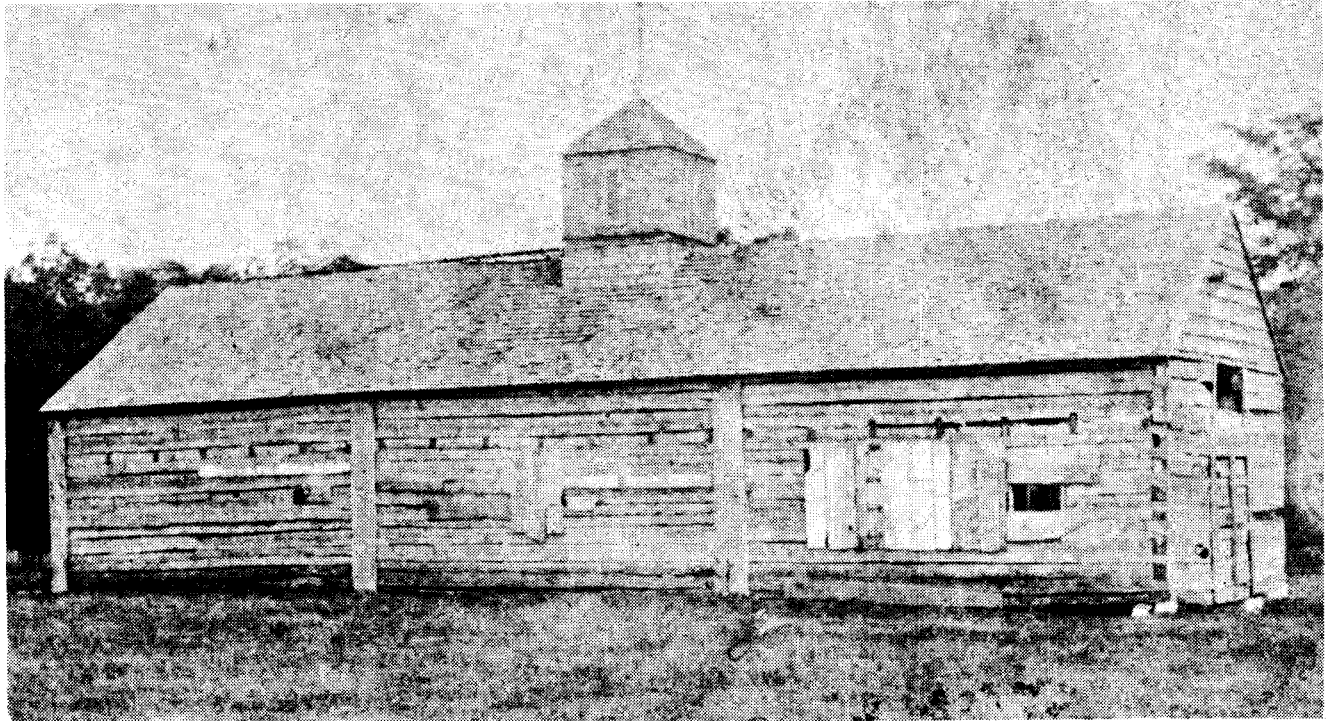
In 1822, George Davenport expanded his trading operations with various tribes of the

upper Mississippi River Valley. He established a trading post on the Fever River near Galena, Illinois. Colonel Davenport also set up trading houses at Flint Hills (Burlington, Iowa), at the mouth of the Iowa River; and on the Wapsipinicon (Wapsi) and Maquoketa Rivers in Iowa territory. He also included in his operations three trading posts along the Rock River in Illinois.

At Rock Island, George Davenport's double log cabin initially served as a combination trading post and quarters. Indians and early settlers frequently visited Davenport's cabin to receive provisions on credit. He provided them with "grub stakes" (credit) until they were ready to market their peltries or crops.

Considered by many to be the first white civilian to live on Rock Island, George Davenport was born in England and came to the United States as a young man. He used his English background to gain the confidence and trade of the Sauk, Fox, and Winnebago tribes. Wabokieshiek, also known as the Prophet, was leader of the Winnebagos camped on the Rock River at Prophet's Town. These Indians

Below: Double log cabin, Colonel Davenport's trading post and quarters on Rock Island. "Relic" of Fort Armstrong Series of stereoscope views by Western View Company. (AMCCOM-HO)



considered George Davenport as an Englishman and friend.

Davenport's wealth increased after he formed a partnership with Russell Farnham in 1824. In 1826, the two traders sold their trading business to Astor's American Fur Company and became agents for that trading company. Also in 1826, Davenport and Farnham built a combination inn, tavern, and stagecoach station, known as the John Barrel House, on the Mississippi shore at a site which was within the city of Rock Island. The station was part of a stage route to Galena from southern Illinois. The village of Farnhamsburg, one of two villages that formed the city of Rock Island, developed around that inn. The John Barrel House became the seat of justice for Rock Island County and was the site of the county's first election.

George Davenport capitalized on the increasing traffic between southern Illinois and Galena. A man of many talents, he piloted *The Virginian*; the first steamboat to dock at Rock Island through the "Upper Rapids" or Rock Island Rapids of the Mississippi River. The steamboat serviced the lead mining region of Dubuque and Galena. Soon Mississippi steamboats were frequently navigating the

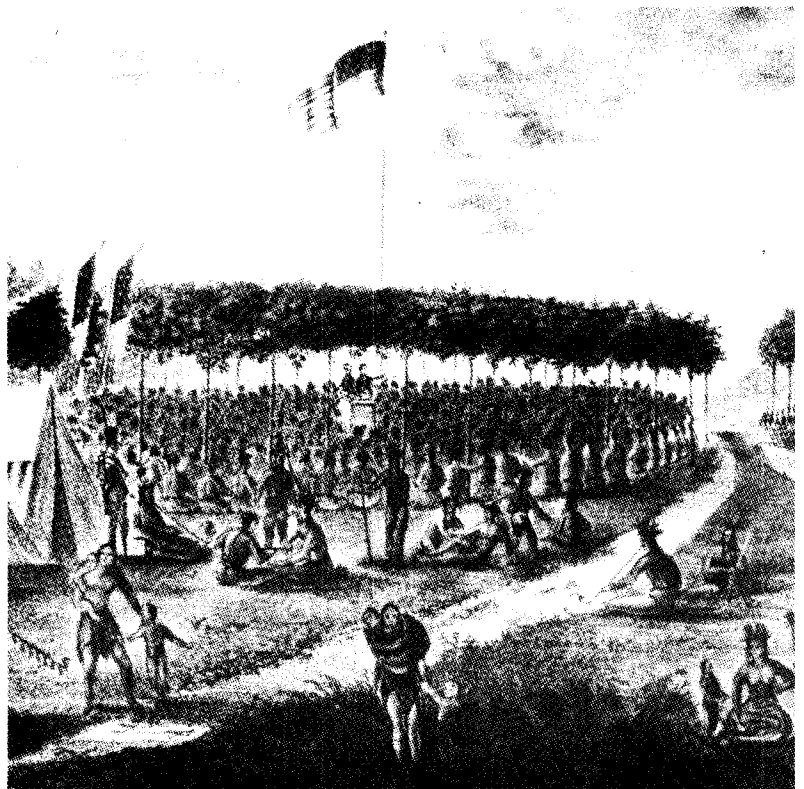
"Upper Rapids" carrying workers and supplies to this mining region. Lead diggings near Dubuque and Galena, approximately 100 miles upstream from Rock Island, increased the local economy. Traders, such as Davenport, had for several years acquired lead, as well as pelts by barter with the Sauk and Fox Indians. John Shaw, another trader who operated a trading boat between St. Louis and Prairie du Chien, also traded with the Indians for lead. By 1823, thousands of pounds of lead were being shipped downstream from the mines around Galena and Dubuque.

It was not long before settlers, speculators, and men looking for work made their way to these mines north of Rock Island. Not all of the traffic traveled by boat; many walked the trails across the Rock River Valley and along the Mississippi River to Galena. By 1823, a few of these travelers from southern Illinois settled as squatters on Sauk lands along the Rock River Valley. Since the land had not yet been surveyed or opened for public sale, these settlers were encroaching upon the Indians camped near the mouth of the Rock River.

Antoine LeClaire, post interpreter, was of French and Potawatomi Indian background, and

Below: Antoine LeClaire, part French and Pottawatomi Indian, was the U.S. interpreter at Fort Armstrong. Later, he became a prominent land developer and a prosperous resident of Davenport, Iowa. (Putnam Museum Davenport, Iowa.)

Right: Signing of the treaty of 1825 at Prairie du Chien. (Augustana College Library Special Collections)



acquired vast tracts of land from these Indians. He served as interpreter at treaty councils between the Sauk and Fox nation and the U.S. Government which took place in 1829, 1831, 1832, 1836, 1837, and 1842. From the treaty of 29 July 1829, Antoine LeClaire and wife Frances received two sections of land totaling 1,280 acres from the Sauk and Fox Indians. The LeClaire Reserve, another tract of land, was acquired by LeClaire after serving as interpreter during the 1832 Black Hawk Treaty. Davenport purchased this land from LeClaire, and at the head of the "Upper Rapids" or Rock Island Rapids laid out the town of LeClaire naming it in his honor. According to George W. Wickstrom's work, *The Town Crier*:

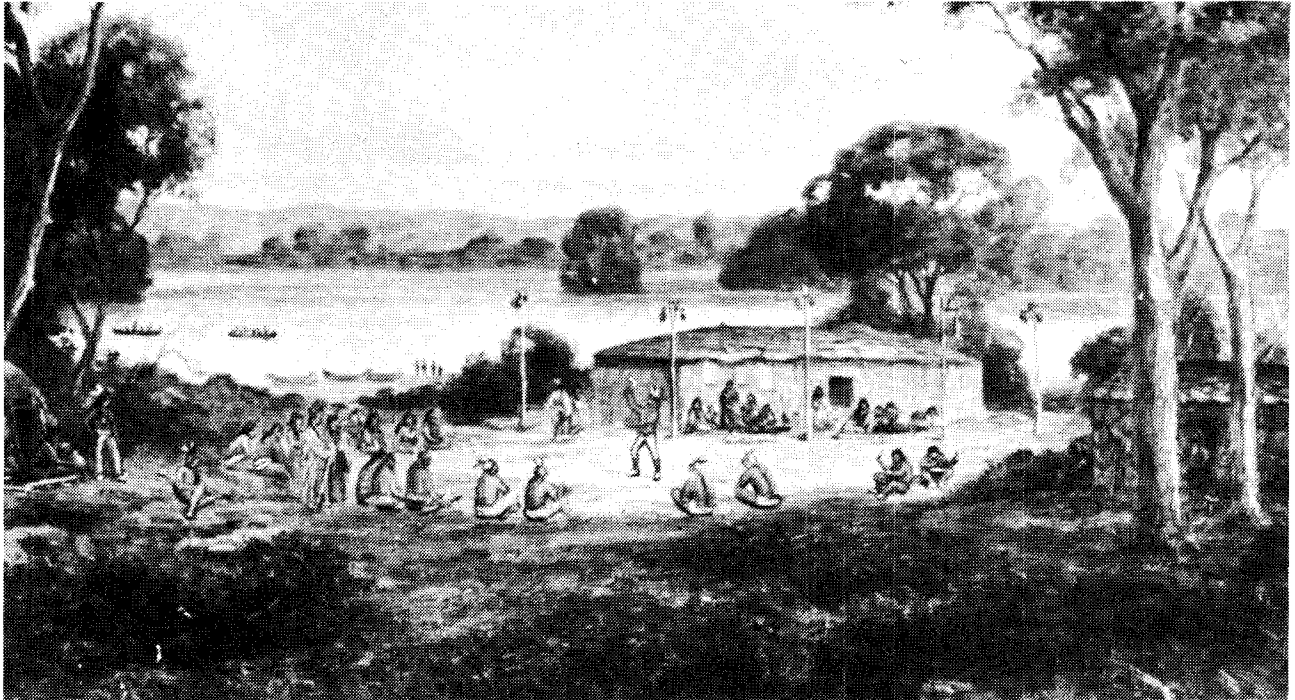
Colonel George Davenport and two other men who had an eye for a little quiet speculation in corner lots plotted a city in 1832 or 1833 where downtown Rock Island now stands. They laid out whole blocks for court, jail, churches, and a college, and they named the streets for the mighty men, white and red, who then lived in these parts.²⁷

In 1836, LeClaire and Davenport, along with a few other land speculators, founded the city of Davenport on the west bank of the Mississippi River opposite Rock Island. Colonel Davenport purchased an interest in the town site of Port Byron, Illinois, and later, in 1841, he laid out an addition to the city of Moline. Rock Island became the "cradle" of the Quad Cities. Much of the organizing and mapping out of these communities occurred at meetings held at the Davenport House located on Rock Island.

Impact of Intertribal Feuds Upon Rock Island Region

Intertribal squabbles and sporadic fighting took place among various tribes of the Mississippi River Valley which disturbed and frightened settlers near Fort Armstrong. Settlers were shocked by the ruthlessness of Indian intertribal warfare. Under the Indian code of conduct, no one of the enemy tribe was spared. Indian agents and commanders at Fort Armstrong and other military posts along the Mississippi River intervened constantly in intertribal feuds to prevent disputes from erupting into full scale frontier wars.

Below: Saukenuk, a Sauk Indian village which was once situated on the banks of the Rock River, near the confluence of the Rock and Mississippi Rivers. (Hauberg Museum, Black Hawk State Park)



In 1825, the U.S. Government attempted to arrange peace between warring Sioux and the Sauk and Fox tribes. According to Indian tradition, relatives of a murdered victim could demand payment in blood or “gifts” from the attackers to “cover” the loss of their dead relative. Government agents tried to develop a plan which eliminated the need for such avenging attacks. The government attempted to provide a peaceable solution to the problem. It agreed to cover the dead on both sides of the Indian conflict. Government officials considered such a procedure to be less expensive than mobilizing the army.

The plan, however, proved ineffective. Territorial encroachments by hunting parties continued to occur and many of the hunting parties returned to their villages with the scalps of their enemies.

Settlers feared an attack on the Sauk and Fox villages near Dubuque and Rock Island by the Sioux, Menominee, and Winnebago Indians might threaten their settlements. Captain Wynkoop Warner, a sub-agent at Fever River near Galena, attempted to ameliorate intertribal

warfare by inviting the Fox chiefs of the Dubuque and Rock Island vicinities to parley with Sioux, Menominee, and Winnebago forces. However 16 chiefs and 1 woman from the Fox village across from Rock Island were attacked by a war party of Sioux, Winnebago, and Menominee warriors while en route to the parley. The attackers spared one of the Fox chiefs so he could return to his village and tell the tale of the attacks. Again, as in other attacks, the massacre of the Fox leaders was in retaliation to earlier hostile acts performed by the Sauk and Fox against the Sioux.²⁸

The Sauk and Fox tribes prepared for war by mobilizing a force of approximately 1,000 braves. However, the Fox tribe camped near Dubuque, fearing an attack from the Sioux and their allies, evacuated its village and fled downstream to Sauk and Fox villages near Rock Island. As soon as the Fox village was abandoned, squatters from Galena took possession of the Indian diggings; however, federal troops drove off these intruders.

Government agents negotiated a treaty, in July 1830, with the feuding Indians that supposedly

Right: Next to Keokuk, Chief Wapello was probably the most influential leader among the Sauk and Fox Indians. (Hauberg Museum, Black Hawk State Park)



“covered” (provided payment for) the losses on all sides involved in the intertribal fighting. An interesting side note to the treaty was that the American Fur Company obtained a provision to the treaty whereby Sauk and Fox Indians were obligated to pay the debts they owed to Company agents, George Davenport and Russell Farnham, from the future sale of tribal lands to the United States.²⁹

Unfortunately, the intertribal warfare was not resolved by the treaty of 1830. Many Fox Indians felt the gifts they received to cover the loss of their dead chiefs had not been sufficient; besides, the desire for revenge was too great among many of the Fox braves. In August 1831, a combined Sauk and Fox war party massacred twenty-five Menominee camped at Prairie du Chien in retaliation for the previous slaughter of Fox leaders. When United States agents realized that their plan to prevent any future revenge raids by covering the dead on all sides would not prevent another series of retaliatory attacks, they called for military intervention. Winter prevented, however any immediate action by the United States Army. In the following spring, General Henry Atkinson, representing the United States Government, held a council at Rock Island in which he threatened to use military force, if necessary, to apprehend the braves involved in the attack on the Menominees. Keokuk and Wapello, two chiefs who were consistently friendly to the United States Government, agreed to the demand. The chiefs, however were not able to deliver more than three participants to the massacre. The others involved in the slaughter at Prairie du Chien had joined Black Hawk’s hostile band camped on the Rock River. The government did not press the issue any farther, fearing that a show of military force might drive more braves into the camp of

the hostiles. Many Sauk and Fox Indians were bitter against the Americans because their Fox leaders were killed while trying to comply to a request by the United States Government.

Encroachment by Squatters

Civilization steadily encroached on the Indians in Illinois. Though Illinois achieved statehood in 1818, much of the northern portion of the state had yet to be settled. By 1827, the lead mining community of Galena had become the county seat for the newly organized Jo Davies County, as a result of an increase in population. In that same year, a road linking southern Illinois with Galena was being surveyed and staked out. In the midst of this progress, the commanding officer at Fort Armstrong had to dispatch arms and ammunition to Galena to defend the settlement against an uprising of hostile Winnebagos. A show of military force by army regulars quickly put down the uprising. Illinois Governor Ninian Edwards, in response to the outbreak of Indian hostilities, petitioned the War Department to remove all hostile tribes, including the Winnebagos and the Sauk and Fox,

Right: Keokuk and his son.
(Hauberg Museum, Black Hawk
State Park)

from Illinois. The War Department, in turn, pressured Tom Forsyth, the Indian agent at Fort Armstrong, to convince the Sauk and Fox tribes that they should leave Illinois and relocate on the west bank of the Mississippi River. In the fall of 1828, Keokuk, spokesman for the friendly faction of the two tribes, persuaded many of the Indians to join him at a new camp situated on the Iowa River in what is now the state of Iowa. However, a smaller more militant faction led by Black Hawk remained at the Sauk village located on the banks of the Rock River. Eventually dissident Indians from the Fox and the Kickapoo tribes joined Black Hawk's band. Counting women and children, the hostile band numbered approximately 1,500 Indians. Keokuk's peaceful group included a majority of the Sauk and Fox braves and their chiefs, and the camp numbered approximately 3,500 Indians.

Black Hawk's band continued to live in Illinois and practiced their Indian traditions. After the crops had been harvested in the fall, the braves left their village on the Rock River to participate in their annual winter hunt. In the fall of 1828, and again in 1829, news spread throughout the state that Black Hawk's British band had left Illinois for good. A rumor also spread that the supposedly abandoned Sauk land would be offered for public sale by the Government Land Office. Soon squatters began to occupy some of the lodges and portions of the land near the Rock River village; but each spring, to their surprise, Black Hawk's band returned to the village. Black Hawk was astonished by the increasing number of settlers residing in the Rock Island vicinity. Disputes arose between the settlers and Indians over possession of lodges, cornfields, and land. The Indians resented their lodges being occupied or destroyed by squatters; their cornfields being fenced in and taken possession



of by these settlers; and their burial grounds being destroyed by the squatters plows. A clash between the Indians and settlers was inevitable as both sides continuously harassed one another. The Indian agent at Fort Armstrong received a steady stream of complaints from settlers and braves. Squatters were especially adept at writing petitions and letters of grievances. Governor Reynolds, upon receiving these written pleas for the removal of Black Hawk's British band from Illinois, wrote the War Department for assistance. He also called for a volunteer army of Illinois citizens to, if necessary, remove Indians by force.³⁰

Article seven of the 1804 treaty stated the Sauk and Fox Indians could remain at their Indian settlements for as long as the Federal Government possessed the land. Instead of dispatching troops to force an eviction, which would have violated the spirit of the 1804 treaty,

Below: Keokuk, rival of Black Hawk, was appointed Chief of Sauk Indians by Illinois Governor J. Reynolds and General W. Scott at the close of the Black Hawk War. (AMCCOM-HO Archives)



Right: Illinois Governor John Reynolds, organized the State Volunteers against Black Hawk's party.
(Hauberg Museum, Black Hawk State Park)



the Federal Government began to open portions of the Sauk land for public sale.

In October 1829, the U.S. Government Land Office opened for public sale the land in the vicinity of the old Sauk village. Colonel George Davenport and his partner, Russell Farnham, purchased 80 percent of this land. Black Hawk, believing he had the support of other tribes and the support of the British in Canada, threatened the settlers and demanded they leave.

The settlers were convinced the Sauk had formed an alliance with the Fox, Kickapoo, Potawatomi, and Winnebago tribes. Fearing an attack, the settlers fled to Fort Armstrong and Davenport's trading post on Rock Island.

Colonel Davenport erected a stockade around his cabin and outbuildings and placed an old swivel gun at the entrance. Only a garrison of 80 U.S. Regulars, under the command of Captain John Bliss, stood between the settlers and what they believed to be several thousand hostile Indians.

Governor Reynolds, fearing a possible massacre, requested additional federal troops to protect the settlers. In response, General

Gaines, at Jefferson Barracks near St. Louis, dispatched a large military force to Rock Island.

As a show of force until reinforcements arrived, Captain Bliss had his soldiers begin target practice. He also ordered the firing of morning and evening (cannons) guns for the first time.

General Gaines and six companies from the 6th U.S. Infantry arrived at Rock Island by steamboat in early June 1831; and Colonel Zachary Taylor brought four additional companies down from Fort Crawford to Rock Island. In an attempt to peaceably settle the dispute, General Gaines held a council with Sauk and Fox leaders. Keokuk, Wapello, and other chiefs arrived peacefully at the council; however, Black Hawk did not. He appeared with his warriors in war paint; carrying arms; and singing war chants.³¹

General Gaines explained the government's position regarding the land the Sauk and Fox had ceded to the United States. He stated that by the provisions of the 1804 treaty, the Indians must relocate because the government had opened the ceded land for public sale. Keokuk

Right: Major General Edmund P. Gaines, parleyed with Black Hawk at Fort Armstrong in 1831. (Hauberg Museum, Black Hawk State Park)



and the other chiefs encouraged Black Hawk and his band to cross the Mississippi River and join them at their camp. However, Black Hawk refused to leave.

On 19 June 1831, Governor Reynolds arrived with his volunteer army and joined General Gaines near the mouth of the Rock River. The combined forces closed in on the Sauk village. U.S. Regulars, along with a company of local volunteers known as the Rock River Rangers, marched from Fort Armstrong across the site of the present day city of Rock Island to the Sauk village on the Rock River. The Rock River Rangers was comprised of 58 men and older boys from the Rock River Region.

The steamboat *Enterprise* carried a company of soldiers and a cannon up the Rock River to the Indian camp. However, when the troops arrived at the village, they found it deserted. Black Hawk, fearing that the rowdy, undisciplined Rangers could not be controlled by their officer, had fled with his band across the Mississippi River the previous night. The Rangers, who were spoiling for a fight, took out their frustrations by destroying the abandoned Sauk village.

General Gaines sent an ultimatum to Black Hawk stating that if he did not return to the council he would send his army across the Mississippi River after him. On 30 June 1831, Black Hawk met with Governor Reynolds and General Gaines at Rock Island. At this conference, 27 chiefs and warriors, including Black Hawk, signed a treaty that included three major agreements: to honor the provisions of the 1804 treaty; to move to Keokuk's camp on the Iowa; and not to return across the Mississippi River without the permission of the U.S. Government. In addition, the Sauk and Fox tribes were to break off all communication with the British. In return, the U.S. Government agreed to provide food and replace the loss of the cornfields that Black Hawk's party abandoned on the Rock River in Illinois.

Within a year Black Hawk had broken his promise. On 8 April 1832, Black Hawk and his party recrossed the Mississippi River. They entered the state of Illinois at Yellow Banks near the present community of Oquawka. According to several accounts, Black Hawk and his British band crossed the Mississippi singing and

Below: General Henry Atkinson
(AMCCOM-HO Archives)

Right: Map showing the course
of Black Hawk's band during the
Black Hawk War of 1832.
(AMCCOM-HO Archives)



banging their drums in what seemed a very threatening manner. Settlers in the Rock Island vicinity, upon hearing the ruckus, fled to Fort Armstrong for protection. To the settlers on the Illinois frontier, it appeared that Black Hawk's band was a war party invading the state to attack their settlements. The settlers and government officials responded to this threat by arming themselves, organizing a state army of mounted volunteers, and calling for assistance from federal troops.

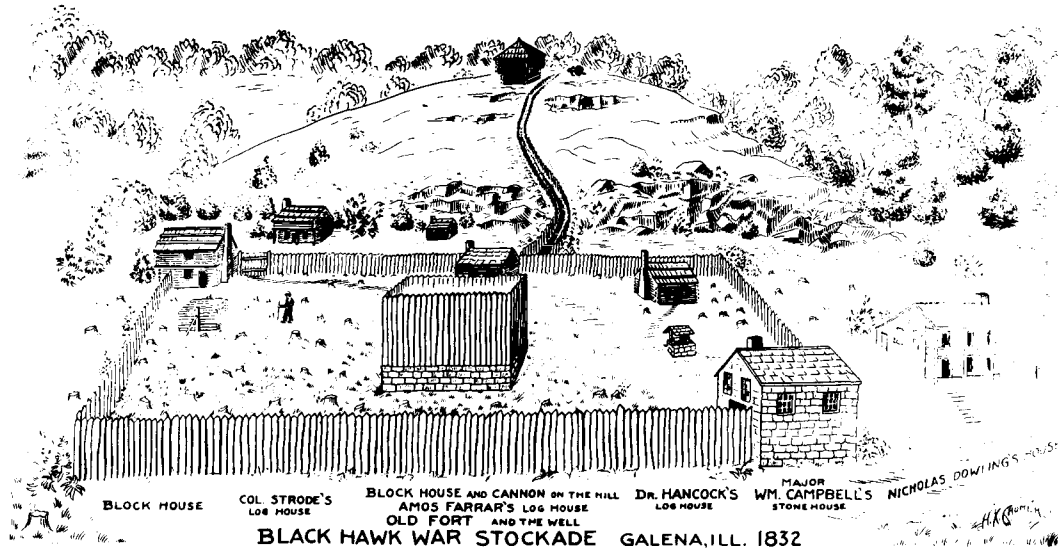
Although the sight of approximately 1,500 Indians noisily crossing the river startled the settlers, the band was not a typical war party. Women and children customarily did not travel with war parties. Black Hawk's band that crossed the river, however, consisted of nearly 500 warriors and approximately 1,000 women and children.

Black Hawk claimed his party had accepted an invitation from the "Prophet" to live and to plant corn at Prophet's Town, located up the Rock River nearly 40 miles from Rock Island. However, Black Hawk did possess some vague

plan to persuade Keokuk and his followers to join his conspiracy; but they refused. Two members of the dissident band provided Black Hawk with faulty advice. The Prophet related to Black Hawk his visions of neighboring tribes joining him in driving off the settlers. Neapope, one of the few Sauk chiefs to have joined the dissident band, falsely informed Black Hawk that he had received a pledge of arms and ammunition from the British during a visit to Canada in 1831. Based on this information, Black Hawk began his journey to retake his former village. Not grasping the severity of his situation, he ignored messages from Fort Armstrong and from the peaceful Sauk and Fox camps advising him to return to the west banks of the Mississippi River. Illinois Governor John Reynolds labeled the Indian crossing an invasion and called for the immediate formation of an army of state volunteers to drive them back across the river.

Governor Reynolds defended his organization of a volunteer army by saying, "If I did not act, and the inhabitants were murdered after (I was)

Below: The stockade erected by anxious civilians near Galena during the Black Hawk War. (Alfred W. Mueller, Galena Historical Collections)



informed of their situation, I would be condemned.”³² It was also clear that Governor Reynolds equated victory over the Indians with political victory. In a letter to General Atkinson he wrote: “Nothing will save me but a decisive stroke on the Indians.”³³ The Governor circulated petitions asking for aid throughout the counties, and he made speeches urging people to volunteer to defend the frontier. After receiving General Gaines’ written report of his earlier meeting with Black Hawk at Rock Island, Governor Reynolds wrote to Gaines that:

I was very much rejoiced on receiving (your) letter, as it puts my whole proceedings on a legal and constitutional footing, the responsibility of the war was removed from me.³⁴

While Black Hawk’s band was proceeding up the Rock River toward the Winnebago camp at Prophet’s Town, federal troops were on their way to Rock Island. General Atkinson left Jefferson Barracks near St. Louis with the 6th Infantry Regiment on 10 April 1832. Governor Reynolds had assembled 2,000 volunteers at Beardstown, Illinois. Near Yellow Banks, the volunteers, under the command of General Samuel

Whiteside, were to be joined by General Atkinson’s Regiment.

Fort Armstrong became the headquarters for military operations during what would be known as the Black Hawk War. A company of Illinois volunteers were stationed at Fort Armstrong as reinforcements from April to June 1832. The company pulled garrison duty and was composed of men from Rock Island and nearby counties. George Davenport supposedly volunteered for duty during the Indian trouble and received the commission of quartermaster at Fort Armstrong with the rank of Colonel.

In the 15 weeks of the Black Hawk War, a majority of the fighting actually took place in northern Illinois and southern Wisconsin, even though the spark that ignited the conflict happened in the vicinity of Rock Island. After Black Hawk had inflicted a humiliating defeat on a detachment of 275 mounted volunteers commanded by Major Isaiah Stillman at Sycamore Creek near Dixon Ferry, it was no longer possible to settle the dispute peaceably.

Major Stillman’s Rangers, anxious to fight Indians, had volunteered to serve as a scouting party for the U.S. Regulars. Stillman’s troops,

Below: Posters such as this helped shape public opinion and contributed to the spreading of fear among civilians of a general Indian uprising on the frontier. (Davenport Public Library Special Collections) **Middle:** Sauk warrior Se-us-kuk, son of Black Hawk. (Rock Island County Historical Society) **Right:** Major Isaiah Stillman (Augustana College Library Special Collections)



ignoring an opportunity to parley with Black Hawk, fired on Indian messengers carrying a flag of truce. The Rangers pursued the few Indians that escaped to Sycamore Creek, where Black Hawk surprisingly attacked the Rangers. Black Hawk and approximately 40 braves routed the volunteers. Stillman's mounted Rangers panicked and retreated. Only 11 volunteers actually were killed in the skirmish, but their bodies were horribly destroyed. The Indians had scalped them and mutilated them. The rout of these undisciplined volunteers became known in the Rock Island vicinity as the Battle of Stillman's Run. War could no longer be avoided, and state-wide panic occurred as newspapers in the state carried vivid accounts of the butchery. The politicians, regular soldiers, and volunteer Rangers became more determined to defeat Black Hawk.³⁵

Black Hawk's band fled north, searching for a place to recross the Mississippi River. During these weeks of flight, isolated attacks occurred by small bands of warriors. The raiding Indians would sneak up on a lone cabin, then murder,

scalp, and steal provisions of the inhabitants. The roving parties included Winnebago, Potawatomi, and Kickapoo braves in addition to Sauk and Fox warriors. On 27 May 1832, a raiding party attacked three families that had gathered at a cabin along Indian Creek, just six miles north of Ottawa, near the Illinois River. The Indians massacred 15 men, women, and children at the cabin, but spared two 17 and 15 year old sisters. The sisters were taken captive and later ransomed for horses at Blue Mound, Wisconsin.³⁶

Besides attacking lone cabins, the small bands of marauding warriors also ambushed travelers. Another example of the random nature and savageness of the attacks by these small, roving war parties occurred on 23 May 1832. Felix St. Vrain, the Indian agent at Fort Armstrong who had replaced Thomas Forsyth, was killed while delivering dispatches from Fort Armstrong to Galena. Agent St. Vrain and his three companions were killed and scalped. Reportedly, St. Vrain's body was dismembered and his heart cut out and eaten by his killers.³⁷

Below: Lieutenant Robert E. Lee. In 1837, he surveyed the upper rapids of the Mississippi River at Rock Island. (Davenport Public Library)

Right: The upper rapids at Rock Island forced steamboat crews to unload their cargo and transport it overland past the rapids in order to lighten the vessel for its trip through the rapids. Rock Island was a break-of-bulk point. (AMCCOM-HO Archives)



Many of the settlers serving as Rangers on the Illinois frontier were just as savage. Several of these citizen volunteers took Indian scalps as trophies during the campaign. The federal troops were issued specific orders not to scalp or mutilate any Indians in the course of the conflict. The Black Hawk War was the last gasp in defense of preserving the Indians' way of life in Illinois.

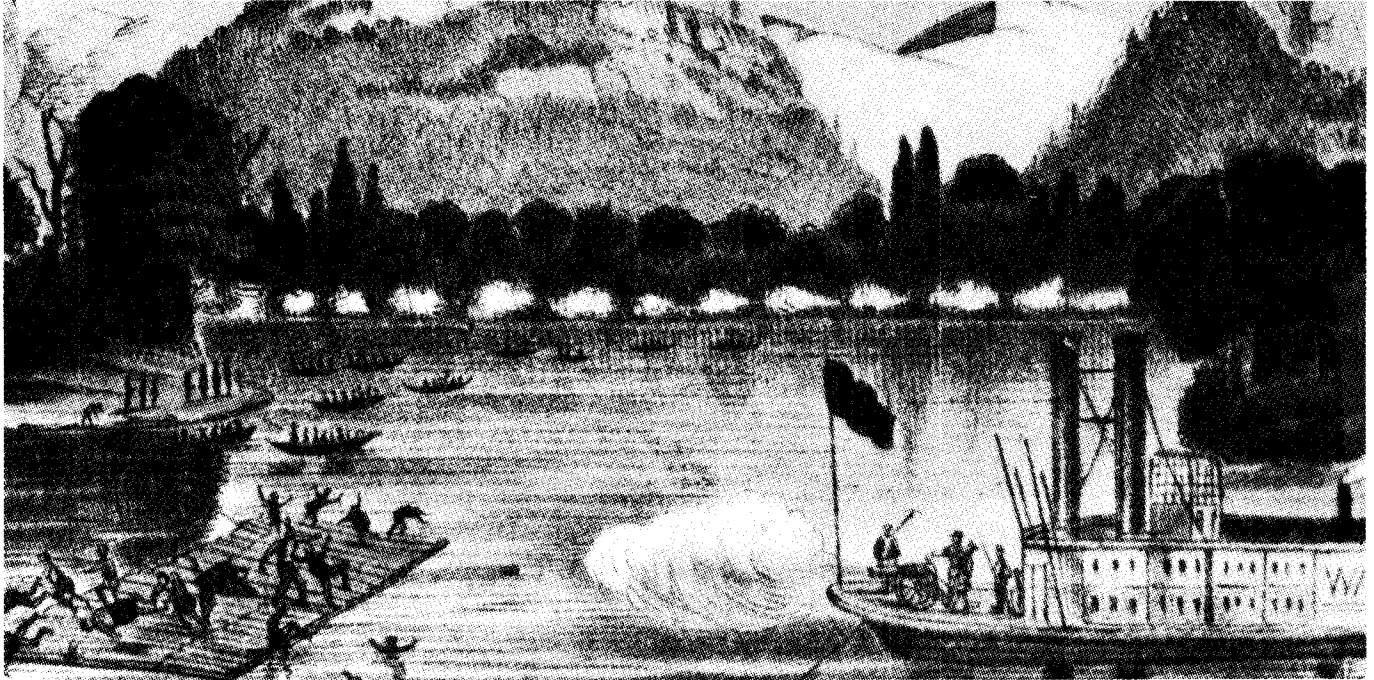
During the Indian conflict, progress continued to be made in opening the state's northern frontier region. In 1829 Lieutenant Napoleon Buford, while on topographical duty, began to draw up surveys of the rapids of the upper Mississippi River, including those at Rock Island. Also in 1829, President Andrew Jackson appointed a commission to approach the Fox Indians regarding the transfer of mineral rights to the Federal government.³⁸ On 9 February 1831, the Illinois state legislature passed an act to establish Rock Island County, which included the area of the former Sac village. Section One of the act established the boundaries. Section Two stated that 350 inhabitants were needed for a general election to be held for the electing of three commissioners, a sheriff, and a coroner.

Due to the Indian unrest in the Rock Island area, the county elections were not held until 1833.

Battle of Bad Axe and the Capture of Black Hawk

Black Hawk and his followers continued north along the Mississippi River searching for a place to cross. On 2 August 1832, General Atkinson, with about 500 Regulars and some volunteers, caught up with Black Hawk's band in southern Wisconsin at the confluence of the Bad Axe River and the Mississippi. At the Battle of Bad Axe the Indians were decisively defeated by federal forces with the aid of the steamboat *Warrior* and its six-pound gun. Driven into the river by their pursuers, the Indian warriors, their old people, women, and children were shot down or drowned as they tried to escape. Many of those that reached the west banks of the Mississippi were slain by a band of Sioux recruited by the U.S. Army. Black Hawk, however, escaped with a small band that included the Prophet. Two weeks later, they were captured by Winnebago Indians who also had been recruited by the United States Army. The army had also recruited Sioux Winnebago, and Menominee warriors to

Below: *The Battle of Bad Axe depicted below resulted in a crushing defeat and slaughter of Black Hawk's band of hostile Indians. (AMCCOM-HO Archives)*



aid in the capture of Black Hawk.

Lieutenant Robert Anderson, later of Fort Sumter fame, was one of the army officers aboard the steamboat, *Warrior*. In addition to Lieutenant Anderson, an impressive number of participants in the Black Hawk War later became famous as politicians and as soldiers. Included among the roll call of Black Hawk War veterans were United States Presidents, Abraham Lincoln and Zachary Taylor; Commander-in-Chief of the U.S. Army General Winfield Scott; and Secretary of War and later President of the Confederate States of America, Jefferson Davis. Several other participants later rose to the military rank of General. Among this group were two Confederate Generals, Albert Sidney Johnson and Joseph E. Johnson. A half dozen other veterans of the Black Hawk War were later elected Governor of Illinois, and another veteran of the Indian conflict later became Governor of Wisconsin.³⁹

The Winnebago Indians had been under suspicion of having possibly assisted Black Hawk's band during the war, but they demonstrated their loyalty to the United States

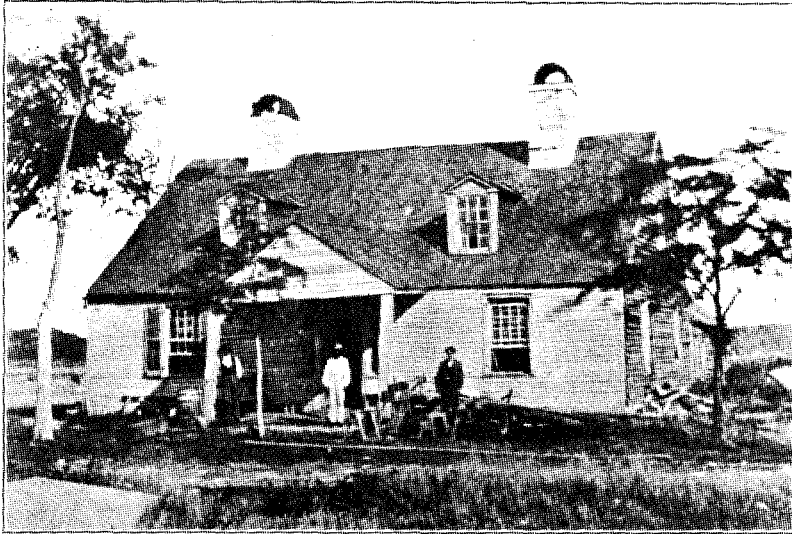
government by apprehending Black Hawk and his followers. The reward of money and horses made the task more palatable. On 17 August 1832, the Winnebagos turned Black Hawk over to authorities at Prairie du Chien. Colonel Zachary Taylor, the Commanding Officer at Fort Crawford, appointed Lieutenant Jefferson Davis to take Black Hawk by steamboat to Jefferson Barracks near St. Louis.

The Black Hawk War became a secondary issue during the 1832 presidential campaign of Andrew Jackson. Governor John Reynolds' volunteer army of Illinois settlers, with politicians as officers, had been unable to apprehend Black Hawk's hostile band of Indians. When the governor requested additional federal troops to subdue Black Hawk, President Jackson ordered General Winfield Scott to assume command of an army of 1,000 Regulars, which was to be dispatched from the East to Fort Armstrong.

General Scott's expedition was ill fated from the beginning. While en route to Chicago, aboard four steamboats, his troops were stricken with an outbreak of Asiatic cholera. When General Scott's forces finally reached Fort

Below: General Winfield Scott's headquarters at Rock Island just east of the present Clock Tower. (AMCCOM-HO Archives)

Right: General Winfield Scott, Commander of U.S. troops at close of Black Hawk War. (AMCCOM-HO Archives)



Armstrong, they had been decimated by the disease. Only 220 U.S. Regulars completed the march from Chicago to Rock Island. Scott's army arrived too late to take the field against Black Hawk. A few weeks earlier, Black Hawk's dissident band had been virtually obliterated at the Battle of Bad Axe. All that was left for General Scott and his troops to do was to assist Governor Reynolds in drafting the peace treaty and to guard the few prisoners that survived the battle.

However, within a week of General Scott's arrival at Fort Armstrong, cholera once again surfaced among the soldiers in epidemic proportion. General Scott had distinguished himself in an exemplary manner in his efforts to save the lives of his soldiers. General Scott, in disregard to his personal safety, dispensed medicine and cared for the sick. His strict orders to enforce discipline provided the critical leadership needed during such a crisis. Army physicians knew little as to the cause of the disease, except for their observation of the stricken. The disease seemed to attack men that were under the influence of alcohol and those

weakened by the lack of proper eating habits or living in crowded, unsanitary quarters. General Scott issued the following order to the U.S. Regulars and volunteer Rangers stationed at the fort on 28 August 1832:

It is believed that all these men were of intemperate habits. The Ranger who is dead, it is known, generated this disease within himself by a fit of intoxication. . . Sobriety, cleanliness of person, cleanliness of camp and quarters, together with care in the preparation of the men's messes are the great preventatives. . . The Commanding General. . . therefore, peremptorily commands that every soldier or Ranger who shall be found drunk or sensibly intoxicated, after the publication of this order, be compelled, as soon as his strength will permit, to dig a grave at a suitable burying place, large enough for his own reception, as such grave cannot fail soon to be wanted for the drunken man, himself, or some drunken companion. This

Below: Black Hawk in captivity. (Hauberg Museum, Black Hawk State Park)



MAH-UT-TE-MISH-DE-CA-UT-CAO

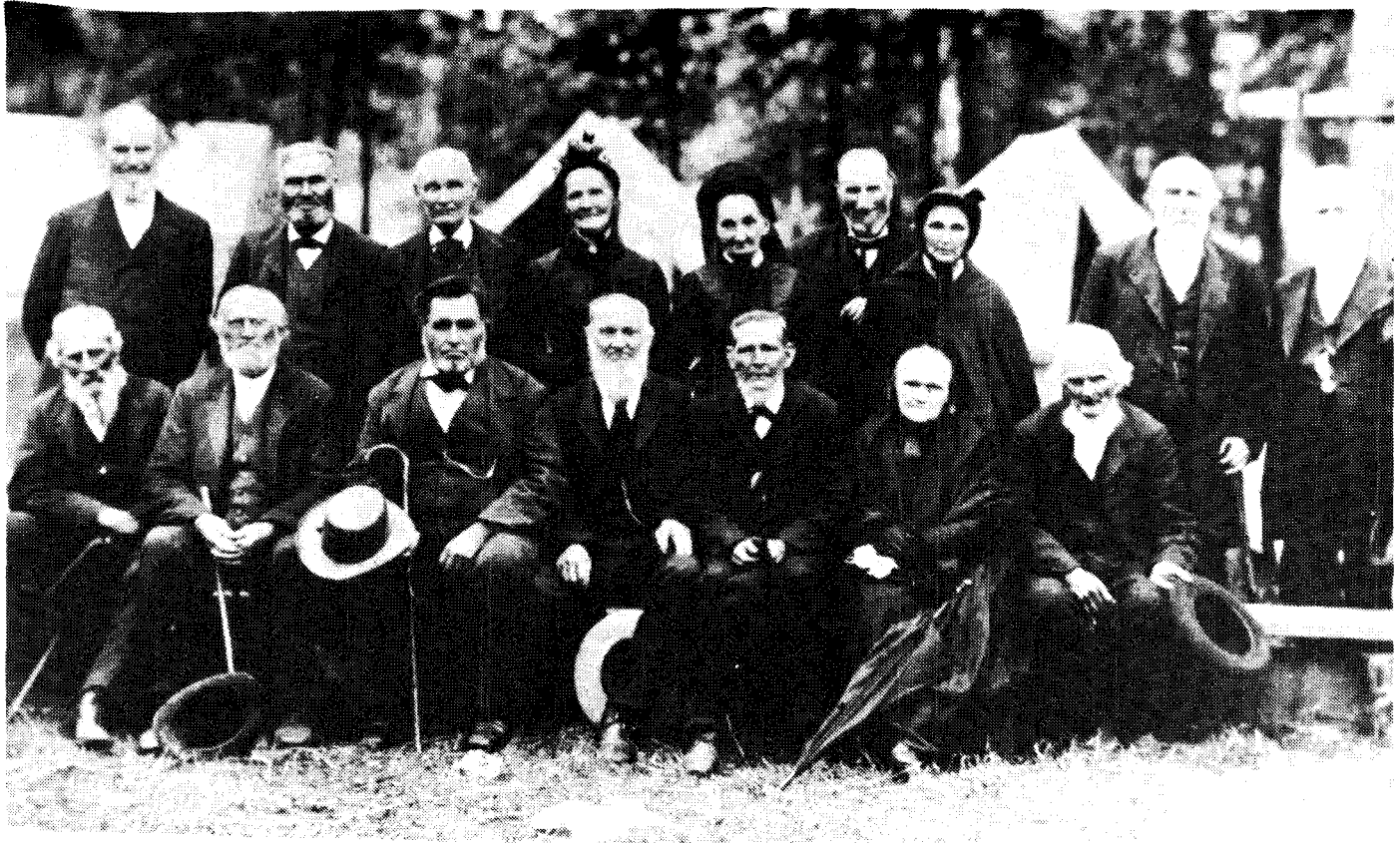
or

BLACK HAWK

A Celebrated Sac Chief.

Engraved from a portrait by J. H. R. Smith.

Below: *Veterans of the Black Hawk War. General Samuel Whiteside of the Illinois Volunteers, seated third from the left. (Hauberg Museum, Black Hawk State Park)*



order is given as well to serve for the punishment of drunkenness as to spare good and temperate men the labor of digging graves for their worthless companions.⁴⁰

The order also served as a means of controlling fearful soldiers who might turn to drink in despair. After prohibiting intoxication, improving sanitary conditions, and quarantining nearly 1,500 federal soldiers and state volunteers in small groups about the banks and hills along the Mississippi River and the Rock River, the army was successful in bringing about an end to the cholera epidemic.

The Black Hawk Purchase (Treaty of 1832)

The United States Government held a three day peace conference from 19-21 September 1832 with the Sauk and Fox tribes. General Winfield Scott and Illinois Governor John Reynolds conducted the sessions and drafted the final treaty. The opening session was held in a tent on the west banks of the Mississippi, rather than at Fort Armstrong, since some soldiers were

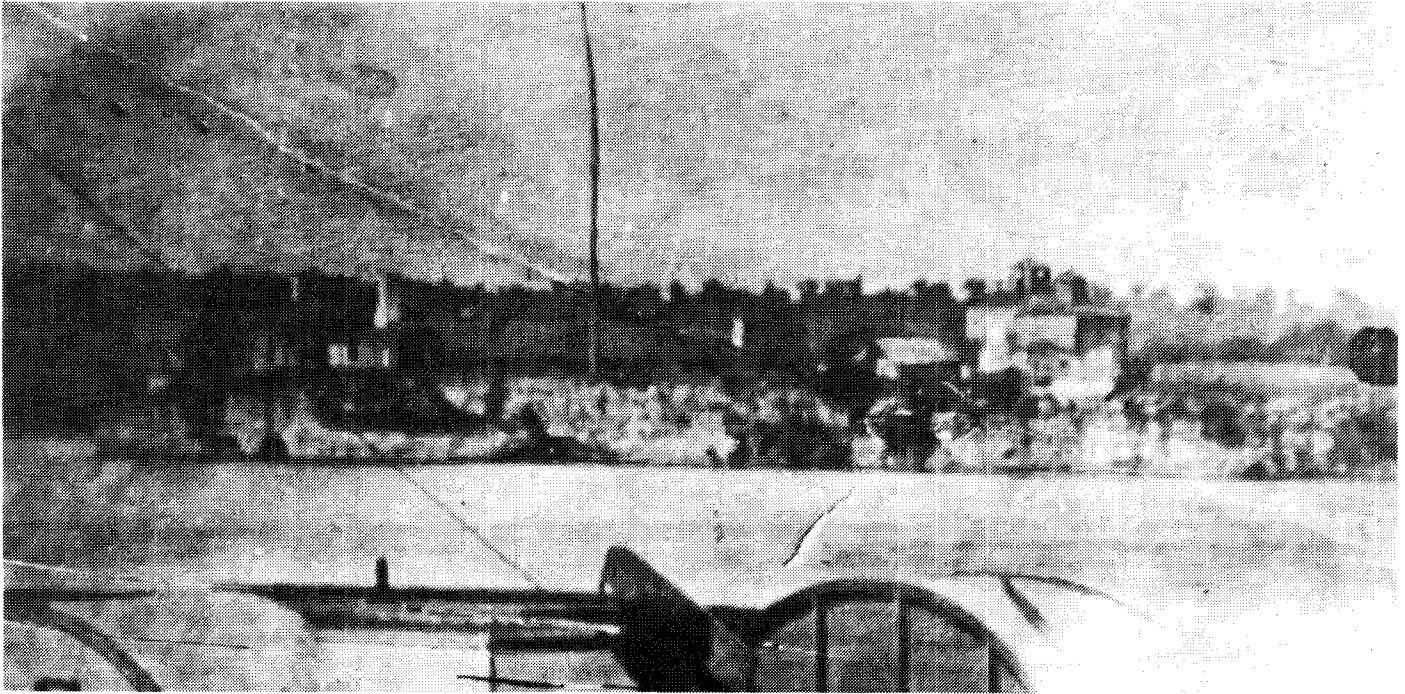
yet inflicted with cholera. The Sauk and Fox tribes ceded to the U.S. approximately 6 million acres of land bordering the west banks of the Mississippi River, primarily in eastern Iowa. The ceded land included the Fox Indians' lead diggings near Dubuque. The Indians received \$660,000 in exchange for the land, and the money was divided into \$20,000 annuities, to be paid over a 30-year period by the U.S. Government. The first two years' annuities, totaling \$40,000 were awarded to Colonel Davenport to settle a credit debt the Sauk and Fox tribes owed him.⁴¹

The Indians agreed to vacate the ceded area by 1 June 1833. However, a 400 square mile tract of land on the Iowa River known as the Keokuk Reserve, remained in possession of the Indians. Other provisions of the treaty included the appointment of Keokuk as Chief of the Sauk tribe; the awarding of two sections of land to the U.S. interpreter, Antoine LeClaire, and the supplying of food to Sauk and Fox women and children whose men were killed in the war. In

Below: *Black Hawk Purchase Treaty depicting Antoine LeClaire, Governor John Reynolds, and General Winfield Scott at the table. Original mural on display at the Davenport Bank Building, Davenport, Iowa. (Quad Cities Times Photo Collection)*



Below: Early photo of Fort Armstrong from the levee at Rock Island (1845). Note the extremely high flagpole. (AMCCOM-HO Archives)



addition, General Scott and Governor Reynolds agreed to honor a request by Keokuk for 40 kegs of tobacco and 40 kegs of salt.

Keokuk (He Who Has Been Everywhere), Wapello (He Who Is Painted White), and Poweshick (The Roused Bear) were among the Indian leaders listed as agreeing to the provisions of the treaty. Wapello and Poweshick were the two leading Fox Indian chiefs at the peace council. This treaty, later known as the Black Hawk Purchase of 1832, officially ended the Black Hawk War. Within a couple of years, all the other Indian tribes in Illinois were also relocated to areas west of the Mississippi River by the United States Government.

Since the threat of Indian hostilities no longer existed, the War Department removed the garrison at Fort Armstrong. Although the army abandoned the fort in 1836, the government retained Rock Island as a government reservation. In 1840, the U.S. Army made some repairs at Fort Armstrong and established an ordnance depot at the old post. Captain William Shoemaker commanded the depot until 1845, when its stores were transferred to St. Louis in

support of American efforts during the Mexican War. Fort Armstrong again became vacant, a decaying reminder of Rock Island's vanishing frontier. In 1856, the last of several fires destroyed the abandoned old post.

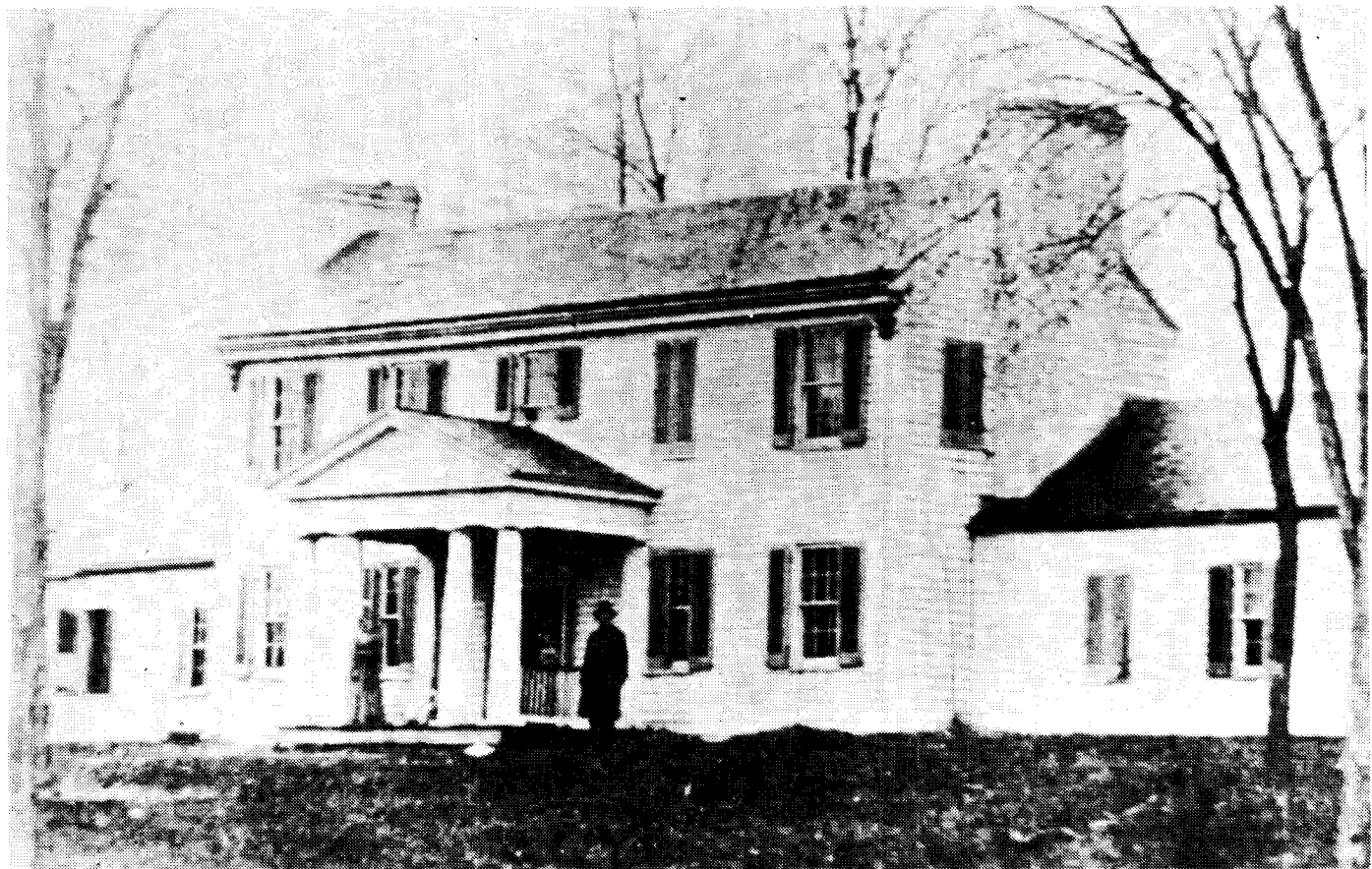
The Rock Island area had settled quickly once the Indians were removed from the vicinity. Colonel Davenport played a prominent role in its development and became one of the first three commissioners of Rock Island County. With help from others, Davenport laid out the county seat, which was to be named "Davenport". However, in a letter published in the *Galena Advertiser*, Colonel Davenport ridiculed a state legislator for his participation in the Battle of Stillman's Run. The legislator, in retaliation, blocked the naming of the county seat in honor of Davenport. In 1835, the name Stephenson was substituted for Davenport, and Illinois State Legislature approved the charter. In the meantime, Colonel Davenport, Antoine LeClaire, and others organized and plotted another community on the west bank of the Mississippi River opposite Stephenson. In 1836, the community on the Iowa banks became

Supervisor's Rec. A
Special Term of the County
Commissioners Court July 1833

Be it Remembered that in per-
suance of an Act of the people of
the State of Illinois represented in the
General Assembly entitled an Act
establishing the Courts of County
Commissioners, and also an Act
passed at the last Session of the
General Assembly entitled an
Act to establish a permanent court
of Justice for Rock Island County
It appearing from the elections
held on the first Monday in the
month of July 1833, for Rock Island
County, that George Deweyport John W
Spencer and George W. Barlan
were duly elected as Commissioners
for the County of Rock Island and
thereupon they took the several
oaths prescribed by law as County
Commissioners for the County of Rock Island
Legal notice being given that a spe-
cial Term would be held on the
eighth day of July 1833 for Rock
Island County Whereupon the
said George Deweyport John W
Spencer and George W. Barlan took
their seat; and thereupon a
special Court was holden by the
Commissioners for Rock Island
County on the 8th day of July
in the year of our Lord one
thousand eight hundred and
thirty three

Present
George Deweyport } Com.
John W. Spencer }
George W. Barlan } are

Below: A view of Colonel Davenport's house built in 1833. Note the original structure had three wings, two of which are visible in the photograph. (AMCCOM-HO Archives)



Davenport. The village of Stephenson became Rock Island in 1841.⁴²

The planning of these two communities, plus the organizing of the LeClaire and Port Byron villages, occurred at meetings held by Colonel Davenport at his island estate. In addition to land speculation, the building of railroads, bridges, river commerce, and business development in the Rock Island area were also topics discussed at these meetings. The Davenport House became the gathering point for the early "shakers and movers" of the Rock Island area.

The Colonel Davenport House

In 1833, a year after the Black Hawk Purchase, Colonel Davenport built the most elegant family home for that time in the Rock Island vicinity. The Davenport family included his wife, Margaret; stepdaughter, Susan Lewis; and sons, George L'Oste and Bailey, the latter born to his stepdaughter, and purportedly fathered by Colonel Davenport.

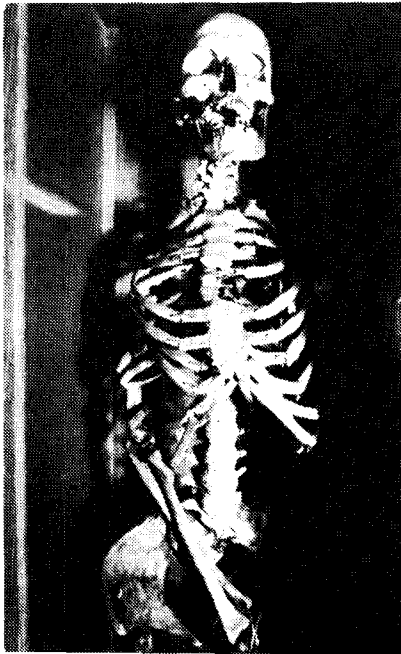
Federal authorities in 1833 rewarded Colonel Davenport for his service to the government by allowing him to build his family residence on the northwest shore of Rock Island. In 1844, Congress passed a special act confirming Colonel Davenport's title to the property.⁴³

Colonel Davenport's home was not the typical pioneer cabin. Clapboard lumber, ordered from the East, covered the two-story log-frame house. The clapboard siding gave Colonel Davenport's frontier home the exterior appearance of a fine eastern residence. Other features of the house included a portico or porch roof, supported by columns; double hung wood sashes; a gable roof with sawed shingles; and two massive brick chimneys.

The Murder of Colonel Davenport

On 4 July 1845, robbers murdered Colonel Davenport at his island estate. Rumors of \$20,000 in gold, supposedly hidden on the Davenport property, attracted the robbers to the island. Colonel Davenport's wife and two sons

Below: Outlaw John Long's skeleton (Quad City Times photo collection) **Top Right:** Long's Grave, in Rock Island's Pioneer Cemetery. He was buried 133 years after his hanging. (AMCCOM-HO)



had gone to an Independence Day celebration in the city of Rock Island. Finding the Colonel alone, the four bandits shot, stabbed and tortured him. However, they departed the island with only a few hundred dollars they had found in the house. Colonel Davenport died from the wounds inflicted upon him by the robbers. A few months later, on 29 October 1845, John Long, Aaron Long, and Granville Young were hanged in the town of Rock Island for the murder of Colonel Davenport. The three outlaws were members of the notorious "Banditti of the Prairie" gang. A crowd of nearly 5,000 which was then approximately three times the population of Rock Island, witnessed the public hangings. The crowd watched and cheered as the Rock Island County Sheriff paraded the three bandits through the streets of Rock Island to the

gallows. Then the band played, the people prayed, and the three were hanged. Unfortunately, for Aaron Long, his rope broke. The sheriff supposedly supplied him with a stiff drink, then hanged him a second time.

As for Aaron's brother, John Long, his body was supposedly shipped to a physician in a barrel of rum. The physician displayed Long's skeleton in his office. Years later, the doctor's widow returned the skeleton to Rock Island. For years, the bones of the murderer of Colonel Davenport were displayed at the Rock Island County House, and later at Black Hawk State Park Museum. After several more years in storage, John Long's skeleton was finally buried in the old pioneer's cemetery at Black Hawk State Park on September 14, 1978.⁴⁴

Below: Colonel Davenport's house prior to renovation in 1906. (AMCCOM-HO Archives)



Repair of the Colonel Davenport Ruins

In preparation for establishing an arsenal on Rock Island, the Federal Government regained sole possession of the island. A federal commission purchased the more legitimate property claims held by private citizens such as the Colonel Davenport family. The government used the house as an office, and later as a storehouse. Gradually, the Colonel Davenport home deteriorated and fell into disrepair. By the turn of the century, the building was in a state of ruin. In 1906, the Association of Rock Island County sponsored the repair of the dilapidated

structure. Public interest in the Davenport House during the 1950s and early 1960s again saved the building from disrepair. On this occasion, the Scott County Home Builders Association collaborated with the Quad Cities Association of Home Builders to repair the structure. Whereas the main portion of the Davenport House has been renovated, the attached wings to the house were removed in 1906 and have not yet been restored. Currently, the Colonel Davenport Historical Foundation maintains the house as a historic site open to visitors.

Below: After the departure of the military in 1836, civilian custodians such as H.Y. Slaymaker, had difficulties preventing trespassers from exploiting the island's timber. (AMCCOM-HO Archives)

Notice to Trespassers

On the U. S. Reserve on Rock Island.

All persons detected in cutting or destroying Timber on the United States Reserve on Rock Island, will be prosecuted according to the following Act of Congress, passed the 3rd day of March, 1859:

CHAPTER LXXVIII. Be it enacted by the Senate and House of Representatives of the United States, &c. That if any person or persons shall unlawfully cut, aid, or assist, or be employed in unlawfully cutting, or shall wantonly destroy, or procure to be wantonly destroyed, any timber standing, growing, or being upon the lands of the United States, which, in pursuance of any law passed or hereafter to be passed, have been or shall be reserved or purchased by the United States for Military or other purposes; every such person or persons so offending, on conviction thereof, before a Court having competent jurisdiction, shall for every such offence pay a fine not exceeding Five Hundred Dollars, and shall be imprisoned not exceeding Twelve Months.

**H. Y. SLAYMAKER, Agent,
for Qr. M. Dep. U. S. Army.**

July 23, 1860.

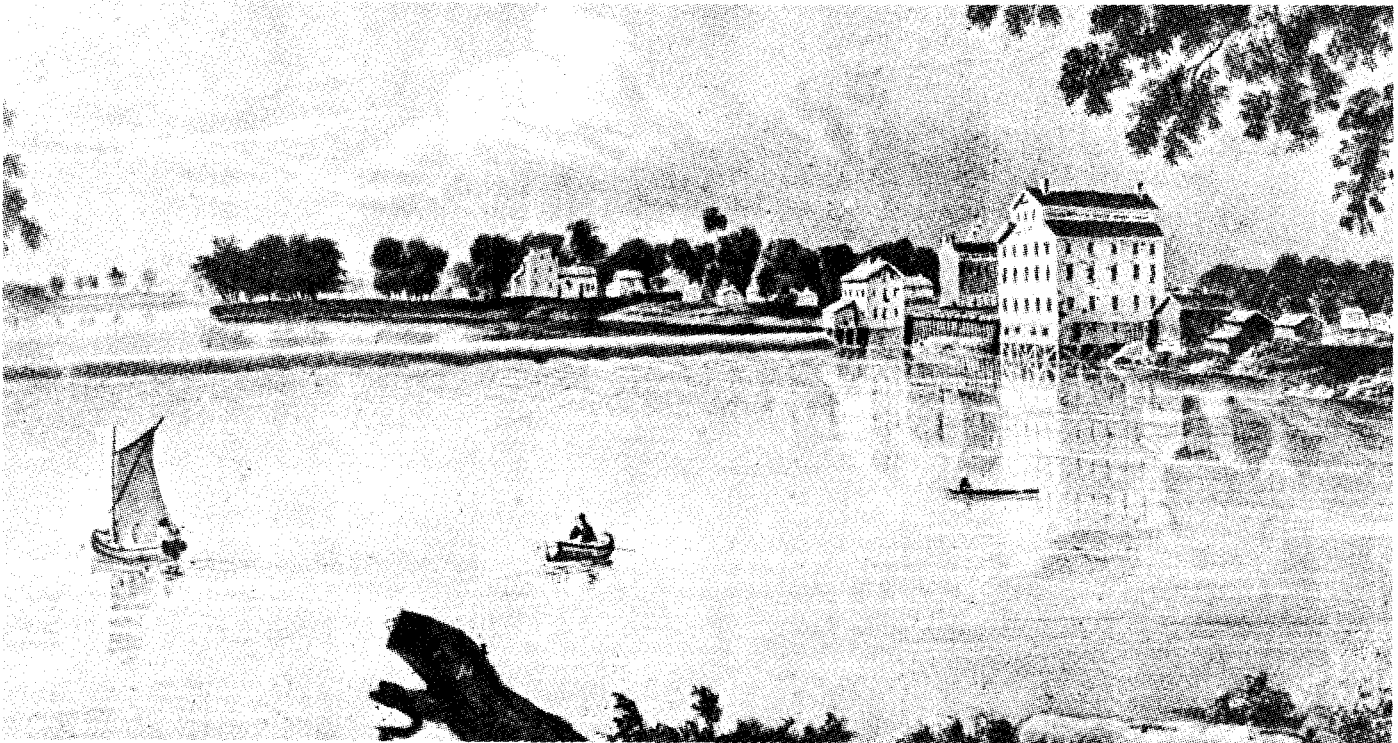
CHAPTER THREE CIVILIAN DEVELOPMENT ON ROCK ISLAND AND THE CAMPAIGN FOR AN ARMORY

After the soldiers left Fort Armstrong in 1836, and again when the army depot closed in 1845, the Federal Government placed civilian agents or custodians in charge of Rock Island. Joseph Street, an Indian agent from Prairie du Chien, was the first of these civilian agents. In 1836, the government transferred him to Rock Island. From 1836-1838 "General" Street served as Indian agent and custodian of Rock Island. In 1838, William Davenport succeeded Joseph Street as the Indian agent to the Sauk and Fox residing in eastern Iowa. Captain W.R. Shoemaker, the Army Depot Commander, assumed command of the island and the depot from 1840-1845. After the depot closed, a series of four civilian agents were placed in charge of Rock Island. The four agents and the period that they served as custodians of Rock Island were: Thomas L. Drumm, 1845-1853; Sergeant Cummings, 1853-1854; Mr. J.B. Danforth, Jr., (founder of the *Rock Island Argus*) 1854-1857; and H.Y. Slaymaker, 1857-1863. Though these agents were placed in charge of Rock Island they

did not usually reside on the island. The civilian development of Rock Island occurred during the time when there was no military presence nor civilian agents residing on the island. During this period, numerous interested civilians attempted, with some success, to settle on portions of the island. These squatters considered Rock Island to be part of the public domain, especially after the military had departed the island.

The War Department was somewhat reluctant to release the island property for public sale. The army wanted to keep Rock Island in reserve and as early as 1825, Secretary of War John C. Calhoun had informed the Commissioner of the General Land Office that Rock Island was necessary for military purposes. Secretary of War Calhoun directed that Rock Island be reserved from public sale. Ten years later, in 1835, Congress ordered a survey to select potential construction sites for a new armory in the West. In the next two decades, several reports drafted by army officers favorably suggested Rock Island as a potential site for the

Below: The first dam built on Mississippi River in 1841; it stretched from Moline across Sylvan Slough to Rock Island. The two large mills at the dam were owned by David B. Sears. (AMCCOM-HO)



armory. Major D.W. Flagler's *History of the Rock Island Arsenal*, published in 1877, included the following excerpts from one such report, submitted by ordnance officer Captain William H. Bell.

Soon after returning, about the 16th of October 1840, from Cincinnati, I proceeded up the river to Rock Island, agreeably to your orders of the 17th September, and having surveyed the grounds and buildings (old buildings of Fort Armstrong) of the island, have the honor to report that the whole island, containing about 850 acres, belongs to the United States, having been specially reserved from sale for public purposes.⁴⁵

Captain Bell concluded his report with a strong statement of Rock Island's value.

I thought it advisable to communicate these facts, that the Government may be fully aware of the value of this island and its vicinity as the greatest and most practicable and desirable water power

in the valley of the Mississippi.⁴⁶

In September 1841, Congress passed an act empowering a commission or board, appointed by the Secretary of War, to conduct a thorough examination of the western regions "for the purpose of selecting a suitable site on the western waters for the establishment of a national armory." The Secretary of War selected Brigadier General W.K. Armistead, Surgeon General Thomas Lawson, and Lieutenant Colonel S.H. Long as the commissioners for the survey.

The board's final report to Congress covered 400 pages and included a section on Rock Island. The three officers stressed in their report the ample supply of resources that they "discovered" on Rock Island and in the nearby vicinity. The officers specifically cited the abundance of limestone and the variety of timber on the island as more than sufficient for building purposes. The commissioners also emphasized the potentially great source of water power available at Rock Island. Surgeon General Thomas Lawson endorsed the Rock Island site

Below: In 1846, David B. Sears built a second dam that connected Rock Island with Benham's Island. He also constructed the mill shown below on Benham's Island. (Moline Public Library)



as a healthy location.

He stated in the study that his endorsement was based on health reports of troops stationed at various military posts. He compared those reports with the shorter sick lists from Fort Armstrong for the same 20-year period. The board also listed Rock Island's convenient location, its rich soil, and its nearness to coal, lead, and other mineral deposits.

The board visited Rock Island in 1842, shortly after David B. Sears had erected a mill-dam across the south channel of the Mississippi River. The dam connected Rock Island with the Illinois mainland; and the officers reported the dam had attracted another saw mill to the island. In 1846, David B. Sears built a second dam. This dam lined the main island, Rock Island, with Benham's Island, an island in the main channel. The flat surface of the two dams provided a convenient wagon route from the Illinois mainland to Rock Island.

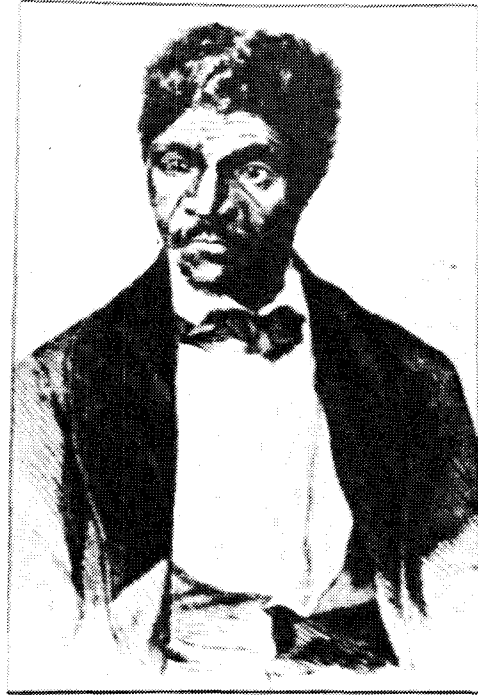
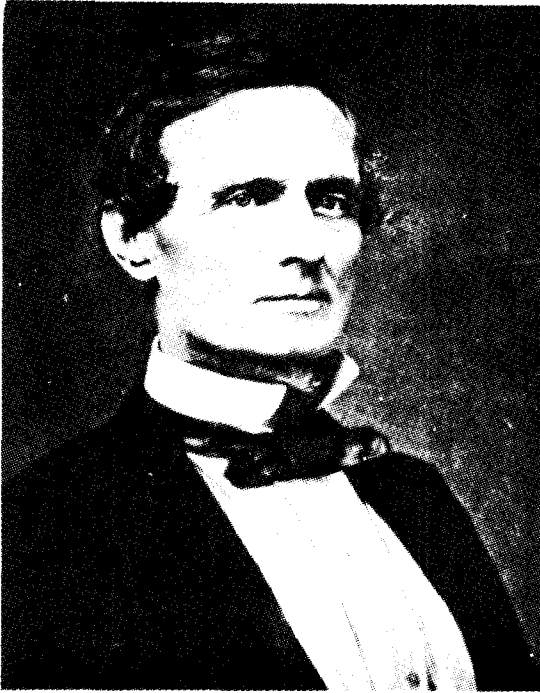
By the next decade, civilian development on the island had increased. The dams and the water power attracted additional mills, plants, and squatters to Rock Island. These interested civilians, along with speculators, manufacturers,

railroads, and waterpower companies, attempted to acquire titles to lands on the island. Eastern speculators who had investments in western land development, railroads, and waterpower companies also attempted to acquire the island. The local citizenry was divided between those interested in personally exploiting the island's natural resources and those that supported the establishment of an arsenal on Rock Island.

Many citizens of the Rock Island vicinity recognized the positive economic impact an arsenal would have on the development of the area. A committee, comprised of Rock Island County citizens, John Buford, Joseph Knox, Joseph B. Wells, John Morse and George Mixter, drafted an appeal to President John Tyler in the early 1840s to select Rock Island as the site for the new arsenal. The committee reminded the President that the selection of Rock Island would eliminate the need to purchase a site. Another argument presented by the committee included the ease by which arms could be supplied to the West from Rock Island via the Mississippi River and its tributaries. In addition, the appeal cited the rich mineral regions near Rock Island and the vast water power available at Rock Island.⁴⁷

Left: Jefferson Davis, Secretary of War, 1853-1857, used the authority of his office first as Senator then as War Secretary to block the sale of Rock Island. (AMCCOM-HO Archives)

Right: Dred Scott, slave and household servant of Dr. John Emerson, accompanied the doctor, an army surgeon, to Rock Island in 1833. Years later, Dred Scott became involved in a legal battle for his freedom which reached the U.S. Supreme Court. In its famous "Dred Scott Decision" of 1857, the U.S. Supreme Court declared that Scott and other Negro slaves were not citizens of the U.S., and therefore, not entitled to sue in court for their freedom. (AMCCOM-HO Archives)



Several prominent politicians in Washington, D.C., also supported the view that Rock Island should be kept in reserve and not offered for public sale. The staunchest of these supporters was Jefferson Davis. First as a Senator in 1850, and four years later, as the Secretary of War, Jefferson Davis used the authority of his office to block the sale of Rock Island. In an 1854 response to a congressional request for his views regarding the sale of the island, War Secretary Davis outlined his department's plan for Rock Island.

I have the honor to acknowledge the receipt of your letter...asking the views of this Department as to the expediency of selling the military reservation at Fort Armstrong, on Rock Island, Illinois, as contemplated by Senate bill No. 195. The water power available at that place, and the communication by water and by railroads projected or in course of construction, concur with other circumstances in rendering Rock Island one of the most advantageous

sites in the whole western country for an armory or an arsenal of construction for the manufacture of wagons, clothing, or other military supplies. . . . Any act that may pass to authorize the sale of (the island) should, I think, leave to the (War) Department full power to retain whatever of the reservation may be found useful and proper for the contemplated works, for which it is hoped that Congress will at some future day make the necessary appropriation.⁴⁸

Ironically, less than a decade later, Jefferson Davis had become President of the Confederate States of America; Congress had appropriated funds for the establishment of an arsenal at Rock Island; and the Union Quartermaster Corps had constructed on Rock Island a prison barracks for the detention of captured confederate soldiers during the Civil War.

Despite Jefferson Davis' success in preventing the sale of Rock Island, private encroachment continued. By 1854, private citizens, in disregard

Below: *David B. Sears' 1850s Mississippi Mills on Rock Island, along the northeast opposite Benham's Island. (cartouche from 1857 map of Moline) (Rock Island County Historical Society)*



to government objections, erected a variety of buildings on Rock Island. These citizens did not fit the stereo-typed "dirt poor" pioneer squatter found in contemporary literature and films. Instead, many of the "squatters" on Rock Island were successful businessmen. They operated on the island several saw mills, a sash and blind factory, a chair factory, a wooden tub and pail plant, two shingle shops, two warehouses, a number of stables, and several lumberyards. A few railroad shanties, a dozen or so homes, and other lesser buildings were also on Rock Island. Several of these island businessmen became prominent citizens of the local area. They included David B. Sears, Spencer H. White, and John W. Spencer, owners of a brush dam built in 1841 across Sylvan Slough which connected Rock Island to the Illinois mainland. The three dam owners laid out a town on the Illinois mainland opposite the upper end of Rock Island. Initially, they named the town site Rock Island Mills. However, there were already numerous communities, a river, and an island with similar Rock Island names. Therefore, David B. Sears

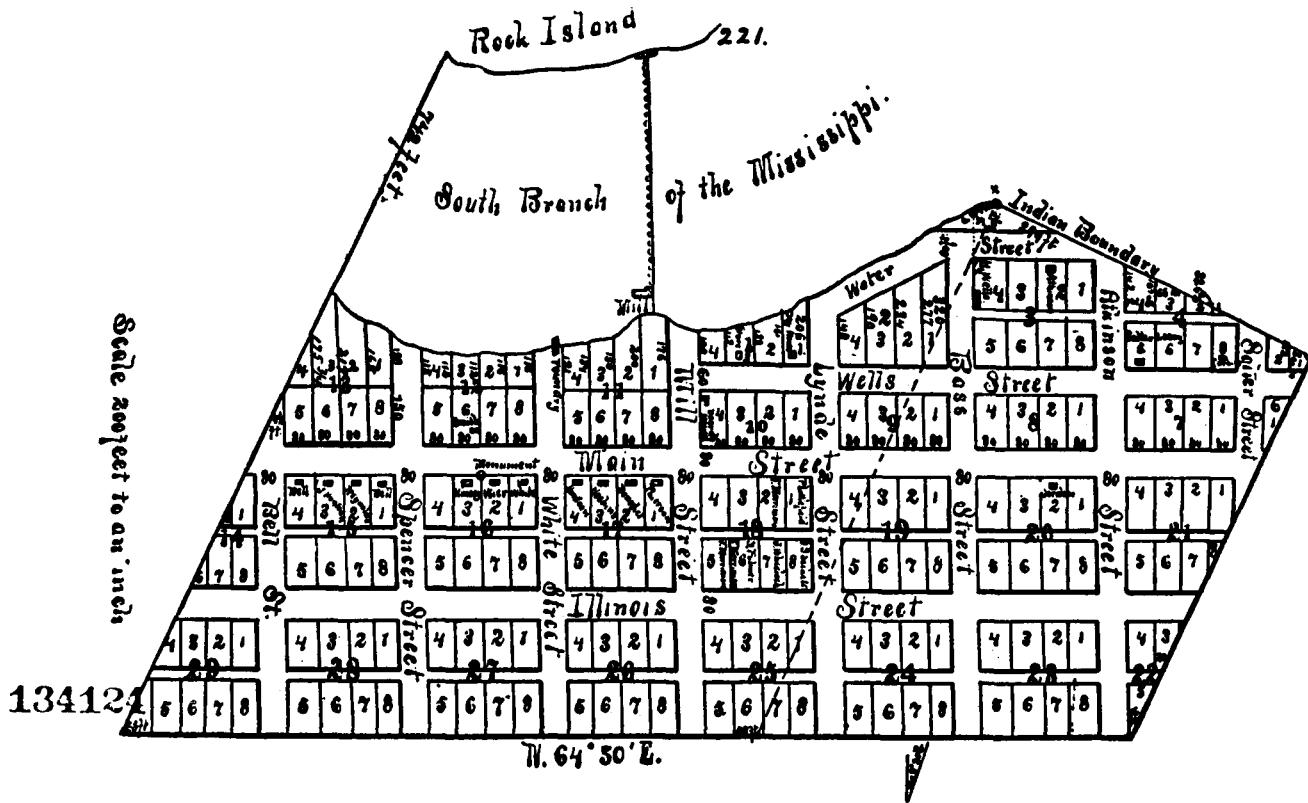
and the others joined with Huntington Wells, Charles Atkinson, and Joel Wells in plotting out a larger town in 1843, naming it Moline.

David B. Sears, DeWitt Dimock, and John Gould - Early Entrepreneurs

In 1855, David Sears purchased title to Benham's Island, situated near the upper or eastern portion of the larger island of Rock Island. Earlier, in 1846, he had built a stone wall dam which connected Benham's Island with Rock Island. The dam furnished water power to Sear's flour mill on Benham's Island and to several businesses on the main island. In addition to the mill, a house with barn, outbuildings, three warehouses, and a steamboat landing were built by David Sears on Benham's Island. A road built between the two dams formed part of a wagon route that stretched from Moline, across the dam at Benham's Island, to the steamboat landing. From this steamboat landing, wagons were ferried across the Mississippi River to the Iowa

Below: Reproduction of original Moline survey plat by P.H. Ogilvie in 1843. Note the dam across Sylvan Slough to Rock Island and the notation of the Sears Mill at the southern end. (AMCCOM-HO Archives)

Reproduction of Original Moline Survey Plat



This is a reproduction of P.H. Ogilvie's original survey for the town of Moline, which was made in 1843.

shore.

The Sears' mills and dams built at Rock Island attracted other businesses to Rock Island. The waterpower available at Rock Island brought commerce to the island. In 1847, Sears persuaded John Deere and his partners, Robert N. Tate and John Gould, to resettle in Moline along the shore of the Sylvan Slough. He did this by offering Deere and Associates rent-free waterpower for a period of time, and also promising he would build them a frame factory if they would relocate their plow shop from Grand Detour, Illinois, to Moline.

David B. Sears and other citizens who held property on Rock Island without legal authority maintained extended correspondence with legislators in Washington, D.C., in an effort to obtain titles to the properties. Only the persistence of Colonel George Davenport and David B. Sears paid off. They were the only

ones to receive legal title to property on Rock Island. As with the case of Colonel Davenport, David Sears received title to the 35.45 acres of land on Rock Island opposite Benham's Island through a special act of Congress. Influential politicians had aided both Sears and Colonel Davenport. In 1855, David B. Sears succeeded through the special act of Congress to purchase 35.45 acres of island property for \$1.25 an acre; the same price per acre that Colonel Davenport paid for his 158 acres in 1844.

Mr. Sears, an enterprising man, laid out a portion of his island property in lots. He planned to develop it as a subdivision to the city of Moline. Although David Sears sold a few lots to his Rock Island Village, the village never developed, and Mr. Sears sold the property back to the Federal Government for \$145,175. The price reflected improvements he had made on his property.

Top Right: DeWitt C. Dimock, (Moline Public Library)

Bottom Right: John M. Gould. The two partners operated a woodware factory on Rock Island, 1852-1857. Dimock, Gould and Company continued its lumber business for over a century in Moline, IL. (Moline Public Library)

Bottom Left: Expansion of Dimock & Gould was announced by this advertisement in the Fleming and Torrey city directory of Moline for 1856-1857. (Moline Public Library)



DIMOCK & GOULD.
MANUFACTURERS OF
TUBS, PAILS,
AND BEDSTEADS;
ALSO, ALL KINDS OF TURNED STUFF.

Have doubled their machinery since last year.

■°

Expansion of Dimock & Gould was announced by this advertisement in the Fleming and Torrey city directory of Moline for 1856-1857.



Dimock, Gould and Company

Shortly after John Deere and Robert N. Tate moved their plow shop from Grand Detour to Moline, the two partners invited John Gould, an accountant from Grand Detour, to buy into their plow business. In November 1851, Mr. Gould sold his interest in the company to John Deere for \$2,600. John Gould then formed a partnership with his brother-in-law, DeWitt Dimock. In 1852, they opened a woodenware business on Rock Island named Dimock, Gould and Company. The two partners selected the island as a site for their business in order to take advantage of the waterpower and to be closer to the lumberyards on the island. DeWitt Dimock had earlier, in 1846, established a bedstead factory on Rock Island; but, in 1852, he sold his factory and joined John Gould in forming their wooden tub and pail factory on the island. Their printed business cards read: "Dimock and Gould manufacturers of wooden tubs, pails, bedsteads, and all kinds of (wooded) turned stuff."⁴⁹

Dimock, Gould and Company's woodenware factory was the first of its kind in the local area.

Prior to 1852, woodenware was shipped into the area from the East at great expense. DeWitt Dimock employed the latest technology in his plant. He instituted the assembly line system, and mass production methods, and relied heavily upon machinery to do practically everything but fasten rivets and paint the products. However, in 1856, a fire destroyed the factory; but, by the following year, Dimock and Gould had built another on the island. After the old brush dam road was washed out due to a flood, Dimock, Gould and Company replaced the road with a wooden bridge that spanned the slough from Moline to the island. Later, the Federal Government replaced the bridge with a stronger one, constructed in 1873. During the Civil War, Dimock and Gould found an excellent customer for their products right on the island. The woodenware company provided wooden barrels, tubs, pails, and other wooden products for the Rock Island Prison Barracks. Later, wooden buckets, pails, barrels, etc., were replaced by galvanized (coated with rust-resistant zinc)

Below: *Dimock, Gould and Company's Tub and Pail Factory on Rock Island. The island factory was located near the dam which crossed the Sylvan Slough to Moline, Illinois. Cartouche from 1857 map of Moline. (Rock Island County Historical Society.)*

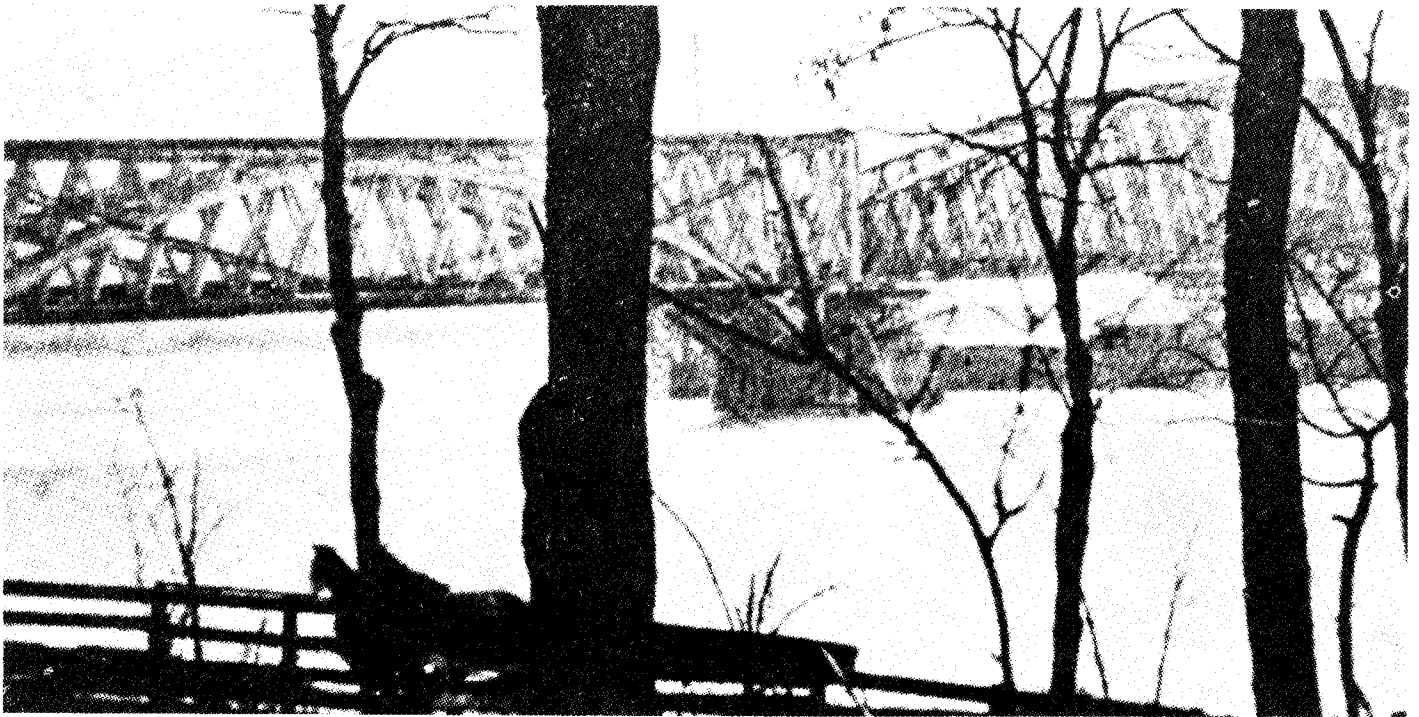


metal products. In 1862, when Congress passed an act establishing a national arsenal at Rock Island, Dimock, Gould and Company, plus several other parties who had received grants for temporary property leases, were notified by the War Department to leave the island. By 1867, it became evident to the two partners that they were not going to receive a permanent title to the property which they had developed on Rock Island. Neither Dimock or Gould submitted a claim for monetary settlement to the federal commission that handled the final settlement proceedings. Instead, however, the firm packed its equipment and reestablished itself at a new location on the Moline side of the Mississippi River. It was at this new location that Dimock, Gould and Company developed their famous paper pail. Dimock, Gould and Company outlasted its founders. For over a century, the company which the two brothers-in-law initially started on Rock Island continued to operate in Moline and the surrounding communities.

The presence of squatters on Rock Island, however, had a negative effect on the island.

They damaged Rock Island's timber by cutting and stealing the wood. Joseph M. Street, U.S. Indian agent for the Sauk and Fox Indians after the Black Hawk War, notified the War Department that the island, though once well-timbered, had been nearly cleared of its original growth by the public. The squatters destroyed young and old trees and also took possession of favored spots of land on the island. After being informed regarding the squatters and wood stealing at Rock Island, President Martin Van Buren issued a statement instructing the marshal to remove the squatters from the military reservation at Rock Island and, if necessary, to take additional legal steps against the trespassers. Nevertheless, the U.S. marshals and other civil officers were, for the most part, ineffective in their attempts to remove the offenders. In addition to squatters cutting clearings in the island's timber, and other trespassers pilfering wood for fuel, railroad workers in 1853 began clearing a 100 foot wide path across the island in preparation for laying track.

Below: View of first bridge from Rock Island to Davenport, railroad bridge built 1853-1856. Note the suspension chains added in 1859 to reinforce the fixed wooden spans. (AMCCOM-HO Archives)



First Bridge Across the Mississippi River

Plans for a transcontinental railroad had long been a dream of railroad men in America. But, before the dream could be a reality, major obstacles had to be overcome. Several of these obstacles were man-made, such as the right of each state government to grant charters and to regulate railroad construction within the boundaries. Southern politicians attempted to block the advancement of the northern rail route across the United States. Northern Congressmen, in turn, were successful in vetoing a southern rail route to the Pacific Coast. In 1853, Jefferson Davis, Secretary of War in the pro-southern administration of President Franklin Pierce, arranged to buy the Gadsden Purchase from Mexico. This strip of 30,000 square miles in New Mexico and Arizona provided the missing link in a proposed New Orleans-to-San Diego railroad. Davis, smarting from the congressional defeat of a southern rail route to the Pacific Coast, was extremely active in delaying the northern route to California.

A proposed Chicago-to-San Francisco rail route crossed the Mississippi River at Rock Island, an island under control of the War Department. Secretary of War Davis attempted to halt construction by involving the bridge company in litigation over the company's right-of-way across the island.

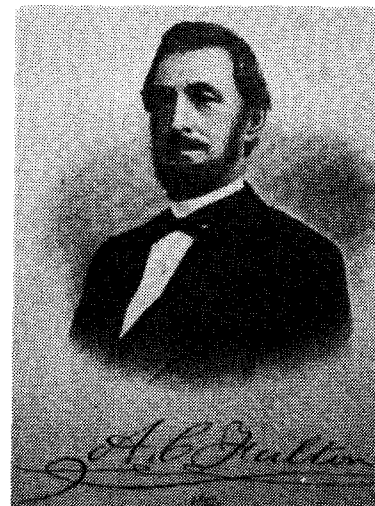
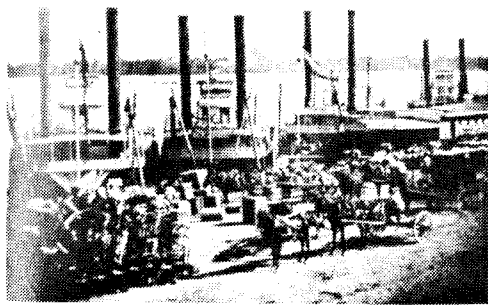
Other interests, besides southern politicians and southern railroad men, were against the building of a rail route across the heartland of America. Steamboat and river town interests perceived the railroad as a threat to their inland waterway commerce. The Mississippi River and its tributaries provided a natural north-south trade route for the Midwest's agricultural products and raw materials. St. Louis became the clearing-house for such trade. From St. Louis, merchants shipped trade goods up the Ohio River to Pittsburgh or transported the cargo down river to New Orleans.

The arrival of the railroad on the east bank of the Mississippi River at Rock Island, however, offered midwest farmers of Iowa and northern

Below: A view of the St. Louis docks jammed with packets. St. Louis steamboat owners attempted to block construction of the 1856 railroad bridge at Rock Island. (Davenport Public Library)

Right: Bridge advocate A.C. Fulton (Davenport Public Library)

Middle: Judge James Grant, President of the Rock Island and LaSalle Railroad Company. Judge Grant resided in Davenport, Iowa. (Davenport Public Library Special Collections)



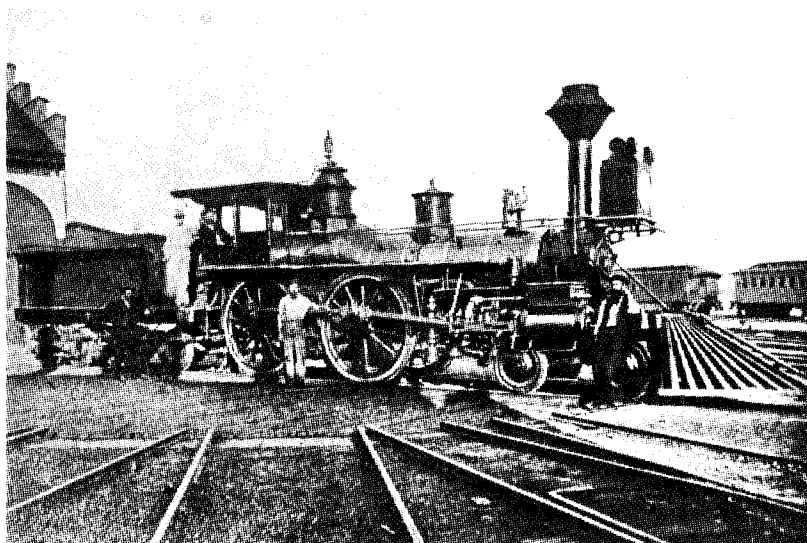
Illinois a direct east-west trade route to Chicago and to urban markets farther east. The St. Louis Chamber of Commerce could see its city being replaced by Chicago as the new "hub of the Midwest". The clash between these two powerful centers of commerce for control of the Midwest's commercial shipping occurred at Rock Island.

It was not by accident that the railroad came to Rock Island. In June 1845, Colonel George Davenport had hosted a meeting at his island estate to discuss bringing a railroad to Rock Island. Prominent citizens from the Rock Island area such as Antoine LeClaire and Judge James Grant attended the meeting. These enterprising men realized the commercial benefits which would result from railroad and bridge construction at Rock Island. Although Colonel Davenport was murdered two weeks after the meeting, others who attended continued to formulate plans to bring a railroad to Rock Island; on 27 February 1847, they succeeded. The Illinois General Assembly granted them a charter to construct a LaSalle-to-Rock Island railroad line.

LaSalle was the community at the end of the Illinois and (Lake) Michigan Canal from where Rock Island and LaSalle Railroad Company began and was initially managed by local tri-city investors. Judge James Grant of Davenport was elected president of the company. Among the directors of the new line were Napoleon B. Buford, Rock Island; Ebenezer Cook, Davenport; and Charles Atkinson, Moline. However, they lacked experience in railroad building so the Rock Island and LaSalle Line developed slowly.⁵⁰

Fortunately, Mr. Henry Farnam, an experienced railroad man and investor, took an interest in the project as an extension of his Michigan and Southern Railroad and got other railroad men to invest in the line. Interest in the line increased sharply after the directors followed Mr. Farnam's suggestion and extended the line east to Chicago. On 1 October 1851, under its new name, the Chicago and Rock Island Railroad Company, began to build westward from Chicago towards Rock Island. As the railroad advanced in the direction of Rock Island, it attracted additional investors. The prospect of linking Chicago and Lake Michigan

Right: Portrait of Henry Farnam, President and Chief Engineer of the Railroad Bridge Company, chartered in 1853. (AMCCOM-HO Archives) **Below:** The John A. Dix, Seventh Engine of the Mississippi and Missouri Railroad. It crossed the river on ice in the winter of 1855. (AMCCOM-HO Archives)



with the Mississippi River appealed to many investors. However, the additional prospect of Rock Island becoming the site for the first bridge to span the Mississippi River certainly sweetened the investment.

For years, Rock Island had been recognized as the best point at which to bridge the Mississippi River. Mr. A.C. Fulton, a noted civil engineer, among others, surveyed the river crossing at Rock Island and endorsed it as the best site for the first bridge. Engineers of the railroad company preferred Rock Island for numerous reasons. The Mississippi River was narrow at that point, and the shores were bedrock. However, the key attraction seemed to be the island of Rock Island. Using the island as a stepping stone to cross the river appealed to the engineers. The bridge's construction would be easier, therefore more economical. Rock Island's location, 180 miles directly west of Chicago, made it less expensive to build than, for instance, the Galena, Illinois area.

Ironically, an 1859 study, performed by a board of engineers after the construction of the first bridge, cited the location as a poor choice.

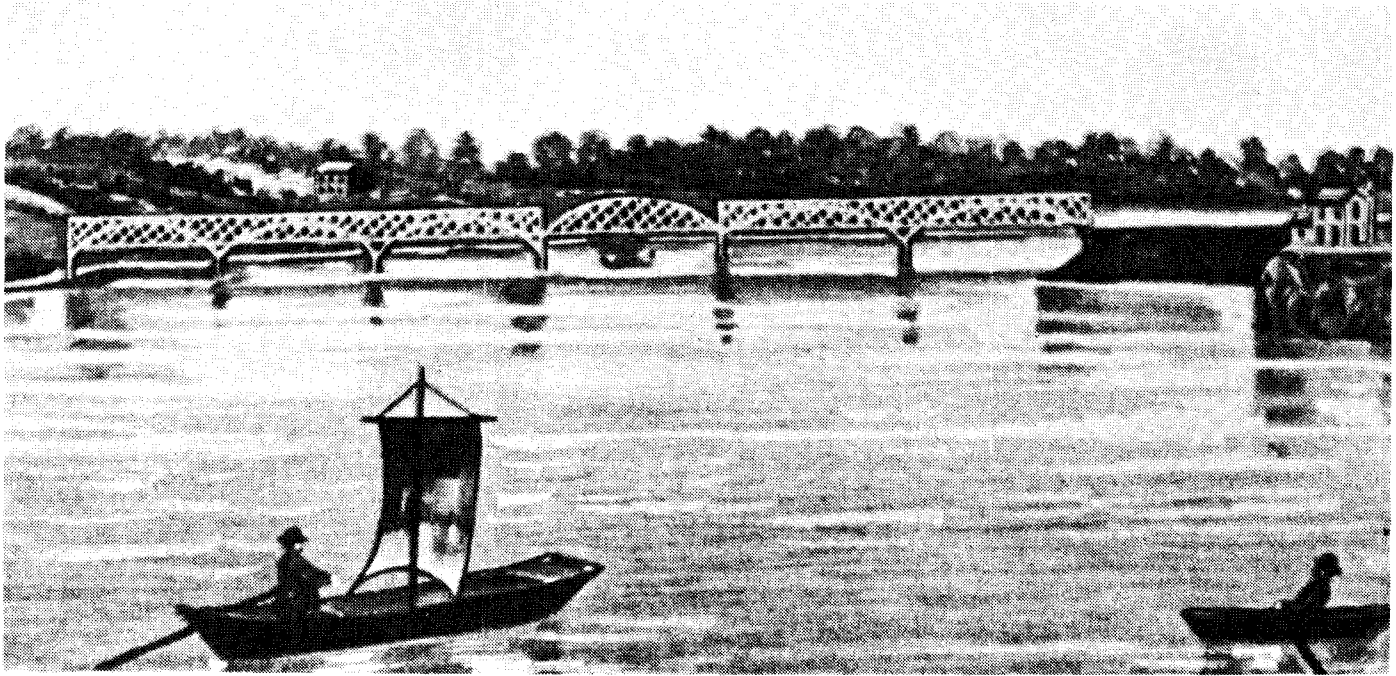
Notations on a map prepared by the engineers to accompany their report to the War Department had "Bad location for a bridge" written beside the original bridge. A better choice was further downstream, at the old ferry crossing from the city of Rock Island to the Davenport levee. Two main criticisms of the bridge's original site were that it was too near the rapids, and that its draw span did not line up with the current of the main channel.⁵¹

The M & M Bridge Company

Three corporations had to be formed in order to build a railroad that would span the Mississippi River at Rock Island. The Chicago & Rock Island (C&RI) Railroad Company's charter only applied to constructing a railroad within the boundaries of the state of Illinois. Several directors from the C & RI Railroad joined with a group of Iowa investors to organize the Mississippi and Missouri (M&M) Railroad Company.

The M&M Railroad Company's charter empowered them to construct a railroad from Davenport, Iowa, on the west banks of the

Below: The original Rock Island to Davenport bridge had a Howe-Truss superstructure. This first railroad bridge across the Mississippi River was constructed of five wooden spans plus a draw span. The single tracked railroad bridge was painted with two coats of white paint. (AMCCOM-HO Archives)



Mississippi River, to Council Bluffs, Iowa, situated on the east banks of the Missouri River.

The C&R Railroad and the M&M Railroad formed a subsidiary firm named the M&M Bridge Company. The bridge company had interlocking directors from the two railroad firms as officers. The officers of the two companies agreed to cooperate in building a bridge across the Mississippi River and to jointly finance the project. In January 1853, the M&M Bridge Company acquired a charter from the state of Illinois to construct a railroad bridge across the Mississippi River to the Iowa side. The two railroad lines that composed what was, in reality, one railroad were later allowed to merge. The Chicago & Rock Island track was completed in 1854. The Mississippi & Missouri Railroad, organized in 1853, finished its route from Davenport to Council Bluffs in 1869. By then the company had become the Chicago, Rock Island, and Pacific Railroad Company.

The bridging of the Mississippi River required three phases: first, the construction of a span across Sylvan Slough (southern channel) to

Rock Island; second, the laying of a railroad bed in a northeast direction across the island, past Colonel Davenport's property, to the north shore of the island; and third, constructing the bridge over the main or northern channel.

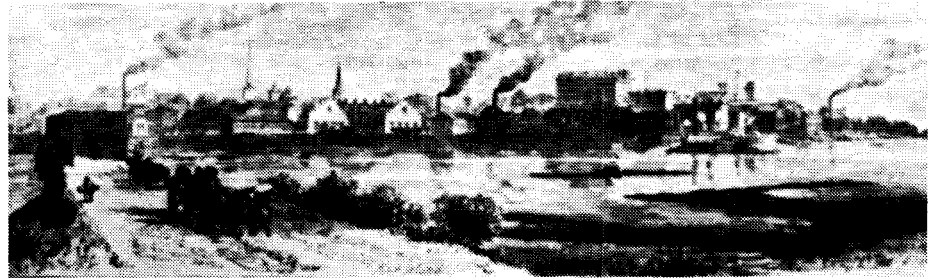
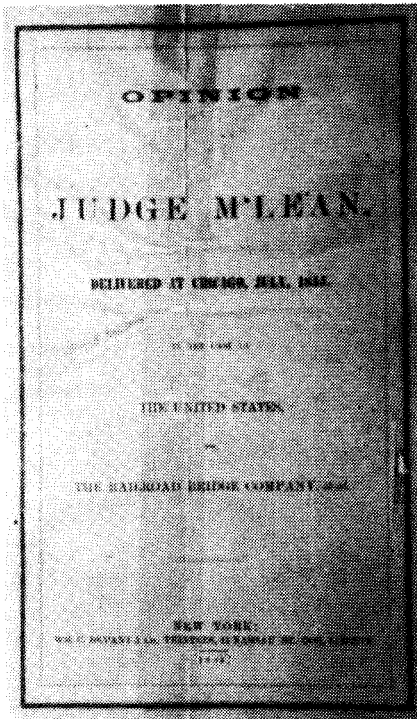
The Act of 1852 granted rights-of-way through public lands to railroads and road building companies, and the M&M Bridge Company directors assumed that Rock Island was public land and proceeded to survey the river and the island. The island's status, however, seemed uncertain at that time because of past announcements and rumors of its sale.

Description of the Bridge

The company went ahead and hired two private contractors to build the bridge at Rock Island. The John Warner Co., a local firm, received a contract to construct the piers and establish the grade for the railroad bed across the island. Stone & Boomer Co., of Chicago, constructed the superstructure of the bridge using specially fabricated Howe Truss-type spans.⁵²

Below: The cover of Judge John McLean's written opinion delivered July 1855, in the case of the United States, vs. the Railroad Bridge Company, et. al. (Augustana College Special Collections)

Right: Rock Island wagon bridge that provided access to the island from the city of Rock Island, across Sylvan Slough. (Moline Public Library Local History Collections)



Description of the Original Bridge

The original bridge had a Howe Truss-type superstructure with a single track. The superstructure was constructed of timber and consisted of five wooden spans, plus a draw span. Its draw span, the heaviest and largest of its time, was located in the middle of the river. The timber cords of the bridge were protected with two coats of white paint. The bridging of the Mississippi was a major technological achievement. Nothing of that size or status had yet been constructed in the area.

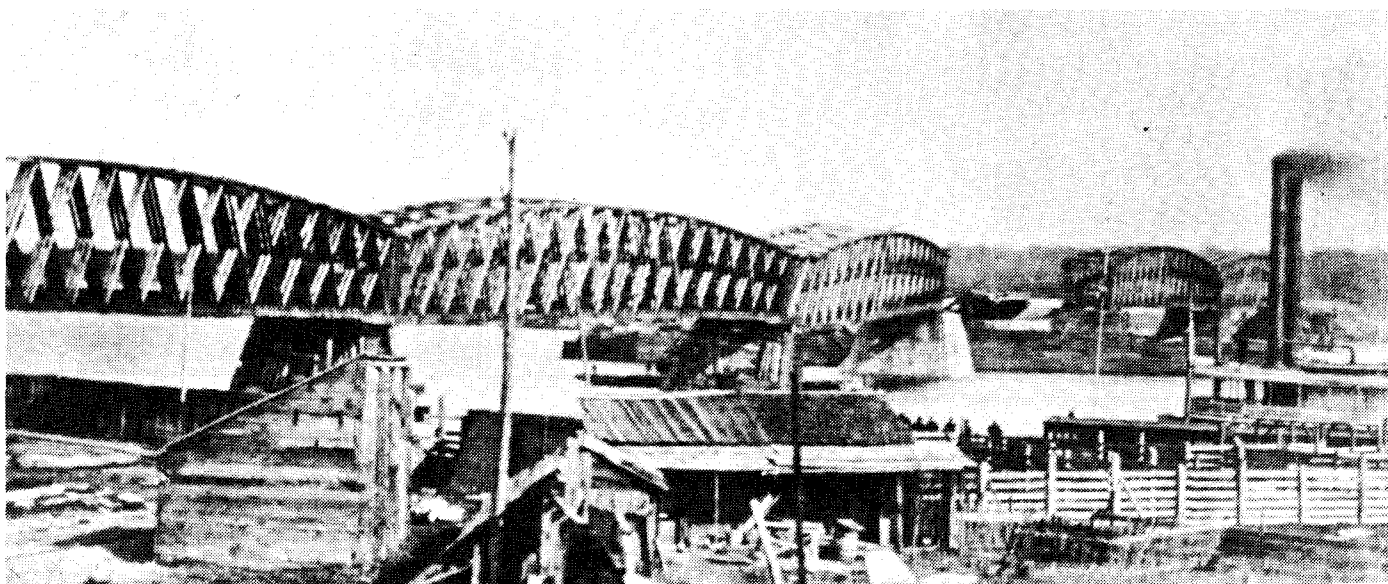
United States vs. Railroad Bridge Company, et al (and others)

By June 1854, the John Warner Company had the stone abutments in place on both sides of Rock Island, plus the stone piers in the south channel (Sylvan Slough) finished. At this point in the bridge's construction, an officer from Washington, accompanied by two U.S. marshals, appeared at Rock Island: On behalf of the Secretary of War, the officer notified the contractors that they were trespassing on federal

property. The officer then instructed the contractors to halt their work and remove all their buildings and other property from Rock Island within 15 days. Directors of the M & M Bridge Company decided to ignore the order. They ordered the contractors to continue their work on Rock Island. Construction work did continue but at a slow pace because of the uncertainty of the situation. Railroad and bridge interests considered Rock Island to be public land, since there was no military presence on the island. They hoped that the Act of 1852 would substantiate their claim to a right-of-way for construction of a railroad across the island.

After lengthy legal correspondence between the War Department and the railroad, Secretary of War Jefferson Davis ordered the U.S. District Attorney in northern Illinois to begin litigation against the M & M Bridge Company. The district attorney applied for a court injunction to prevent the construction of a railroad across the island and also to prevent building of bridges over the river. In its suit, the government charged the bridge company with trespassing on federal property and with obstructing river navigation.

Below: The second Rock Island to Davenport bridge, shown below, was damaged in the Spring of 1868 after ice moved a pier and wind blew the swing span into the water. (AMCCOM-HO Archives)



In July 1855, the case, titled "The United States vs. Railroad Bridge Company, et al., (and others)," came before the United States Circuit Court. Judge John McLean, an Associate Justice of the Supreme Court, presided over the case. After listening to testimony from both parties, Judge McLean ruled against granting an injunction sought by the War Department. The judge cited the Congressional Act of 1852 as part of his reasons for refusing to grant the United States Government its application.

Influx of Squatters on Rock Island

Judge John McLean's decision to reject the government's request for an injunction to halt bridge and railroad construction on Rock Island had an impact on another issue, that being whether or not Rock Island would be open to civilian settlement, or reserved for a future military purpose. Settlers interpreted the judge's ruling to mean the island would soon be offered for public sale.

For years a cloud of uncertainty in regard to Rock Island's future hung over the island. The Secretary of War's Office had argued with

Congress and squatters alike over the future of Rock Island. Finally, in 1848, Secretary of War, William March offered the island property for sale at public auction. He succumbed to pressures applied by persistent squatters and influential land speculators. Curiously, no announcements of the auction date appeared in the local Rock Island area. Only after someone "spotted" an advertisement announcing 5 January 1850 as the day of the auction did area citizens become aware of the plan. Local residents feared the sale was a scheme, whereby St. Louis and New York land speculators could acquire title to the land they held on Rock Island.

Not all area residents favored civilian development of Rock Island. Many local people supported the building of a national armory on Rock Island. These local citizens immediately wrote their congressmen and sent a spokesman to Washington, D.C., to protect the sale and promote their cause. The hostile mood of some of the local citizens prevented the sale. Squatters, who occupied land on Rock Island without legal title, posted warning that any bidding by outsiders on their claims would be at

Below: Abraham Lincoln during his days as an attorney in Illinois. (Illinois State Historical Society).



their own peril. After being alerted to the potentially volatile situation at Rock Island, officials in Washington telegraphed the auctioneer to postpone the sale. Private parties who had an interest in the private commercial development of Rock Island organized and hired several attorneys to present their case in court. Abraham Lincoln was one of those attorneys who unsuccessfully attempted to win title claims for some of the squatters.

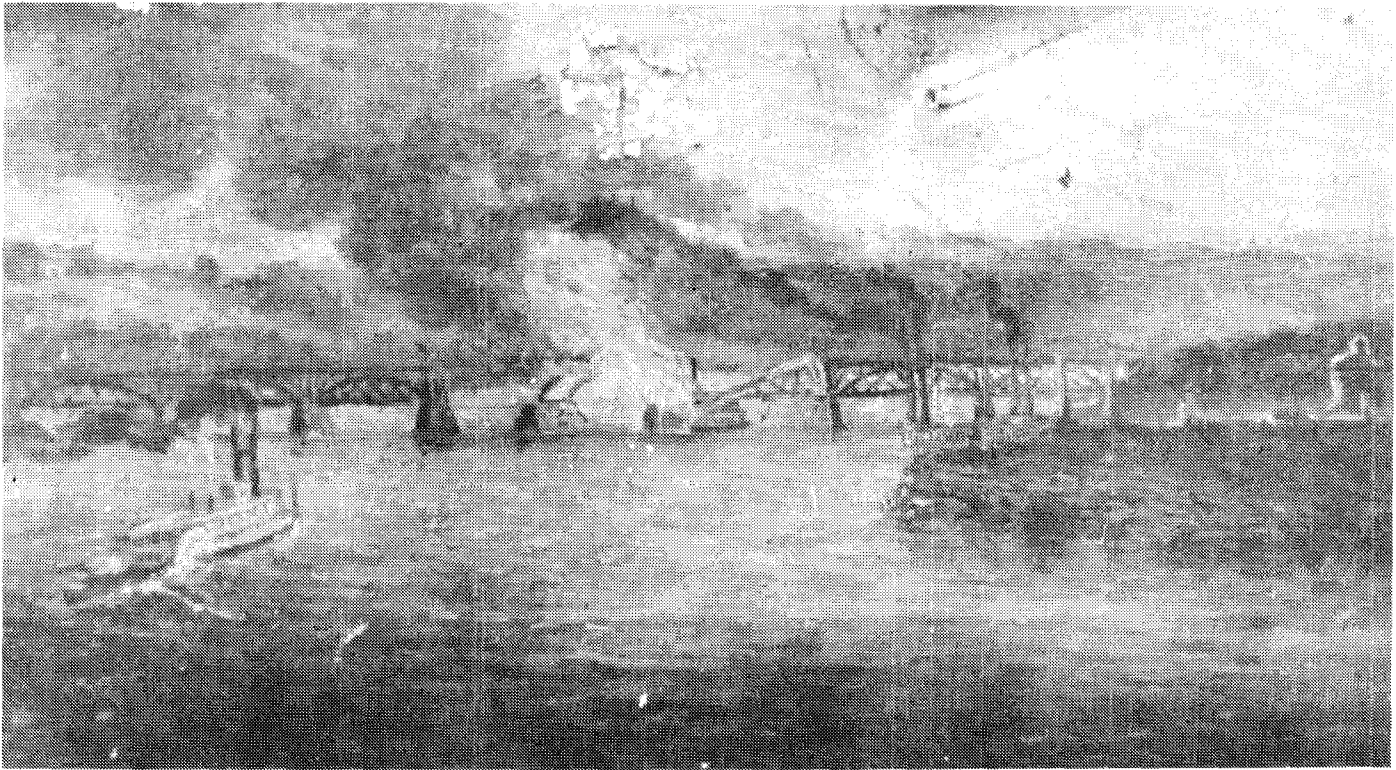
With this past history in mind, and with news of Judge McLeans's decision allowing the railroad and the bridge to be constructed across and on Rock Island, squatters converged on the island. The number of applications for preemption to Rock Island property filed with the Register of the General Land Office in Springfield rose sharply after McLean's decision was announced. Squatters literally flocked to Rock Island and staked out their claims. Quarrels developed over which party was occupying which quartersection. Major D.W. Flagler stated in his work, *History of the Rock Island Arsenal*, that "one man, Mr. Shaub of Davenport, who had a

house near the present site of the commanding officers quarters, had his house torn down, loaded on a raft, set on fire, and sent downstream."⁵³

From the late 1850s until the beginning of the Civil War in 1861, squatters on Rock Island continued to seek legal confirmation of their preemption claims to land on the island. However, when the Civil War began, the attentions of the squatters and the nation turned to the more urgent issue of preserving the Union. A majority of the private parties who had occupied land on Rock Island relinquished their preemption claims when Congress passed an act establishing a national arsenal on Rock Island. Others agreed to vacate the island once the Federal Government actually began occupying the island. Eventually, the Federal Government established a commission to hear and settle monetary claims filed by certain squatters.

However, prior to the establishment of an arsenal at Rock Island, The Rock Island Bridge Company was involved in yet another landmark court case. The railroad bridge at Rock Island

Below: Effie Afton incident (Artist unknown). On 6 May 1856, the steamer Effie Afton crashed into the recently constructed railroad bridge at Rock Island, setting it afire. (Rock Island County Historical Society)



enhanced the island's attractiveness to Congress as a potential site for a national arsenal. First, the bridge company had to survive a court battle waged by commercial steamboat interests.

Effie Afton Incident

The railroad arrived on the eastern bank of the Mississippi River in the midst of the steamboat's golden era. Transportation of the upper Mississippi River Valley was controlled exclusively by St. Louis steamboat interests until the railroad's arrival. Steamboat owners watched developments at the bridge and waited anxiously for an opportunity to confront the railroad and bridge builders in court. They considered the bridge at Rock Island to be a threat to their packet and ferry business, which operated on the upper Mississippi River.

On 22 April 1856, the first locomotive to span the Mississippi River crossed the railroad bridge at Rock Island. Two weeks later, the incident that the steamboat owners had hoped for occurred. On 6 May 1856, the steamboat *Effie Afton* departed the town of Rock Island bound for St. Paul, Minnesota. As the steamer entered

the main channel of the river, she collided with a ferryboat. Receiving only slight damage, the *Effie Afton* proceeded through the bridge's drawspan. Once the vessel had cleared the span her side paddle stopped churning. The swift current of the upper rapids carried the ill-fated *Effie Afton* crashing back against the railroad bridge. Shortly after the crash, nearby boats rescued the passengers, some luggage, and the boat's crew. While the *Effie Afton* laid against the bridge, a fire ignited the boat and spread onto the bridge, burning portions of the bridge's wooden superstructure. Newspaper articles of the incident stated that the steamboats along the shore blew their whistles, some as a warning to other boats traveling the river, and others as an act of celebration.

Mr. James Hurd and Associates, owners of the *Effie Afton*, filed a lawsuit against the bridge company for damages. Steamboat owners hoped that this test case would hinder other bridge building ventures along the Mississippi River Valley. They believed a favorable verdict would discourage investors from financing future bridge building on the Mississippi River.

Below: In 1865, the railroad bridge at Rock Island was completely rebuilt using heavier timber. This second superstructure was replaced by an iron double deck bridge, when the location of the bridge was changed to its present site in 1872. (AMCCOM-HO Archives)



Officially, the case was titled "Hurd et al., (and others) vs. the Railroad Bridge Company", but it became popularly known as the "*Effie Afton* Case". The Hurd lawsuit came to trial in Chicago before the federal district for northern Illinois. The presiding officer was Judge John McLean, who had earlier ruled against the Federal Government's request for an injunction to halt railroad and bridge building operations across Rock Island. The M & M Bridge Company obtained Abraham Lincoln who argued the case. The plaintiffs, Mr. Hurd and Associates, solicited two prominent midwest lawyers, H.M. Wead and T.D. Lincoln, to argue their cases. The two Lincolns, however, were not related. Abe Lincoln, then a young, rising Springfield attorney, had been generally credited with winning the case. However, court records show the trial actually ended in a hung jury; nine jurors stood in favor of the bridge, and three members of the jury opposed the structure. Legally, the case was subject to retrial, but the steamboat interests decided to submit another case to a different federal court.

On 7 May 1859, the steamboat attorneys filed

a suit against the M & M Bridge Company in the U.S. District Court in southeast Iowa. The objective of this suit was to have the federal court declare the bridge at Rock Island to be a public nuisance and to receive a court order for its removal. Judge John M. Love ruled in favor of James Ward, a St. Louis steamboat owner. Judge Love declared the bridge a nuisance and ordered those portions of the bridge which extended into Iowa be removed. The M & M Bridge Company promptly appealed the decision to the U.S. Supreme Court. In December 1862, the highest court in the land set aside the lower court decision and nullified the order.

Still, steamboat owners continued to harass the bridge builders with law suits until the U.S. Congress passed a law declaring a similar type of bridge at Clinton, Iowa, to be a legal structure. After this congressional decision, the judge dismissed law suits that were still pending against the bridge.⁵⁴

Both Chicago and St. Louis newspapers, as well as the respective Chambers of Commerce, actively supported their cities' interests during

Below: Pier of the original bridge at Rock Island. (AMCCOM-HO Archives)



the trials. The St. Louis Chamber of Commerce took an especially active interest in the trials. St. Louis businessmen actively raised money for lawyers' fees and court costs to battle the bridge. In addition, the St. Louis Chamber of Commerce dispatched its own committee to Chicago to present its arguments to the public during the *Effie Afton* trial.

The St. Louis Chamber of Commerce's strong commitment to removing the bridge at Rock Island may have led some of its members to use criminal means in accomplishing this objective. Two men were arrested at Rock Island and charged with attempted arson of the railroad bridge at Rock Island. Although the two were not convicted, it was generally believed by tricity residents that they had been recruited by the St. Louis Chamber of Commerce to set the bridge on fire.⁵⁵

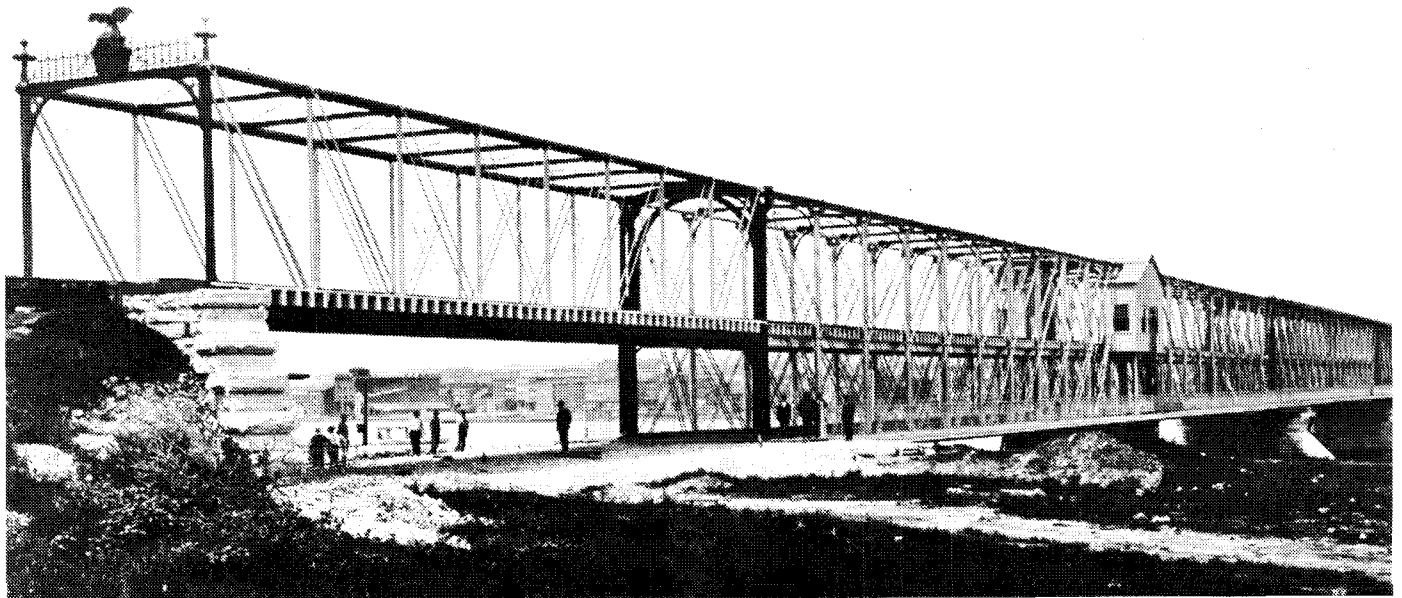
Despite these efforts to remove the bridge, the

structure endured. The first bridge superstructure lasted for nearly ten years. During the 1850s, portions of its timbers were destroyed by fire and damaged by ice jams and windstorms. After only three years, the bridge's wooden spans needed strengthening due to the volume of trains and vehicles that used the bridge. More powerful, heavier, stronger spans were needed to support this additional weight.

Eventually, in 1865, the bridge company completely rebuilt the bridge using heavier timber. The new span was constructed over and around the old chords, then the original timbers were removed. This procedure allowed the bridge to remain open during the building of the new span.

A stone memorial commemorating the site of the original railroad bridge across the Mississippi River is presently situated near the

Below: *The Government Bridge of 1872 was made of iron with a rail deck above the wagon deck. It was situated in the present location of the Government Bridge to Davenport, Iowa. (AMCCOM-HO Archives)*



Colonel Davenport House, along the northwest shore of the island.

In 1866, the Federal Government proposed to the M & M Bridge Company that the location of the bridge be changed to its present site. The government offered to share the expense of building the new bridge. Brigadier General Thomas J. Rodman, the second Commanding Officer of the Rock Island Arsenal, drafted the plan which satisfied the requirements of both the railroad company and the United States Government. The railroad company agreed to give up its old right-of-way across Rock Island and remove its track and bridges in exchange for a new bridge, which would be built at the extreme west end of the island. The railroad tracks across the island were relocated to allow the arsenal to fully develop the interior of Rock Island. Also, the tracks were connected to an arsenal trackage. The bridge was finally completed and turned over to the Rock Island Arsenal in February 1873. General Rodman's commitment to the relocation of the rail tracks and the construction of a new bridge at the northwest end of the island was a key to the success of the project. In 1869, General Rodman

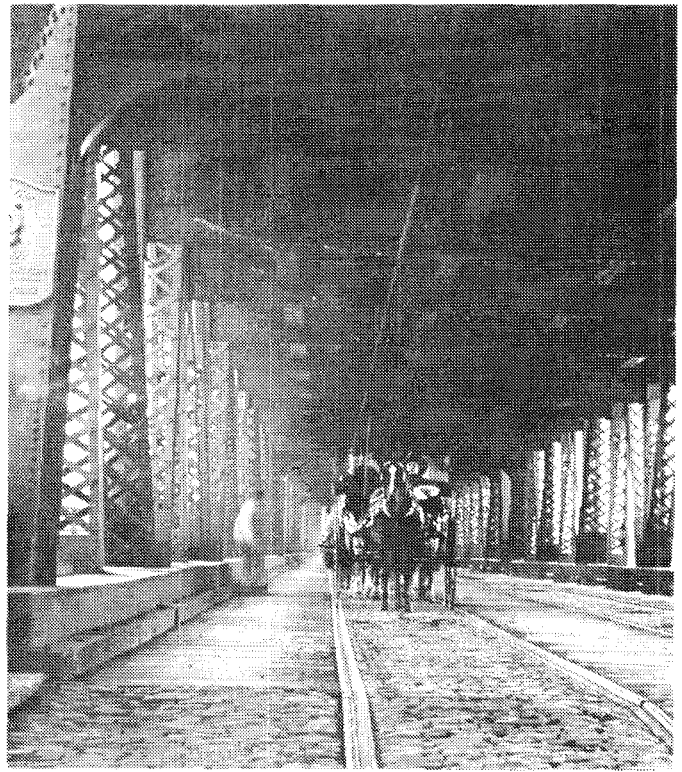
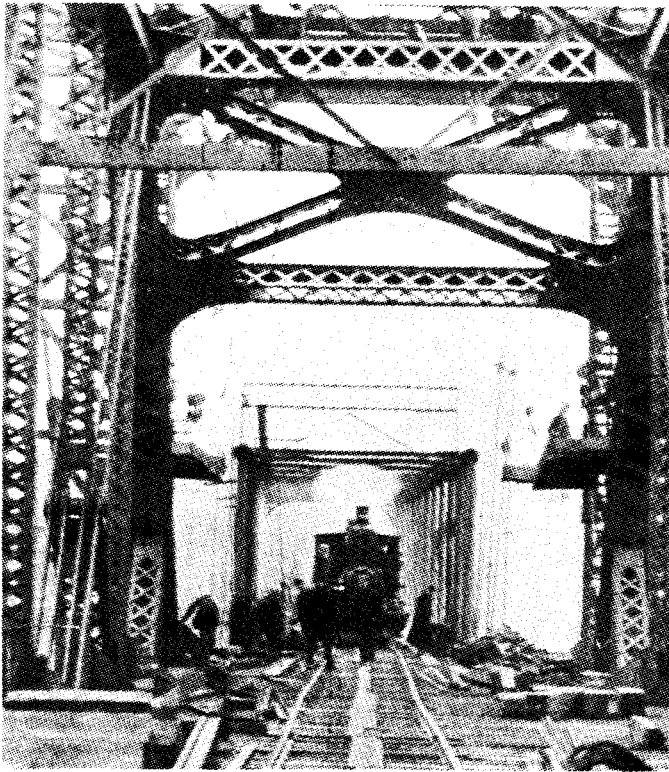
ordered surveys of the Mississippi riverbed and measurements of the river current velocity at various stages. He then determined the sites for the bridge abutments and piers. Letters written by General Rodman to his superiors reveal the energy and thought he had put into the bridge project.

Initially, the bridge was to be a double track bridge with an extra deck for wagons. However, estimated costs for such a bridge exceeded congressional appropriations. General Rodman carried on a lengthy correspondence with the Chief of Ordnance and the Secretary of War seeking the additional funds necessary to build the bridge. Unfortunately his persistence led to the transfer of the bridge construction to the Engineering Department. Major Daniel Flagler, his successor as Commanding Officer of the Rock Island Arsenal, stated: "General Rodman was deeply interested, and took great pride in his work, and its (bridge construction) transfer to other offices was a serious blow to him."

General Rodman remained interested in the bridge after its transfer to the engineers. Periodically, he recommended changes in its construction. His suggestions included such

Below: The 1896 U.S. Government Bridge's upper (railroad) deck. (AMCCOM-HO Archives)

Right: The lower (wagon) deck of the 1896 bridge; note the street car tracks used by horse carriages. (AMCCOM-HO Archives)



basic revisions as the placing of the wagon road deck under the railroad tracks, rather than above it, as initially planned.⁵⁶

Description of the 1872 Bridge

The 1872 iron bridge which connected Arsenal Island to Davenport measured slightly over 1,500 feet in length.⁵⁷ The bridge had five spans 220 to 260 feet long, plus a draw span of 368 feet in length. The superstructure of the bridge was a double Whipple truss with two decks. The bridge stood 37 feet and 2 inches tall from the top of the piers to the top bracing. The width of the structure was a narrow 16 feet, considering it was for two way wagon traffic. The posts and the top chords of the bridge were wrought iron and the ties were flat iron bars. The Baltimore Bridge Company erected the superstructure, and the Phoenix Company manufactured the iron work. Two vertical hydraulic jacks, operated by steam power, swung the 368 foot draw span. (For a more detailed description of the 1872 iron bridge consult Chapter V of Major Flagler's *A History of the Rock Island Arsenal*, published in 1877).

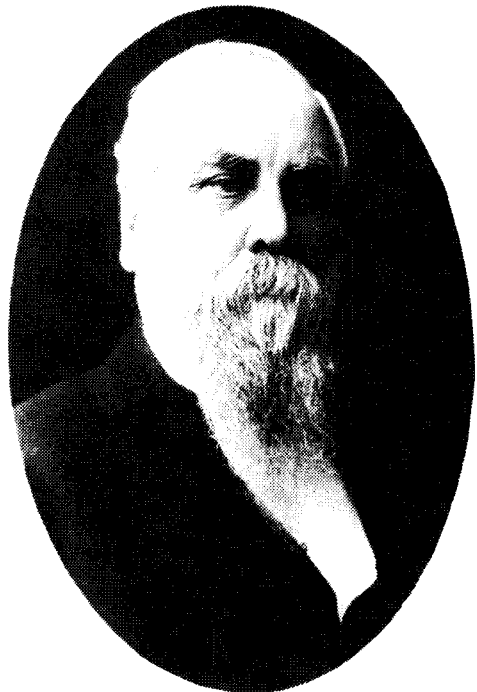
U.S. Government Bridge 1896

By the 1890s, locomotives and rail cars had become too large and heavy for the old 1872 iron bridge. A replacement was needed and, in 1895, construction began on a stronger bridge of steel structure, capable of supporting the increasingly heavier traffic. Ralph Modjeski, Chicago, Illinois, was the design engineer for the new bridge. Completed in 1896, the new bridge was constructed on the old piers. Eventually, it accommodated street cars, as well as railroad cars, vehicles, and foot traffic. Known as the Government Bridge, the 1896 bridge is still used today between Arsenal Island and Davenport, Iowa.⁵⁸

Citizen Support for an Arsenal at Rock Island

Area residents periodically campaigned for the establishment of the arsenal at Rock Island. In 1859, the Iowa State Legislature joined the cause by sending a memorial advocating such a plan to the U.S. Congress. A joint resolution of the Iowa State Senate and House of Representatives,

Below: Major H.C. Connelley toured the midwest promoting Rock Island as a site for a new arsenal. Mr. Connelley was a prominent Rock Island attorney. (Rock Island Arsenal Museum) **Right:** Bailey Davenport, as Mayor of Rock Island, actively promoted the island of Rock Island as a site for a national arsenal or armory. (Rock Island Arsenal Museum, Rock Island Arsenal)



approved in 1861, called for the congressional legislators from Iowa to work for the establishment of an arsenal on Rock Island.⁵⁹ During the same year, Governor Yates of Illinois, and other state officials, sent a letter to the Secretary of War encouraging him to support the location of an armory at Rock Island. The destruction of the federal armory at Harper's Ferry by Confederate troops in April 1861 dramatically demonstrated to Congress the need for a replacement site secure from enemy attack.⁶⁰

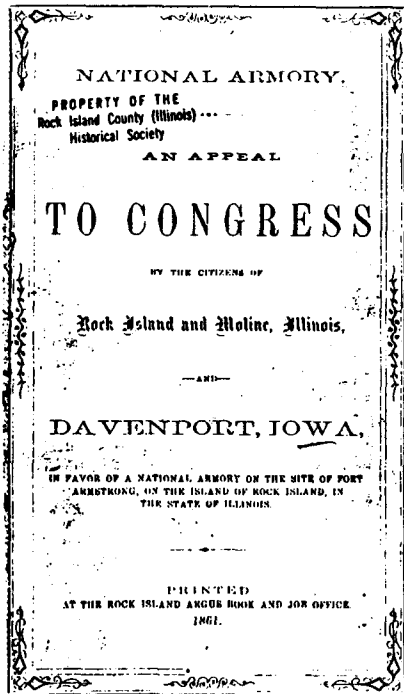
In 1861, Bailey Davenport, son of Colonel George Davenport and mayor of Rock Island, marshalled local support in a well-organized effort to attract congressional votes favoring Rock Island as the replacement site. Local newspapers contributed articles promoting the island as a site for a national arsenal. Mayor Davenport persuaded the Rock Island City Council to appropriate funds for the printing of a promotional pamphlet. The pamphlet stressed the potential waterpower and rich resources found in the upper Mississippi River Valley and nearby regions. It also emphasized Rock Island's strategic location, which made it

relatively impervious from invasion, and its excellent access to river and rail transportation. The pamphlet went on to cite the plentiful supply of inexpensive labor and food found in the Rock Island vicinity. Another argument noted the patriotism of the local citizens. A series of foldout maps of the area were also attached to the pamphlets. The pamphlet was freely distributed to congressmen.⁶¹

A committee of ten men, led by Bailey Davenport, served as the executive committee for the campaign. The committee members came from the tri-cities, with half the representatives from Rock Island, and the remaining five from Davenport, Iowa, and Moline, Illinois. Major H.C. Connelley, a prominent Rock Island attorney, conducted a tour through the Midwest to promote the case in other communities. Committee members also traveled to Washington, D.C., to lobby for the adoption of Senate Bill No. 352, which called for the creation of an arsenal on Rock Island and which had been sponsored by one of the Iowa Senators. James W. Grimes, Illinois Senator, however, favored other locations elsewhere in Illinois, such as Chicago. An amendment to the

Below: A promotional memorial to Congress from interested citizens of the Tri-Cities appealing for the establishment of a national armory at Rock Island. An armory is generally limited to the manufacturing of small arms, while an arsenal includes the production of heavier weapons and equipment.

Right: J.B. Danforth contributed to the cause by publishing pamphlets at the Rock Island Argus Book and Job Office in 1861. (Both photographs are from the Rock Island County Historical Society)



J.B. Danforth

bill reduced the arsenal to a repair and deposit arsenal, rather than a manufacturing arsenal.⁶² Also, the amendment increased the number of arsenal sites to three. These sites were Indianapolis, Indiana; Columbus, Ohio; and Rock Island. The amended bill passed both houses and became law on 11 June 1863.⁶³

The present day Rock Island Arsenal officially recognizes the year 1862 as the beginning date of the arsenal. Congressional approval of the Act of 11 June 1862 set off a chain of events that had considerable impact on the future of Rock Island. Within a year after the Congress had approved the Act of 1862, the U.S. Army had reestablished its military presence on Rock Island. The next year Congress approved the Act of 19 April 1864, which authorized the army to clear the island of all property claims made by private parties and by the local communities. A Board of Commissioners, appointed by the President of the United States, reviewed the more legitimate claims and settled them. By 1868, the U.S. Government had acquired a clear title to the island. These actions provided the necessary space needed for the establishment of a grand national arsenal for manufacturing.

Two separate army commands began constructing on the island that year. The

Ordnance Department broke ground for the first permanent arsenal building in September 1863. The Quartermaster Department, in turn, began erecting a prison barracks for captured Confederate soldiers in August of that same year.

The removal of settlers and squatters from the island and disputes with soldiers assigned to the prison barracks were two conflicts that confronted the first Arsenal Commander, Major C.P. Kingsbury. These and other topics will be examined in Part II of this history.

Present day Rock Island is the "Heart of the Quad Cities" area. Its bridges are the arteries which provide the flow of commerce and people through the local communities. The establishment of an arsenal at Rock Island, rather than the opening of the island to civilian development, has protected the historical landmarks of Arsenal Island from commercial exploitation and encroachment. Today local citizens visit such historic sites as the Colonel George Davenport House and the Confederate Cemetery in a "park like" setting. While operating as a vital manufacturing arsenal for our national defense, the Rock Island Arsenal has been able to maintain the island as a national historic site.

NOTES

¹ Black Hawk, directed to U.S. Interpreter Antoine LeClaire, *Life of MA-KA-TAI-ME-SHE-KIA-KIAK or Black Hawk* (Cincinnati, Ohio: No publisher listed, 1833), reprinted in *Black Hawk, an Autobiography*, Donald Jackson, ed., (University of Illinois Press: Urbana, Illinois, 1964), p. 42-43, hereafter cited as Black Hawk Autobiography.

² Harry Downer, *History of Davenport and Scott County* (S.J. Clarke Publisher, 1910), Vol. I, p. 69. Hereafter referred to as Downer; *The Journals of Zebulon Pike* (University of Oklahoma Press, Norman, Oklahoma, 1966) Volume I, p. 42, hereafter referred to as Pike Journal.

³ Jedediah Morse, *A Report to the Secretary of War of the United States on Indian Affairs* (New Haven, CN: S. Converse et. al., 1822), reprinted by (Scholarly Press, Incorporated, St. Clair Shores, Michigan, 1972), p. 126-127, hereafter cited as Morse Report.

⁴ Louis Phelps Kellogg, *The French Regime in Wisconsin and the Northwest*, (Madison, Wisconsin State Historical Society of Wisconsin, 1925) p. 314-341, hereafter referred to as Kellogg.

⁵ Henry R. Schoolcraft, *Summary Narrative of an Exploratory Expedition to the Sources of the Mississippi River, in 1820* (Philadelphia, PA: Lipincott, Grambo, and Company, 1855), reprinted by (Kraus Reprint Company, Milwood, New York, 1974), p. 174.

⁶ Cecil Eby, "That Disgraceful Affair", *The Black Hawk War* (New York: W.W. Norton and Company, 1973), p. 48-51.

⁷ This information is from Article 2 and 3 of a facsimile document of the 1804 Treaty, a treaty between the United States of America and the United Tribes of Sauk and Fox Indians. The facsimile document is part of the historical files of the U.S. Army Armament, Munitions and Chemical Command (AMCCOM) Historical Office, Rock Island Arsenal, Rock Island, Illinois.

⁸ Black Hawk Autobiography, p. 55-56; Roald Tweet, "Formed by a River", in *Joined By A River*, Frederick I. Anderson, ed., (Davenport, Iowa: Lee Enterprises, Incorporated, 1982) p. 18.

⁹ Franc B. Wilkie, *Davenport, Past and Present* (Davenport, Iowa: Publishing House of Luse, Lane and Company, 1858), p. 17.

¹⁰ Article 7 of facsimile document of the 1804 Treaty between the United States and Sac and Fox Indians.

¹¹ Ellen M. Whitney, ed., *The Black Hawk War, 1831-1832* (Springfield, Illinois: Illinois State Historical Library, 1973) p. 2:31, hereafter cited as Whitney.

¹² Pike Journal, p. 1:128.

¹³ Major Daniel W. Flagler, *A History Of The Rock Island Arsenal From Its Establishment In 1863 To December, 1876; Of The Island Of Rock Island, The Site Of The Arsenal, From 1804 To 1863* (Washington, D.C.: Government Printing Office, 1877) p. 10, hereafter referred to as Flagler.

¹⁴ *Ibid.*, Reproduction of letter: "Letter from Major Zachary Taylor to General Howard," Fort Madison, 6 September 1814, p. 10-12.

¹⁵ Black Hawk Autobiography, p. 42-43.

¹⁶ Emma Helen Blair, *The Indian Tribes Of The Upper Mississippi Valley Region Of The Great Lakes, As Described By Nicolas Perrot, French Commandant In The Northwest; Bacqueville du La Portheire, French Royal Commissioner To Canada; Morrell Marston, American Army Officer; and Thomas Forsyth, United States Agent at Fort Armstrong* (Cleveland, Ohio: The Arthur H. Clark Company, 1921), p. 42-45, hereafter cited as Indian Tribes.

¹⁷ Solon Justis Buck, *Illinois In 1818* (Chicago, Illinois: A.C. McClurg and Company, 1917), p. 13-17; Reuben G. Thwaites, ed. and annotator, "Letter-Book Of Thomas Forsyth," *Collection of the State Historical Society of Wisconsin*, Vol. XI (Madison, Wisconsin: Wisconsin Democrat Printing Company, 1888), p. 325-355.

¹⁸ Indian Tribes, p. 46.

¹⁹ Whitney, Vol. I, p. 150; Black Hawk, p. 76-107; Henry R. Schoolcraft, *Personal Memoirs Of A Residence Of Thirty Years With The Indian Tribes On The American Frontier, 1812-1842* (Philadelphia, Pennsylvania: Lippincott, Grambo and Company, 1851) p. 326.

²⁰ Morse, p. 126.

²¹ Francis Paul Prucha, *Military Posts of the United States, 1789-1895* (Madison, Wisconsin: State Historical Society of Wisconsin, 1964) p. 31-32, hereafter cited as Prucha, Military Posts.

- ²² Whitney, Vol. II, Part I, p. 31.
- ²³ Flagler, p. 126.
- ²⁴ Carolyn Gilman, Jane D. Holmquist, and Lucille M. Kane, eds., "Up the Mississippi River in a Six-Oared Skiff, The Journal of Stephen H. Long, 1817," *The Northern Expedition of Stephen H. Long* (St. Paul, Minnesota: Minnesota Historical Society Press, 1978) p. 98-102.
- ²⁵ Prucha, *Military Posts*, Appendix B.
- ²⁶ Francis Paul Prucha, *Army Life on the Western Frontier: Selections from the Official Reports Made Between 1826 and 1845 by Colonel George Croghan* (Norman, Oklahoma: University of Oklahoma Press, 1958), p. 109.
- ²⁷ George W. Wickstrom, *The Town Crier* (Rock Island, Illinois: J.W. Porter Company, 1948), p. 35, hereafter cited as the Wickstrom.
- ²⁸ Anthony F.C. Wallace, *Prelude to Disaster: The Course of Indian-White Relations Which Led To The Black Hawk War Of 1832* (Springfield, Illinois: Illinois State Historical Society, 1970), p. 33.
- ²⁹ Whitney, Vol. 2, p. 1183.
- ³⁰ *Ibid.*, p. 3, 11, 44-45.
- ³¹ *Black Hawk Autobiography*, p. 110-111.
- ³² Whitney, Vol. 2, p. 85-87.
- ³³ *Ibid.*, Vol. 2, p. 13.
- ³⁴ *Black Hawk Autobiography*, p. 113-114.
- ³⁵ Whitney, Vol. 2, p. 425-426.
- ³⁶ *Ibid.*, p. 415-416.
- ³⁷ Frank E. Stevens, *The Black Hawk War* (Chicago, Illinois: The Caxton Club, 1903), p. 183; Oda B. Johnson, *History of Fort Armstrong, 1816-1836*, unpublished masters thesis at University of Iowa, dated January 1940, in the AMCCOM Historical Office archives.

³⁸ Caleb Atwater, *Remarks Made On Tour To Prairie du Chien, Thence To Washington City In 1829* (Columbia, Ohio: no publisher cited) reprinted by (New York City, New York: Arno Press, A New York Times Company, 1975) p. 54-55.

³⁹ Black Hawk Autobiography, p. 16.

⁴⁰ Charles Winslow Elliot, *Winfield Scott, The Soldier And The Man* (New York: McMillan Company, 1937), p. 268.

⁴¹ Oda B. Johnson, "Fort Armstrong, 1816-1836", unpublished masters thesis at University of Iowa, dated January 1940, in the AMCCOM Historical Office archives.

⁴² Wickstrom, p. 36-37.

⁴³ U.S. Statutes at Large, Vol. 6., private acts of the 29th Congress, Chapter 9, p. 908.

⁴⁴ Wickstrom, p. 31-41; "Not Hanging Around Much Longer", *Quad City Times*, 13 July 1978, np; *Rock Island Argus*, 26 October 1977, np; The Rock Island *Mississippian* and *Republican* newspapers, "Execution of John Long, Aaron Long, and Granville Young," 30 October 1845.

⁴⁵ Flagler, p. 28.

⁴⁶ *Ibid.*, p. 30.

⁴⁷ *Ibid.*, p. 33-35.

⁴⁸ *Ibid.*, p. 36.

⁴⁹ George Wickstrom and Charles P. Ainsworth, "Always Lumber, The Story of Dimock, Gould and Company, 1852-1952" (Rock Island, Illinois: Augustana College Book Concern, 1952), p. 26.

⁵⁰ Frank J. Nevins, "Seventy Years of Service from Grant to Gorman," *The Rock Island Magazine*, October 1922, p. 5-7, hereafter referred to as Nevins.

⁵¹ Notes extracted from the Report of the Board of Inquiry to the War Department dated May 9th, 1859. The notes were found on the Map of the Rock Island Bridge and Its Vicinity which accompanies the report. The original is in the National Archives, Washington, D.C.

- ⁵² Nevins, p. 16.
- ⁵³ Flagler, p. 44-47, 64-65.
- ⁵⁴ Nevins, p. 17.
- ⁵⁵ Leonard C. Weston, "The Rock Island Bridge Episode," *The Iowan*, Fall issue, 1964, p. 21.
- ⁵⁶ Flagler, p. 176-177.
- ⁵⁷ B.F. Tillinghast, *Rock Island Arsenal in Peace and in War* (Chicago, Illinois: The Henry O. Shepard Company, 1898), p. 8-9.
- ⁵⁸ Ira O. Nothstein, "Rock Island Arsenal, Its History and Development" (Public Works Administration Project, 1937). A copy is available at AMCCOM Historical Office, Rock Island Arsenal, p. 156.
- ⁵⁹ U.S. Congress, House, Resolution of the Legislature of the State of Iowa asking for Establishment of an Armory and Arsenal at Rock Island (Washington, D.C.; Government Printing Office, 1859) p. 1; Thirty-seventh Congress, 1st Session, Misc. Doc 16, Series Set No. 115.
- ⁶⁰ Robert Bouilly, "Arsenal Island," F.I. Anderson, ed., *Joined By A River* (Davenport, Iowa: Lee Enterprises Incorporated, 1982), p. 120-122.
- ⁶¹ *National Armory: An Appeal to Congress by the Citizens of Rock Island and Moline, Illinois and Davenport, Iowa* (Rock Island, Illinois: Danforth and Jones, 1861), p. 4-10.
- ⁶² Bouilly, p. 120-122.
- ⁶³ Flagler, p. 97, 111.

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FOREWORD

On 11 July 1989 the Rock Island Arsenal commemorated its designation as a National Historic Landmark by the secretary of the interior. This auspicious occasion came about due in large measure to the efforts of the AMCCOM Historical Office, particularly Mr. Thomas J. Slattery, who spent many hours coordinating the efforts and actions necessary to bring the landmark status into fruition. Rock Island Arsenal Commander, Colonel David T. Morgan, Jr., was also instrumental in the implementation of the above ceremony by his interest, guidance, and support of Rock Island Arsenal's National Historic Landmark status.

Incidental to the National Historic Landmark commemoration, the AMCCOM Historical Office has published *An Illustrated History of Rock Island Arsenal and Arsenal Island, Part Two*. Mr. Thomas J. Slattery is the author of this history and has presented a very well-written and balanced study of the beginning of Rock Island Arsenal in 1862 through 1900, including the arsenal construction period, the arsenal's role in providing ordnance stores to the west, and its contributions during the Spanish-American War. This information was gathered from a number of primary and secondary sources including the author's own files, the AMCCOM Historical Office archives, and the Rock Island Arsenal Museum collection. Mr. Slattery would like to acknowledge the efforts of past and present historians who gathered and preserved historical sources maintained in the holdings of these two institutions. Mr. Slattery is especially appreciative of the contributions made in this area by his colleagues Mr. O. Bryan England, Mr. Ralph Krippner, and Dr. Robert Bouilly. Mr. Slattery would also like to thank Mr. Daniel Whiteman, Rock Island Arsenal Museum Director; and Mrs. Kris Leinecke, Rock Island Arsenal Museum Curator; for the use of the U.S. War Department's *War of Rebellion* series, a compilation of the official records of the Union and Confederate Armies; and the Rock Island Arsenal Commander's *Annual Report to the Chief of Ordnance* from 1871-1900.

Mr. Slattery's history illustrates well the importance of individuals such as Thomas J. Rodman and Daniel W. Flagler in the construction of the great stone buildings which still stand today and serve as a silent tribute to these arsenal commanders. The history also addresses problems experienced during the construction of the arsenal. The reader will hopefully be enriched and educated by having learned something about Rock Island Arsenal's illustrious past, and how the past has impacted upon the present arsenal as it continues to serve our nation.

Colonel David T. Morgan, Jr., is accorded special thanks for his support and enthusiasm. Special thanks are also extended to Mrs. Carol L. Secoy and Ms. Nancy Newton of the AMCCOM Historical Office for respectively providing exemplary editorial and administrative support for this history. In addition, gratitude is extended to the Field Printing Office for its professional assistance.

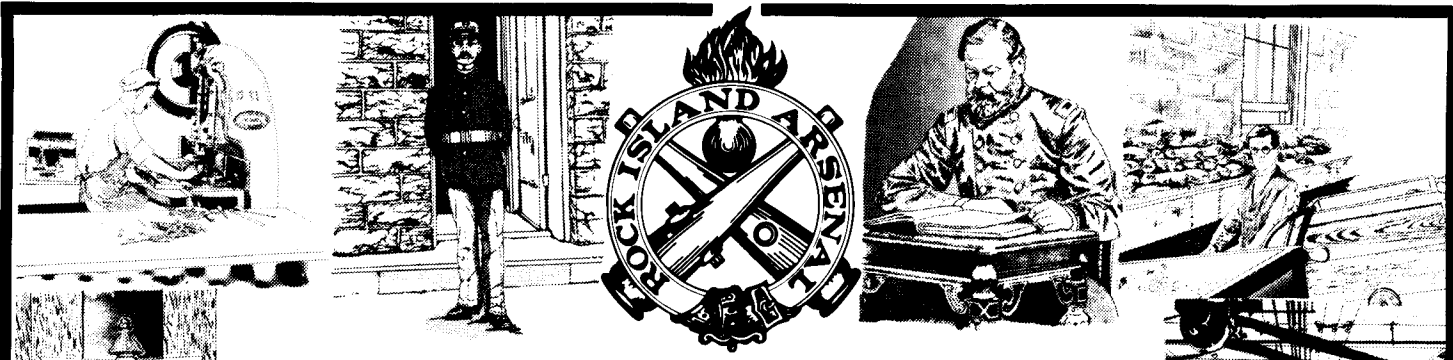
HERBERT P. LEPORE
Chief, Historical Office

**AN ILLUSTRATED HISTORY
OF THE
ROCK ISLAND ARSENAL AND ARSENAL ISLAND
PART TWO**

By

Thomas J. Slattery

**Historical Office
U.S. Army Armament,
Munitions and Chemical Command
Rock Island, Illinois 61299-6000
1989**

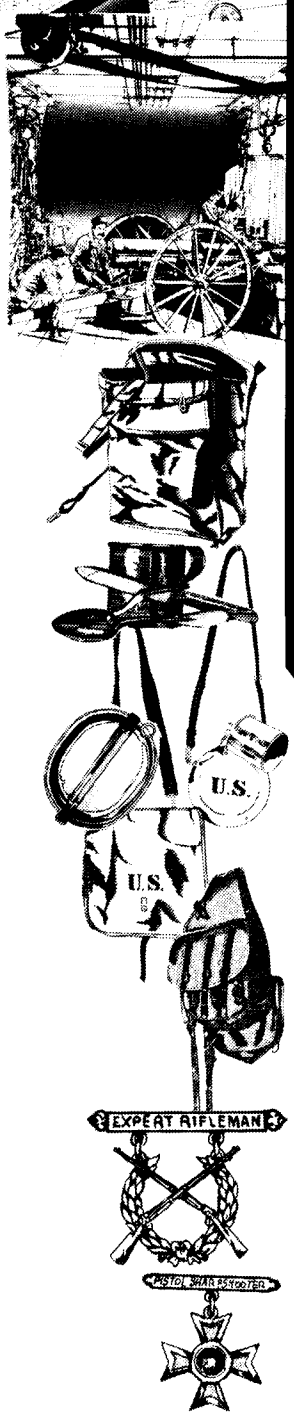
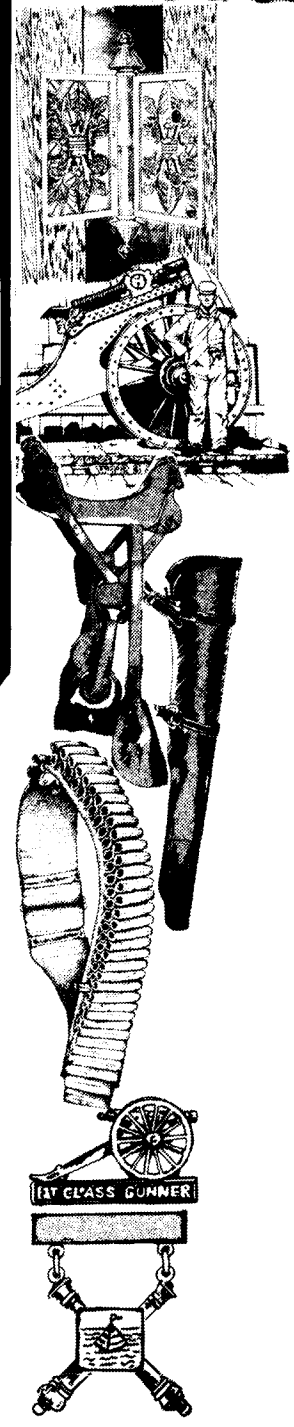


AN ILLUSTRATED HISTORY
OF THE
ROCK ISLAND ARSENAL AND ARSENAL ISLAND

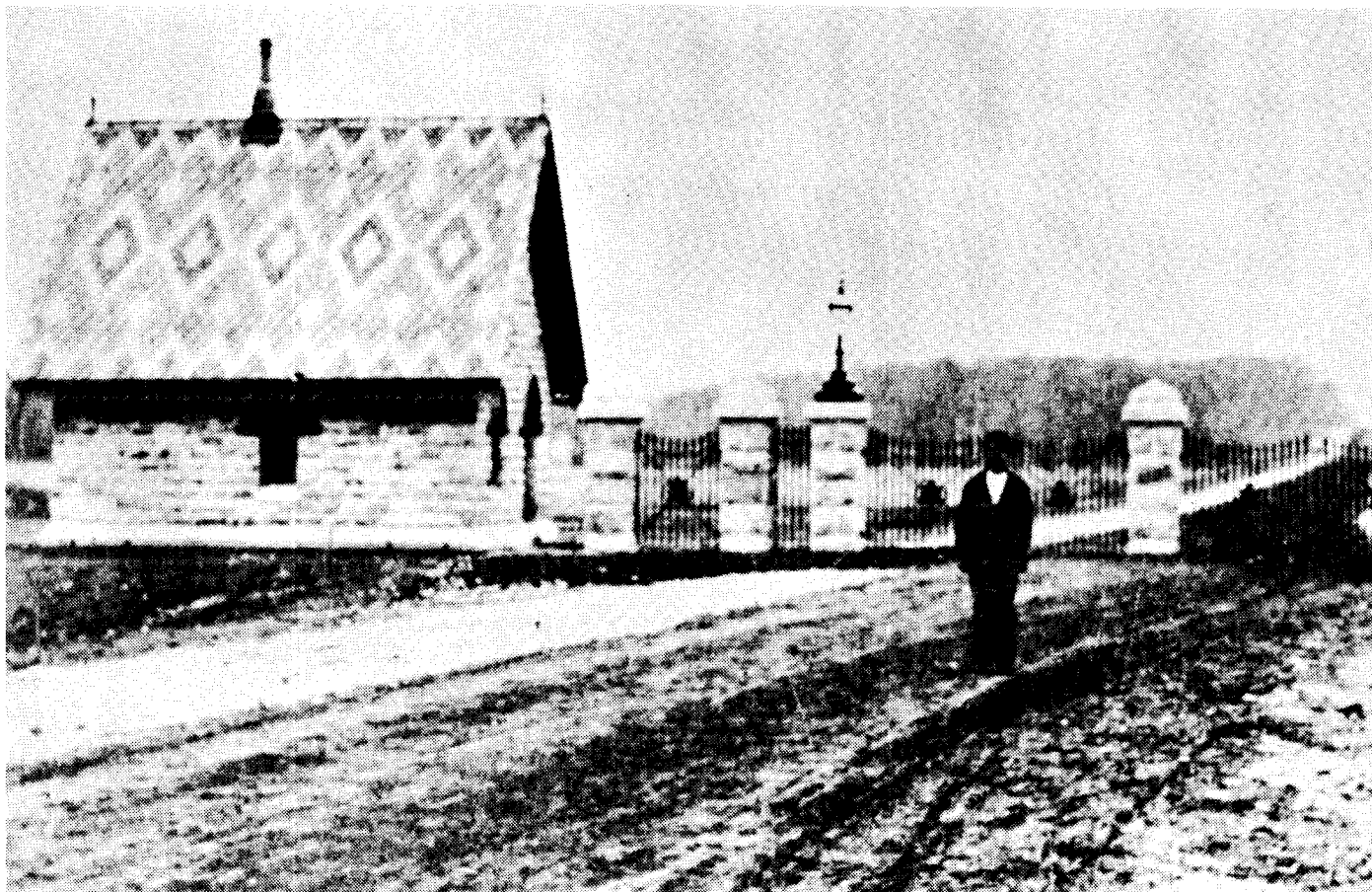
PART TWO

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Below: The western entrance to the Rock Island Arsenal via Main (Rodman) Avenue, the island's principal east-west thoroughfare. The limestone gate house, built in 1875 and portions of the cast iron gate and limestone pillars still grace the entrance to the arsenal. Note: the gate house has since been reroofed and the "gingerbread" trim removed.



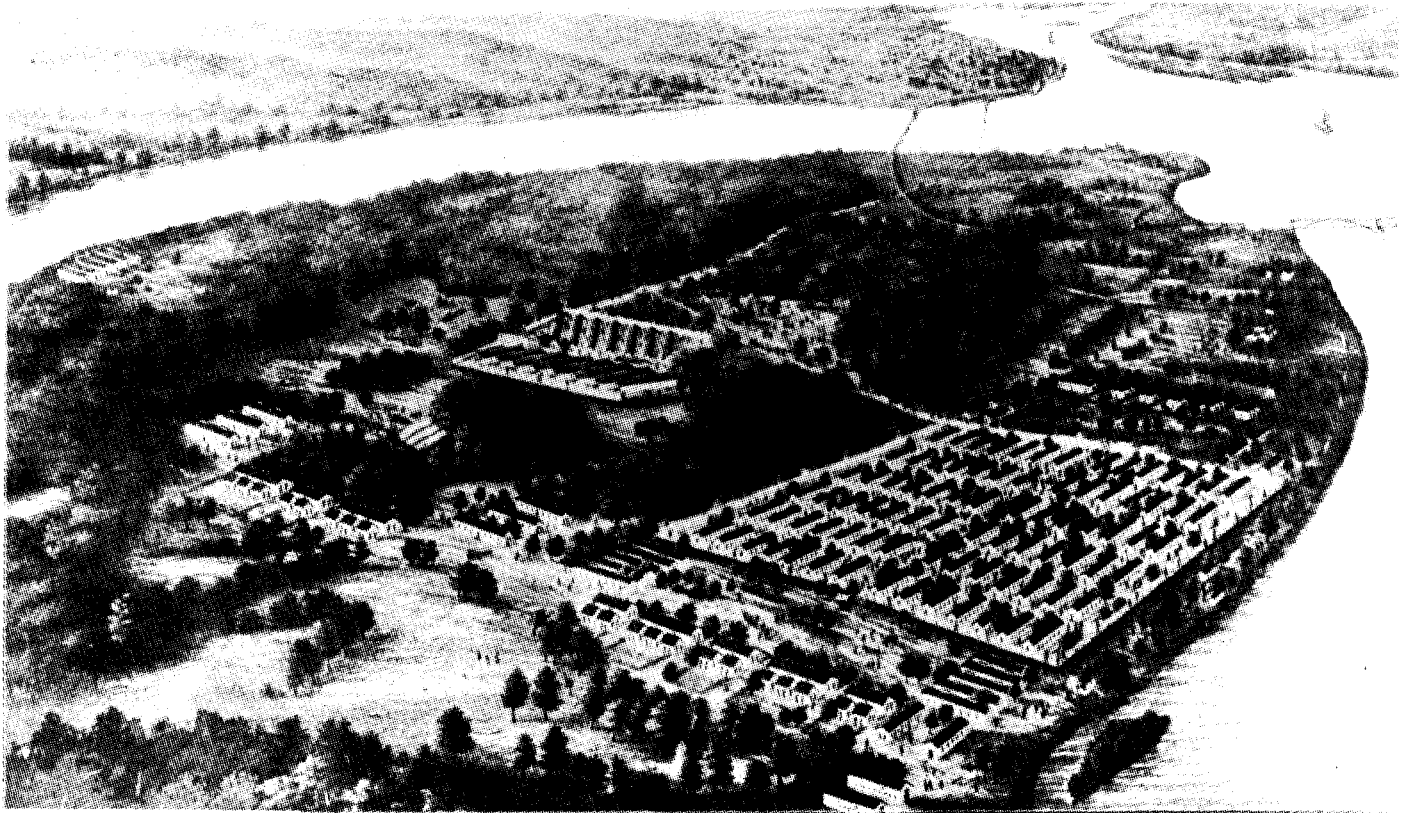
INTRODUCTION SOLDIERS RETURN TO ROCK ISLAND

The history of Arsenal Island is divided into two parts, or periods, of government occupancy. Part one focuses on the federal government's acquisition of the island; the reasons for this acquisition; the Fort Armstrong era; and the subsequent caretaker period which ended in 1863. The Black Hawk War, the last Indian uprising in the state of Illinois, resulted in hostile tribes being transferred to reservation camps west of the Mississippi River, thus ending the Indian threat in Illinois. Therefore, with the need for Fort Armstrong diminished, the federal government reduced the fort's status to that of a depot, eventually abandoning the post in 1845. From 1845 to 1863, a number of civil custodians

employed by the War Department managed the affairs of Rock Island.

During the American Civil War, 1861-1865, the United States Army returned to Rock Island. This was the beginning of the second, or arsenal, period which continues to the present day. It began on 11 July 1862, when the United States Congress passed an act which established an arsenal on Rock Island. In the following year, the U.S. Army Ordnance Department started construction of a storehouse on the western tip of the island, near the ruins of Fort Armstrong. This storehouse, completed in 1867, and known today as the Clock Tower Building, was the first permanent arsenal building erected.¹

Below: A total of 12,192 Confederate soldiers were confined at Rock Island during the Civil War years of 1863-1865. The camp, constructed on the north central shore of the island, consisted of 84 wooded barracks and a variety of ancillary buildings. However only the Confederate Cemetery remains as a reminder of the prison's existence.



CHAPTER ONE ROCK ISLAND PRISON BARRACKS

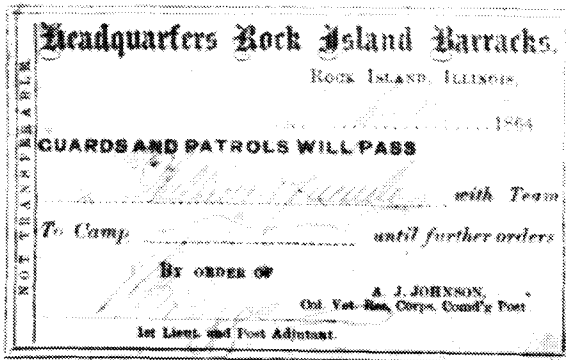
During the Civil War, however, the Union Army's Ordnance Department had company on the island. Two separate army units operated on Rock Island during the last two years of the Civil War. Several months prior to initial construction of the Clock Tower Building in 1863, the U.S. Army Quartermaster Department began to build a prisoner of war camp on the north central section of Rock Island. The Union Quartermaster General, Montgomery Meigs, ordered Captain Charles A. Reynolds to build a prison barracks large enough to accommodate 10,000 prisoners of war. In late August 1863, Captain Reynolds began construction of the prison barracks near the north central shore of the island.² General Meigs became aware of the island's advantages in 1837 when he assisted a young army lieutenant named Robert E. Lee in surveying the upper rapids of the Mississippi River at Rock Island.³

The prison, rectangular in shape, covered

approximately 12 acres of land. Eighty four wooden-framed barracks, 22 x 100 feet in size, arranged in six rows of fourteen barracks each, comprised the containment area. Each barracks had a kitchen, with a stove and a 40 gallon kettle for cooking, located at the west end of the building. Captain Reynolds built enough bunks in each barracks to accommodate 120 prisoners. A main avenue running east to west divided the camp and led to the two main gates. The barracks were enclosed by a 12 foot high rough board fence. A guard platform built 4 feet from the top of the stockade fence, on the exterior side, had a sentry box every 100 feet. Trenches maintained inside the fence served as a warning line. Sentries were ordered to fire at prisoners venturing beyond this point. The "dead line" supposedly deterred prisoners from tunneling under the stockade. In addition, the closeness of bedrock to the surface prevented tunneling near the southern side of the stockade.⁴

Below: Persons visiting the Rock Island Prison Barracks were required to obtain passes issued under the order of Colonel A. J. Johnson, prison commandant.

Right: Colonel Adolphus J. Johnson, commanding officer of the Rock Island Barracks for most of its operational period.



The barracks were numbered consecutively from 1-84, and each building had a prisoner who served as sergeant of the barracks. Wooden bunks in three tiers, one above the other, extended the length of each building on each side.

The commandant of the prison, for all but a few early days of its 20-month existence, was Colonel Adolphus J. Johnson. The government selected the Rock Island site for the prison for basically the same reasons it had chosen the island as the location for the new western arsenal--security, location, and space. In addition, government ownership made the island a prime choice for both a prison camp and an arsenal.⁵

By the time the Rock Island Prison Barracks received its first Confederate prisoners-of-war in December 1863, the Union Army had established 21 other prison sites. During the course of the war, some of these prisons closed, while new prisons opened.

Prior to the arrival of the first Confederate

prisoners, Colonel William Hoffman, the Union's commissary general of prisoners, inspected the Rock Island Prison Barracks in November 1863. A few days before Colonel Hoffman's visit, several barracks at the Camp Douglas prison near Chicago were destroyed by fire, thus necessitating the apparent relocation of some of the camp prisoners. It has been surmised that some of the Camp Douglas prisoners may have been sent to the Rock Island Prison Barracks. However, it is not certain whether this transfer actually took place.⁶

Construction of the Rock Island Prison Barracks was behind schedule from the start. In the rush to organize prison camps to handle the influx of southern prisoners, the Rock Island prison opened before it was completed. Some of the prison guards were quartered in tents, others in local communities, and still others in the cheap shanties built to house prisoners of war. Union Quartermaster General M. C. Meigs, in a letter dated 12 August 1863, instructed Captain

Below: Union Quartermaster General Montgomery C. Meigs.

Right: A roll call at the Rock Island Prison Barracks. The guards are standing in formation in the front while the prisoners are in the background standing in front of the barracks. Note: Wooden "Morgan Mule" in foreground used to discipline insubordinates.



C. A. Reynolds that: "The barracks for prisoners at Rock Island should be put up in the roughest and cheapest manner - mere shanties, with no fine work about them."⁷

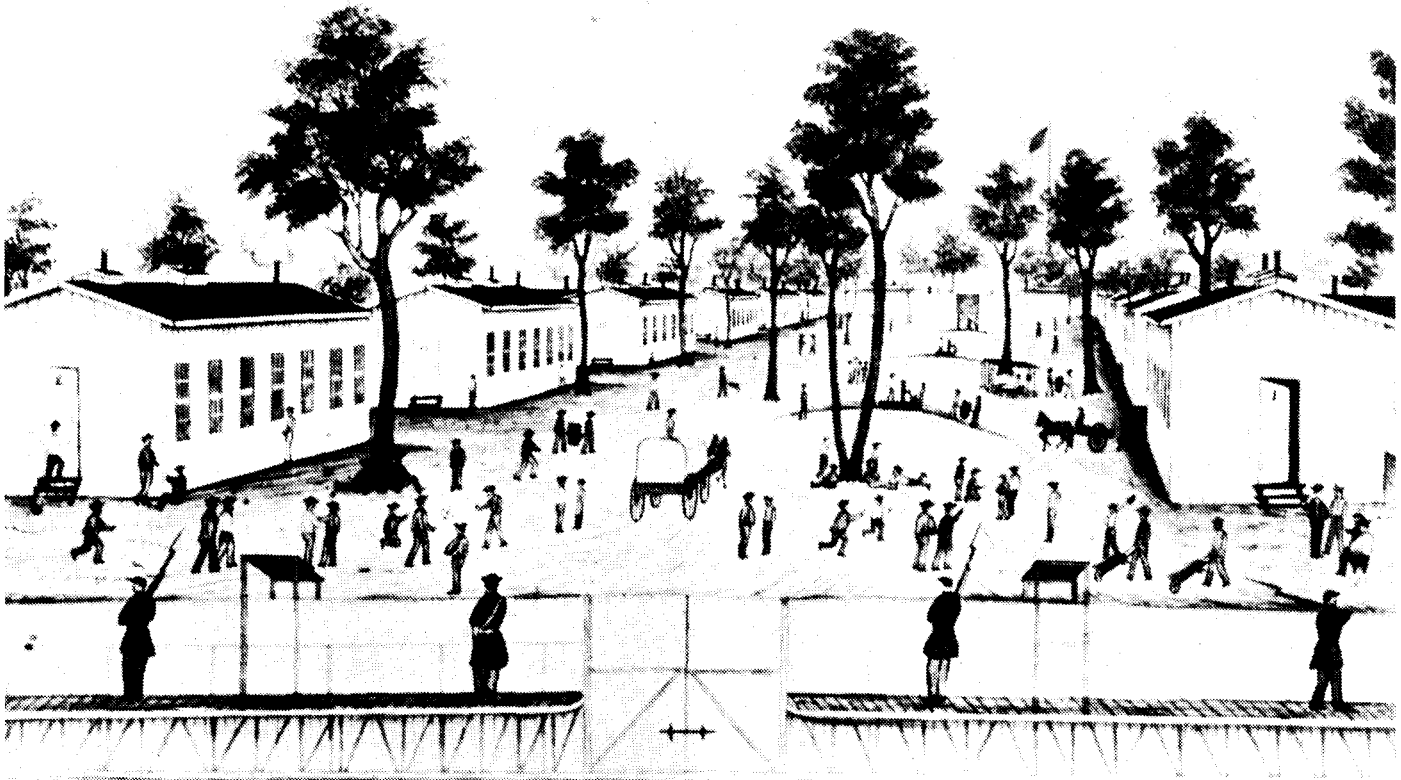
The first 468 Confederate prisoners arrived at Rock Island by train on 3 December 1863. They had been captured in the Battle of Lookout Mountain in southeastern Tennessee. Hundreds of curious citizens gathered to watch the prisoners be unloaded on the far western edge of the island. In an effort to control the crowd, local police officers and their deputies confined the spectators to a roped-off area. The prisoners were marched past the crowd a mile or so inland to the prison.⁸

Within a few weeks the prison population rose from the original 468 to over 5,000 prisoners. Eventually, the prison population grew to 8,594 prisoners, the largest number of prisoners held at any one time at the Rock Island Prison Barracks.⁹

Though the prisoners' existence at the Rock Island Prison Barracks was harsh, especially by present day standards, living conditions were relatively typical of prison camps in the north. Most southern prisoners had difficulty adjusting to the cold winter of the north and, unfortunately, the first prisoners arrived during a severe cold spell with temperatures plummeting to 30 degrees below zero Fahrenheit. Not long after the prison had opened, the supply of winter clothing and blankets for the prisoners became depleted; however, nearby coalfields provided each barracks with sufficient heating coal to burn in the barracks' stoves.

Diaries kept by Confederate prisoners and recollections written after the war were two valuable sources of material regarding prison conditions at Rock Island. One prisoner at the Rock Island Prison Barracks, Lafayette Rogan, recorded in his diary these comments in regard to the winter he experienced at Rock Island:

Below: An illustrated view of the Rock Island Prison Barracks depicting sentinels, gate, barracks, and prisoners. The first Confederate prisoners arrived by prison train on 3 December 1863 during a particularly bitter cold spell. Ill-clothed for severe winter weather and carrying small pox disease among them, many of these prisoners died at Rock Island during their confinement.



1 January 1864 - The coldest day I have ever felt. Thermometer 30 (degrees) below zero

3 January 1864 - I suffer greatly for blankets. Many fellows have no blankets yet and are very thinly clad. Such men suffer terrible. We sleep by reliefs (to man the fires in the barracks) and fill each bunk heads and tails fashion. I fear that disease and death will be the result of all this suffering. Deaths have already occurred from freezing.¹⁰

In addition to surviving the bitter winter cold of the north, Confederate prisoners had to endure exposure to a deadly smallpox epidemic, among other contagious diseases. Within days of opening, the prison was hit by the smallpox epidemic. In a hurry to complete the camp's construction, the Quartermaster Corps had

failed to erect a prison hospital. Without a hospital; adequate medicine; or a well-equipped medical staff, hundreds of prisoners and prison cadre became infected. Initially, prison doctors diagnosed 94 cases of smallpox among the first prisoners. Unfortunately, they did not detect all the cases, and those that processed into the camp undetected exposed the entire camp to the dreaded disease.¹¹ Colonel Johnson, the prison commandant, arrived only a short time after the prison was constructed and had little time to address and ameliorate logistical problems relative to the well being of the prisoners.

Conditions did not improve at the Rock Island Prison Barracks until Ambrose M. Clark, assistant surgeon general, arrived in February 1864 to inspect the island camp. He immediately instituted corrective measures such as establishing a temporary hospital isolation ward in fenced-off barracks and ordering a half dozen pest houses be built on the southern shore of

Right: Colonel William Hoffman, federal commissary-general of prisoners standing on the steps to his office in Washington, D.C. Upon retiring from the military, Hoffman resided in the tri-cities. His grave site is in Chippiannock Cemetery, Rock Island, Illinois.



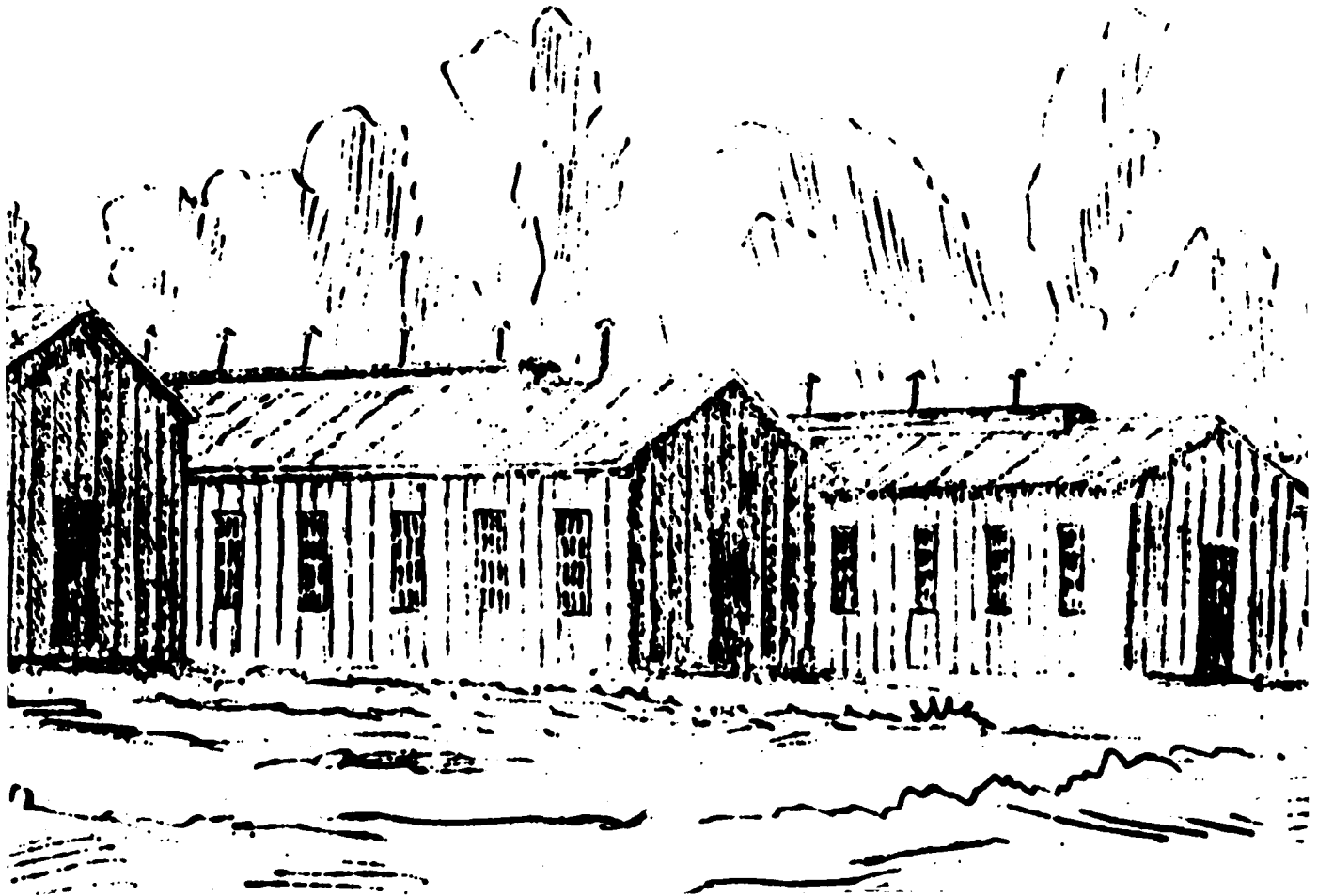
Rock Island, away from the prison. During his stay at Rock Island, from 10 February to 4 March 1864, Surgeon Clark had plans drawn up for an adequate hospital, sufficient to care for the noncontagious disease cases. His report to Colonel Hoffman stated, "The most urgent necessity exists for the speedy completion of this (prison hospital) building. For in the great rush to open the prison, not only was the building of barracks for the cadre not completed but the construction of a prison hospital was overlooked."¹² Clark also noted the conditions which enhanced the spread of smallpox, such as the faulty drainage system of the prison compound. The prison was situated in a low land area of the island, causing water to drain in, rather than out, of the camp. Therefore, during the spring of 1864, the camp ground was constantly wet and muddy. Clark also noted that a marsh located near the southeast corner of the prison would have to be drained before summer.

Approximately two months later, in April 1864, Clark returned to inspect the Rock Island Prison Barracks and filed his report to Colonel Hoffman on 8 April 1864. In his report Clark described the prisoners' living conditions at Rock Island as having somewhat improved. He found the prison barracks well-heated, ventilated, and sufficiently stocked with food and blankets. However, Clark reported that the corn bread tasted rancid to the prisoners and made them ill; the condition of the prison grounds and its water supply were still poor; and several unsanitary conditions and practices still continued at the prison. The latter

included prisoners tossing their kitchen refuse and wash water on the ground near their barracks. The wash water contributed to the standing water and muddy conditions of the grounds within the stockade. Collectively, the garbage, standing water, and muddy grounds severely hindered the prison's already inadequate drainage system. Prisoners also emptied and washed barrels from their privies in the river twice a day. Only makeshift laundry facilities were available to the prisoners, and according to Clark, not heavily used.

Clark further noted in his April report to Colonel Hoffman that improved sanitary conditions and new clothing for convalescents

Below: Early sketch of the Rock Island Prison Barracks pest houses erected on the island to quarantine those afflicted with contagious diseases, such as small pox, from others at the camp.



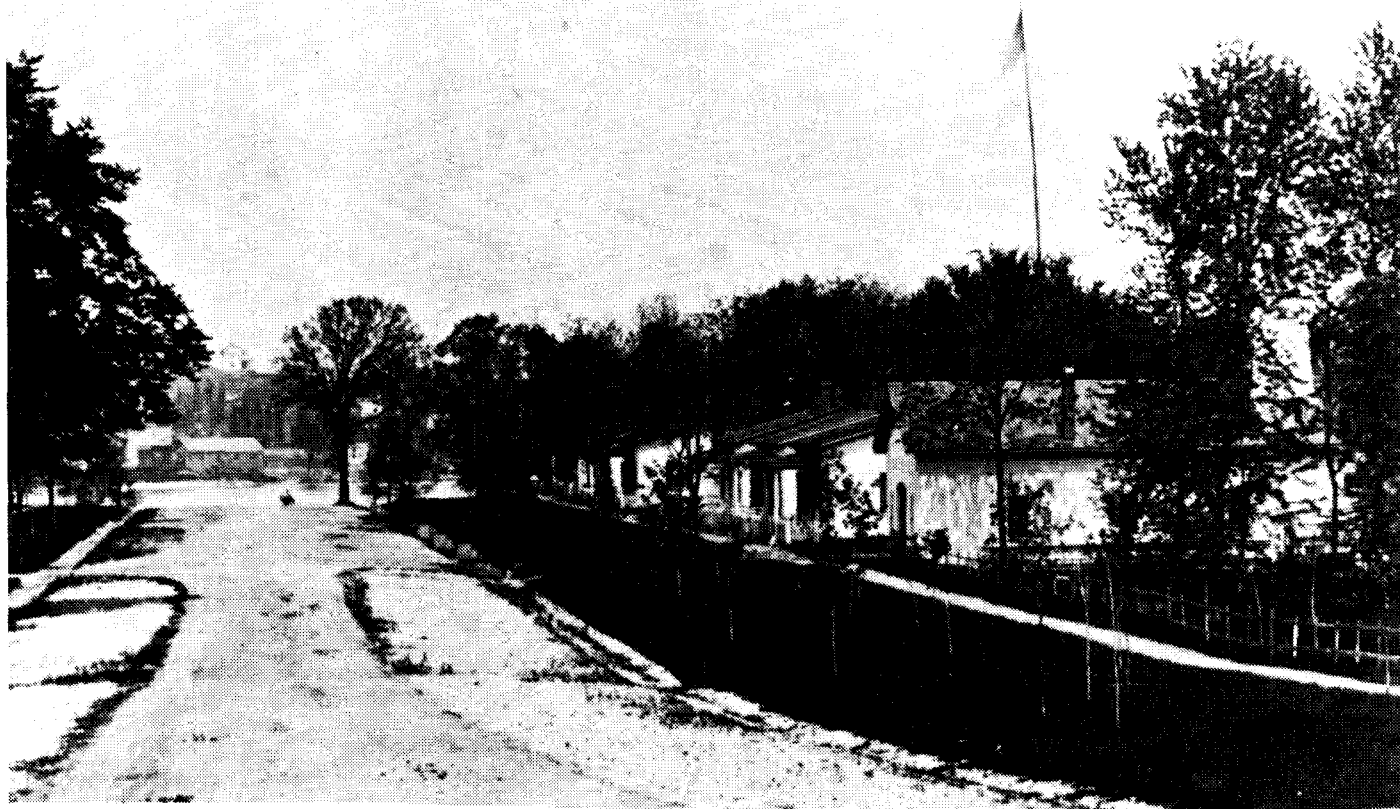
were necessary to stem the camp's smallpox epidemic. The surgeon general attempted to purify and disinfect the prisoners' clothing by thoroughly boiling the clothes; then subjecting them to the fumes of burning sulphur; and finally, a second boiling. This method seemed to effectively destroy the infection since no new cases were traced to the use of the boiled clothing. Later, however, Clark commented that he did not trust this procedure and thought new clothing should be furnished to all prisoners who had been released from the hospital and returned to their quarters.¹³

Under Surgeon Clark's instructions, all soldiers and prisoners infected with smallpox were quarantined in the newly erected pest house on the south shore of the island. Other corrective measures were undertaken by Clark, such as the construction of a sewage system to improve drainage and sanitation conditions, and the development of a sufficient water supply system in the prison.

The post surgeon's morning report of sickness for 4 March 1864 provided some insight of the epidemic faced by the medical staff of the Rock Island Prison Barracks. Surgeon William Watson, U. S. Volunteers, listed 350 prisoners sick in quarters and 714 in the temporary barracks hospital. Of those in the hospital, 420 were smallpox cases.¹⁴

As previously mentioned, the death toll from disease increased steadily among prisoners and guards after the camp opened in December 1863. Smallpox claimed 98 prisoners and 3 guards in December 1863; 231 prisoners and 4 guards in January 1864; and 350 prisoners and 10 guards in February 1864. The War Department, alarmed by these statistics, reversed an earlier directive issued by Colonel Hoffman which had halted construction of the Rock Island Prison Hospital. After pest houses and laundry facilities were constructed, as recommended by Assistant Surgeon General Clark, a gradual decline in smallpox cases and deaths occurred.¹⁵

Below: The Rock Island Prison administrative buildings, possibly after the Rock Island Arsenal assumed control of them following the Civil War. Since, traditionally, post flagpoles were planted near a headquarters building it could be assumed that these structures were temporary administrative buildings for the arsenal.



Clark also ordered the relocation of the original Rock Island Confederate Cemetery, which had been adjacent to the prison compound, to its present site.¹⁶ During the 20 months that the prison was in operation, more than 1,964 Confederate prisoners died while confined at the Rock Island Prison Barracks. Smallpox, combined with pneumonia and diarrhea, accounted for the majority of these deaths. In the same time frame, 171 Union guards died of diseases or exposure to the elements while serving guard duty. The bodies of dead Union soldiers not claimed by their families were reinterred in the current Rock Island National Cemetery on Arsenal Island.¹⁷

Because of the smallpox epidemic at the prison, the government issued the following instructions through the Rock Island *Argus* newspaper:

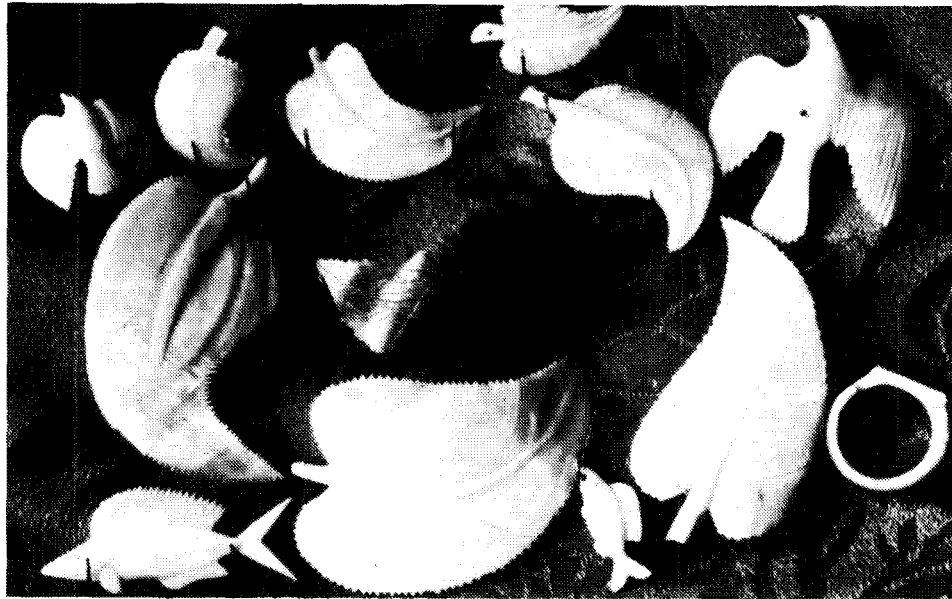
Visitors to these stations, out of mere curiosity, will in no case be permitted. Persons having business with the

Commanding Officer, or Quartermaster, may, with the permission of the Commanding Officer, enter the camp to remain only long enough to transact their business. When prisoners are seriously ill, their nearest relatives, parents, wives, brothers or sisters, if they are loyal people, may be permitted to make short visits; but under no other circumstances . . . (will) visitors be allowed to see them without the approval of the Commissary General of Prisoners.¹⁸

The prison commandant, Colonel Johnson, initially permitted the southern prisoners to receive clothing and food packages from sympathetic local citizens, friends, and relatives. Colonel Johnson also allowed the prisoners to correspond with their relatives and friends, but their unsealed letters were censored at the prison by Captain A. D. Collins, post quartermaster, and Colonel Hoffman. Letters

Below: Clam-shell trinkets carved by Confederate prisoners at the Rock Island Prison Barracks. The prisoners used them to barter and to sell to guards and visitors.

Right: Confederate soldiers making trinkets out of clam-shells from the Mississippi River.



could not exceed one page and had to relate solely to personal matters.¹⁹

Books provided a temporary escape from the monotonous routine of a prisoner's life. Other diversions undertaken by prisoners included attending church services, organizing skits, forming singing groups, gambling, and debating the many issues of the war. Tobacco, blankets, clothing, books, and personal items, acquired in several different manners by the prisoners, made their incarceration bearable. Some of the prisoners volunteered their labor on prison construction projects, such as the building of the prison sewer system; and each prisoner that worked, depending upon his skill, received a credit of 5-10 cents a day on his account at the prison sutler store. Enterprising prisoners also used their craft skills to fashion rings and trinkets from available material such as gutta percha (a hardened tree sap or resin) and mussel shells. These ornaments were inlaid, cut out, and often

polished into the shapes of eagles, doves and fish. The trinkets were traded or sold to the guards for tobacco or peddled to local citizens.²⁰

By 1864 the North had become aware of the wretched conditions that Union soldiers had been enduring in southern prisons. The report of deplorable treatment of Union prisoners of war at Andersonville, Georgia, site of the infamous Confederate prison, caused bitter resentment in the north. In June 1864, Secretary of War Edwin Stanton ordered Union prisons to enforce stricter rules for Confederate soldiers.²¹

At the Rock Island Prison Barracks, Colonel Johnson zealously followed these instructions. He restricted the type of packages prisoners could receive from relatives and friends by no longer accepting food baskets addressed to individual prisoners. Instead, Colonel Johnson had these baskets delivered to the sick wards. Only clothing packages were to be received by individual prisoners. Further restrictions

Below: Confederate prisoners at Rock Island Barracks taking oath of allegiance to become "galvanized yankees".

Right: Confederate prisoners "riding Morgan's Mule" as punishment for their misconduct.



included prohibiting the sutler's wagon from entering the compound and doing business with the Confederate prisoners. Supposedly, in response to conditions at the Andersonville Prison, Colonel Johnson also ordered that prisoners' rations be reduced to 14 ounces of bread and 12 ounces of "fresh" beef. In addition, the prisoners were to receive a quart of hominy per man each day. The southerners made hominy soup and also boiled other food, serving it in sauce pans produced from canteens and burned-out stove pipes. The prisoners had a difficult time swallowing the course yellow corn bread provided by the prison and asked for flour to bake white bread, with varying degrees of success. At times slab bacon was added to the prisoners diet. Years after the Civil War former Confederate prisoners who had been incarcerated at Rock Island during the war wrote colorful accounts which depicted episodes of prisoners eating stray dogs and cooking rat stew.²²

Many southern prisoners suspected that harsher rules ordered by Colonel Johnson were part of a Union plan to reduce their allegiance to

the South, and entice them to join the Union Army. If so, the program enjoyed a measure of success. On 8 December 1863 President Abraham Lincoln had announced his Amnesty Proclamation to Confederate prisoners. Confederate prisoners who pledged their allegiance to the United States and who agreed to enlist in the Union military service would receive amnesty. These "galvanized yankees" were recruited to fight Indians on the western frontier and to man Union ships on the high seas. At the urging of General Ulysses S. Grant, Lincoln agreed not to employ former Confederate prisoners on the battlefield against their fellow southerners. In the heretofore mentioned *Diary of Lafayette Rogan 1863-1865*, Rogan, a prisoner-of-war clerk at the Rock Island Prison Barracks, recorded briefly in his 9 February 1864 entry, . . . "Navy Roll of 664, traitors to our country (was) completed to day."²³ On 1 September 1864 President Lincoln wrote the following to War Secretary Edwin Stanton:

. . . there are at Rock Island, Ill., as rebel prisoners of war many persons of northern or foreign birth, who are

Below: A. C. Dart, camp sutler, and his wagon from which Confederate Prisoners bartered or purchased personal items such as tobacco.



unwilling to be exchanged and be sent South, but who wish to take the oath of allegiance and enter the military service of the Union.²⁴

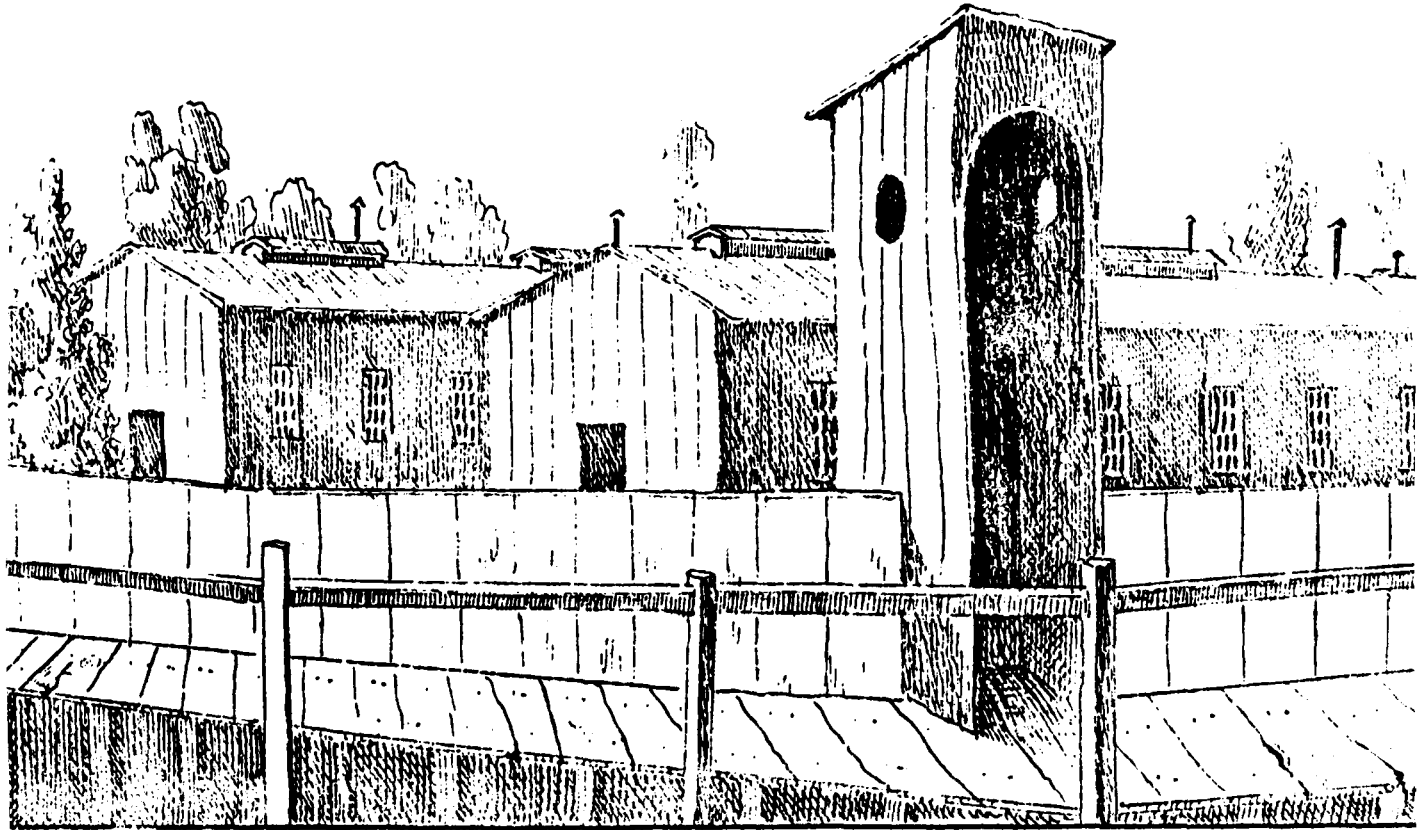
Within a few weeks after President Lincoln's proclamation, Rogan again wrote in his diary, "Yanks make a call for volunteers offering \$100 for (a) year as bounty and promise not (to) oppose them . . . (by returning to) the rebel Army." The next day Rogan's entry read: "The heart grows sick and the soul sinks within me when I see so many deserting our (South's) cause. From 1,500 to 2,000 of the prisoners here will enlist for frontier service."²⁵ Another Confederate prisoner, B. M. Hord, wrote an article in 1904 for *Confederate Veteran Magazine* titled, "Forty Hours in a Dungeon at Rock Island," in which he stated that those who took the oath and joined the Union Army or Navy were moved to a new pen for their protection. Twelve barracks in the southeast corner of the enclosure, near the main entrance to the prison, were cordoned off and the occupants transferred

to other barracks. No longer technically prisoners, these new Union recruits were furnished with the clothing and rations of a Union soldier. Southern soldiers who remained loyal to the South stayed in the main compound, which was called the Bull Pen. During the camp's existence, nearly 3,000 rebel prisoners "escaped" the confines of the Rock Island Prison Barracks by volunteering for frontier or sea duty with the Union Forces.²⁶

Prison records cited 41 successful escapes. Colonel Johnson reported the details of one such escape to Colonel Hoffman in a letter dated 25 June 1864:

COLONEL: I have the honor to report that on the night of the 14th instant ten prisoners of war made their escape from the prison inclosure by tunneling under barracks 42, their egress being made directly under the parapet. The last two were discovered by the sentinel, who gave the alarm, and all necessary measures taken for their

Below: A 12 foot high wooden fence with sentry walk (parapet) surrounded the entire Rock Island Barracks prisoner area. Sentry boxes were positioned every 100 feet along the walk.

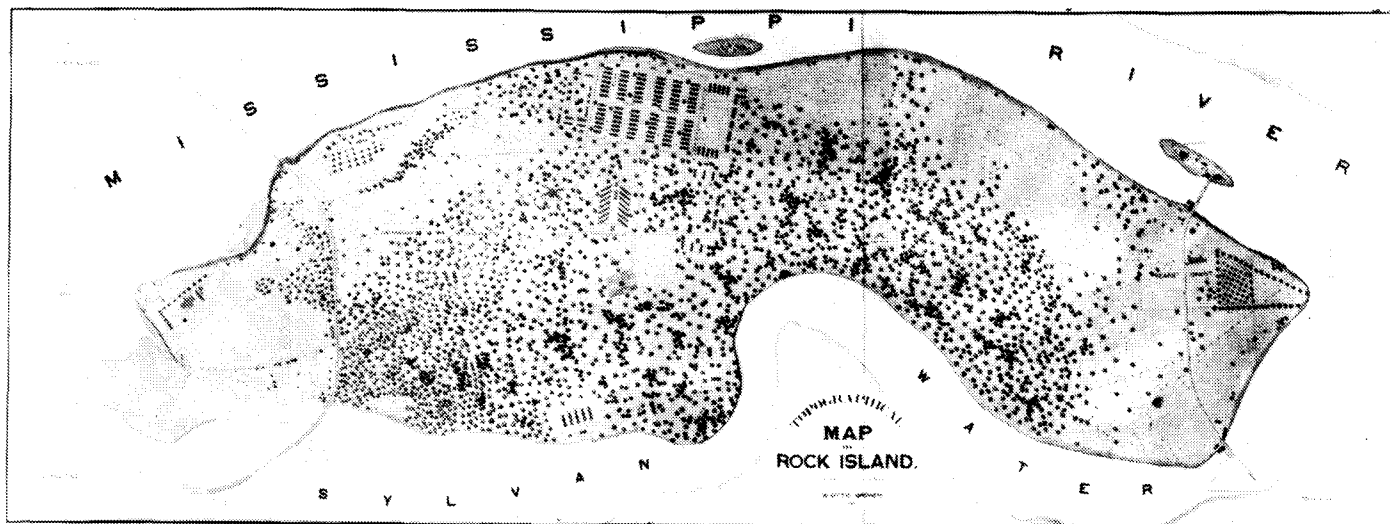


recapture, which has resulted in securing seven of them. Three were taken on the island, four near Rock River, about four miles distant, and one was drowned in attempting to cross the slough. Mounted patrols have been on the track of the remaining two until today, with the fair prospect of taking them. Barrack 42 was used for a variola ward during the prevalence of that disease and while the pest houses were being erected, and has been kept unoccupied since by request of the surgeon. The tunnel was made on the south side of the prison. Deep trenches had been made on the north, east, and west sides to prevent tunneling, it being deemed unnecessary to trench on the south side in consequence of the rock coming so near the surface. A trench has now been made down to the rock on that side also.²⁷

The Confederate prisoners were guarded by troops of the 4th Regiment of the Veterans Reserve Corps; the 37th Iowa Regiment; various "100 day" volunteer regiments; and the 108th U. S. Colored Infantry Regiment. The 4th Invalid Corps Regiment was a veteran reserve organization comprised of wounded soldiers who were no longer fit for regular military service. Under the command of Colonel Richard H. Rush, the 4th Invalid Corps were the guards at Rock Island prison when the camp received its first Confederate prisoners in December 1863. Shortly thereafter, Colonel Johnson arrived at Rock Island and assumed command of the prison barracks in January 1864. In the same month, the 37th Iowa Volunteers Regiment arrived to supplement the guard force.

The 37th Iowa Volunteers, known as the "gray beard" regiment, was comprised of men too old for conscription. George Washington Kincaid, an Iowa pioneer settler and member of the state's first constitutional convention, sought

Below: A topographical map drawn by the Rock Island Arsenal master draftsman, W. Otto Gronen, in 1870. The map depicts the prison barracks in the north central section of the island. During the 1870s the prison buildings were razed and the officer's quarters which now stand along Terrace Drive were constructed in their place. Note that the Rock Island Arsenal construction was limited to the far western tip of the island, west of the railroad tracks. The map actually depicts the island in 1867 before the arsenal began construction of manufacturing buildings on the high ground in the center of the island.



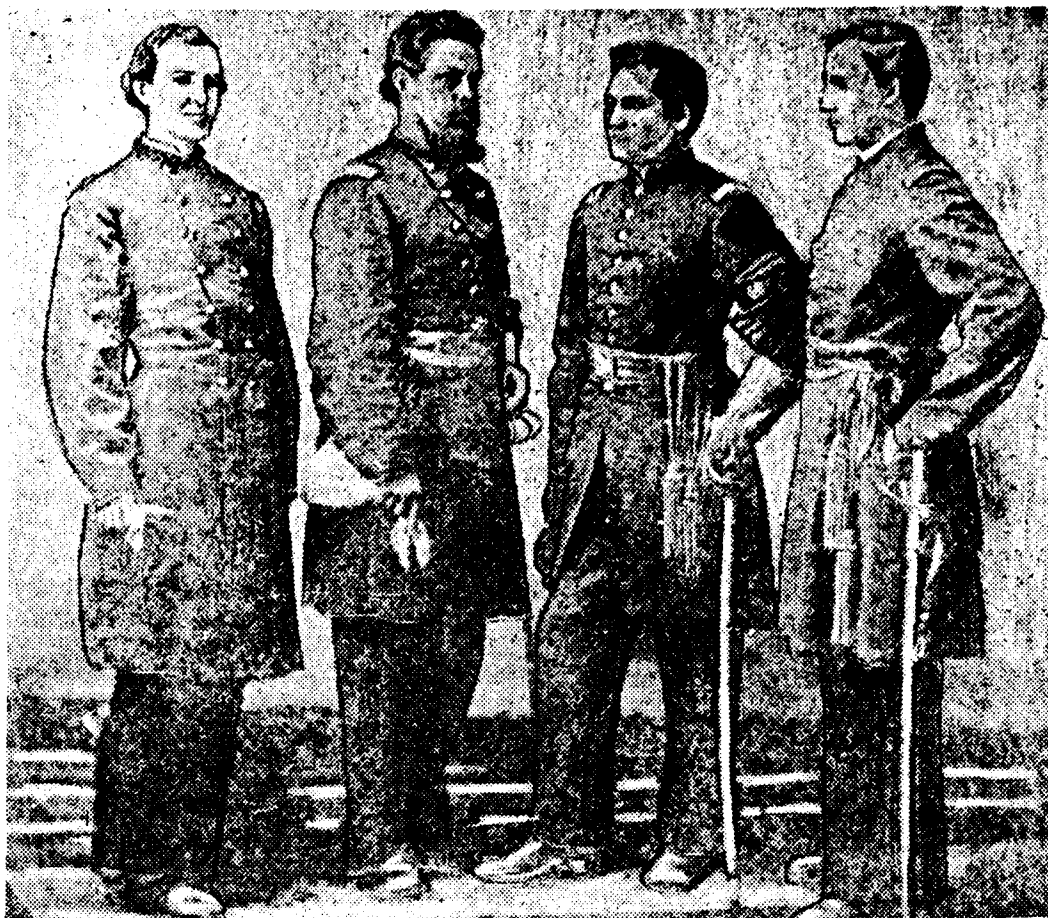
first federal, then state, permission to form a unique regiment of men too old to enlist in the Regular Army. Iowa Governor Samuel J. Kirkwood granted his approval and appointed Mr. Kincaid the commanding officer of the 37th Iowa Volunteers. The regiment of "gray beards" was exclusively composed of men 45 years of age or older. The regiment contained 428 men over the age of 50; 145 of which were in their 60s; and one man, Curtis King of Muscatine, Iowa, who was 80. Attractive as a public relations endeavor for the Union Army, the "gray beards" were to be exclusively used as garrison and guard troops. Used in this capacity, the 37th Iowa Volunteers relieved troops better fit for combat duty. The uniqueness of being the oldest regiment to serve in the U. S. Army initially earned the regiment celebrity status in the north. Among these troops were men who had prior military service dating back to the War of 1812. However, the novelty of federal service eventually wore off under the strain of everyday duty and the bone chilling winter winds that

whipped across Rock Island.²⁸

In October 1862, the 37th Iowa Volunteer Regiment was comprised of ten companies when it was mustered into the army at Camp Strong, near Muscatine, Iowa. The "gray beards" initially served provost and garrison duty in St. Louis, Missouri, and earned commendations and praises for their service at St. Louis, and at Alton, Illinois.²⁹ However, they did not receive accolades for their duty at Rock Island. In April 1864, Lieutenant Colonel John F. Marsh inspected the prison barracks for the Inspector General's Office. His written findings included this critical comment regarding the "gray beard" regiment. "(A) regiment of decrepit old men and the most unpromising subjects for soldiers I ever saw."³⁰ In another instance, Surgeon August M. Clark reported to Colonel Hoffman concerning his inspection of the Rock Island Prison Barracks:

Colonel Kincaid, Thirty-seventh Iowa Volunteers, (should) be under no

Below: Officers of the 108th Regiment, U.S. Colored Infantry, stationed at Rock Island during the Civil War. Left to right, Dr. Ellis, surgeon; Colonel John S. Bishop; Adjutant Morris T. Stafford; and Henry Clay Cleaveland, quartermaster.



circumstances placed in command of this post. He is altogether too slow and easy, and his officers and men appear to have no idea of the value of discipline.³¹

On 24 September 1864, the U. S. 108th Colored Infantry Regiment, commanded by Lieutenant Colonel John Bishop, a white officer, arrived by train to assume guard duty at the Rock Island Prison Barracks. The regiment's recruits, primarily from the slave population of north and west central Kentucky, enlisted for a three year term of service.³²

Confederate prisoners expressed first indignation, then anger, over the prospect of armed former slaves in uniform guarding over them. Lafayette Rogan expressed these emotions in his diary, writing, "A regt (regiment) of contrabands arrived at this post for garrison duty." His next day entry read: "The contrabands have not yet come of the parapet. We hate it but I suppose we must submit to this

indignity . . . (as) we have to others." Two days later, Rogan wrote: "8,000 Southern men today are guarded by the slaves who have been armed by the tyrant. One of our number was killed and two wounded last night in cold blood."³³ It was not long before black guards had earned a reputation for shooting prisoners. Prisoners accused the guards of firing without provocation into their barracks and shooting prisoners without cause. However, in at least one instance, the post commander, Colonel A. J. Johnson, appointed a commission of officers to investigate the shooting death of a prisoner; and after deliberating on the evidence, the commission acquitted Private John Cowherd of Company C, 108th U. S. Colored Infantry Regiment, of all blame in the shooting of John P. McClanahan, prisoner of war, assigned to barracks 8. The commission ruled that Private Cowherd acted in accordance with the spirit of his instructions, and discharged his duty as a good soldier and faithful sentinel.³⁴

Right: A formal photograph of Private Christopher Anderson, a member of the 108th U.S. Colored Infantry Regiment, who served as a prison guard at the Rock Island Prison Barracks during the Civil War. The photo is from a *carte de viste*, a small portrait photograph used as a substitute for a visiting card by soldiers. This is one of a set photographed by Gayford & Speidel, Photographers, Rock Island, Illinois.



Prisoners and guards who disobeyed orders were often assigned to “ride” a narrow wooden rail, known as “Morgan’s Mule”. The guilty party “rode” the rail for several hours with his feet dangling above the ground.

The 108th Colored Infantry Regiment remained at Rock Island until May 1865. On the eve of their departure to Mississippi, the *Rock Island Argus* commented, “the colored soldiers, as a general thing, have conducted themselves with great propriety, since they were stationed here.”³⁵

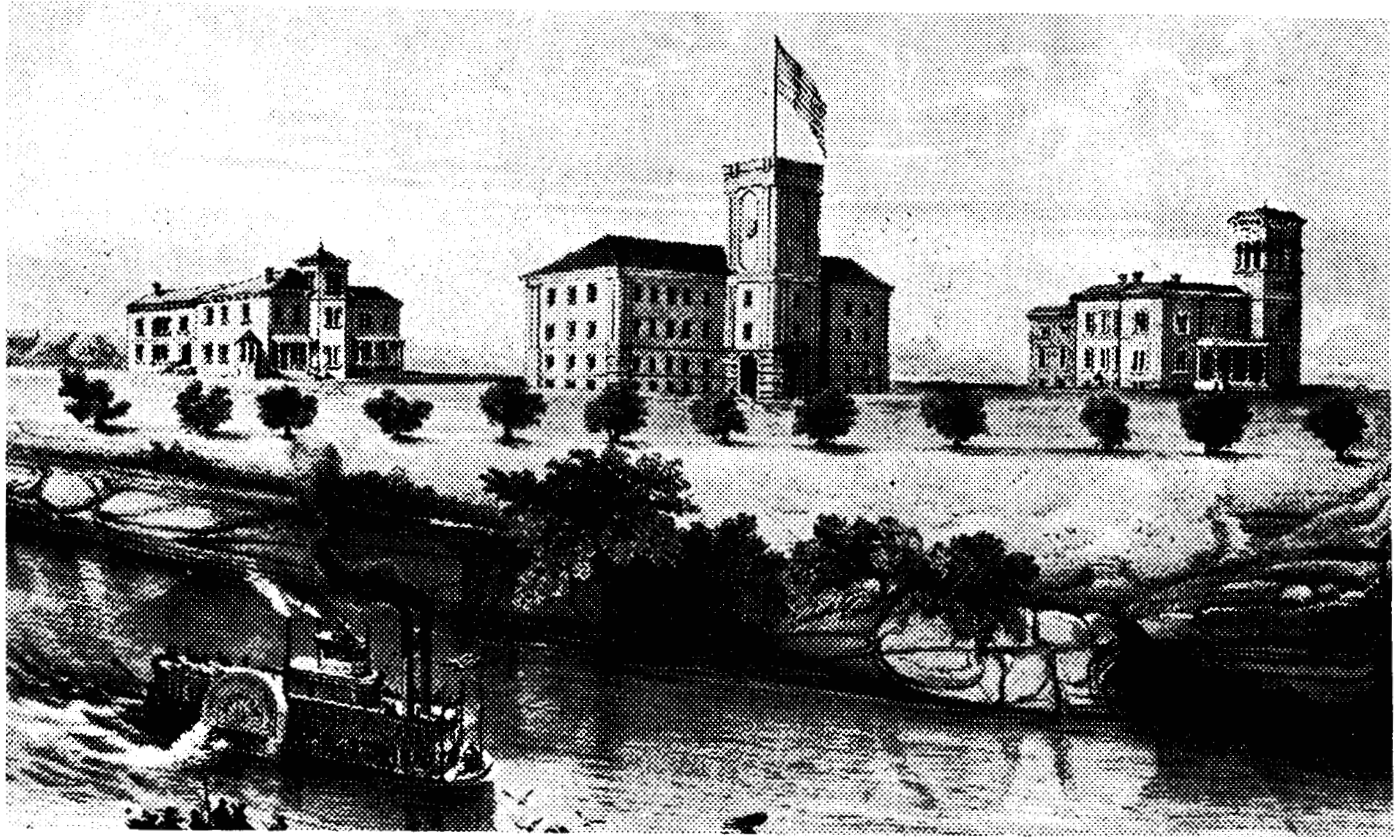
In a separate section of the national cemetery, at the far east end of the island, are 50 graves of the men of the 108th who died while serving at the Rock Island Prison Barracks. Also buried in this section were the 16 southern “galvanized yankees” who died prior to being assigned to the western frontier.³⁶

A total of 12,192 prisoners were confined to the

prison barracks during its existence. Of this number, 730 Confederate prisoners were transferred; 3,876 exchanged; and 5,581 released. The last two prisoners were released from the prison hospital in July 1865. After the prison was closed, the 207 buildings, including the prison barracks, hospital, and garrison building, were turned over to the arsenal. All of these structures have long since been razed. The last vestiges of the prison disappeared in 1909. Only the Confederate Cemetery remains as a permanent reminder of the existence of the Rock Island Prison Barracks.³⁷

The cemetery was relocated to its present site in February 1864. Between 1906 and 1912 a congressional commission responsible for marking the graves of Civil War dead provided the grave markers. Each year Memorial Day commemorative ceremonies are held at the cemetery.

Below: This copy of an old lithograph depicts the Army Ordnance Department's original plan to build a small arsenal comprising three structures for the repair and storage of ordnance weapons and equipment at the far western edge of the island. Note: Only the Clock Tower Building in the center was ever erected.



CHAPTER TWO BEGINNING OF THE ARSENAL

Prior to the Civil War, prominent army officers such as Brigadier General Thomas S. Jesup, quartermaster-general, expressed the importance of Rock Island. In 1852 General Jesup wrote:

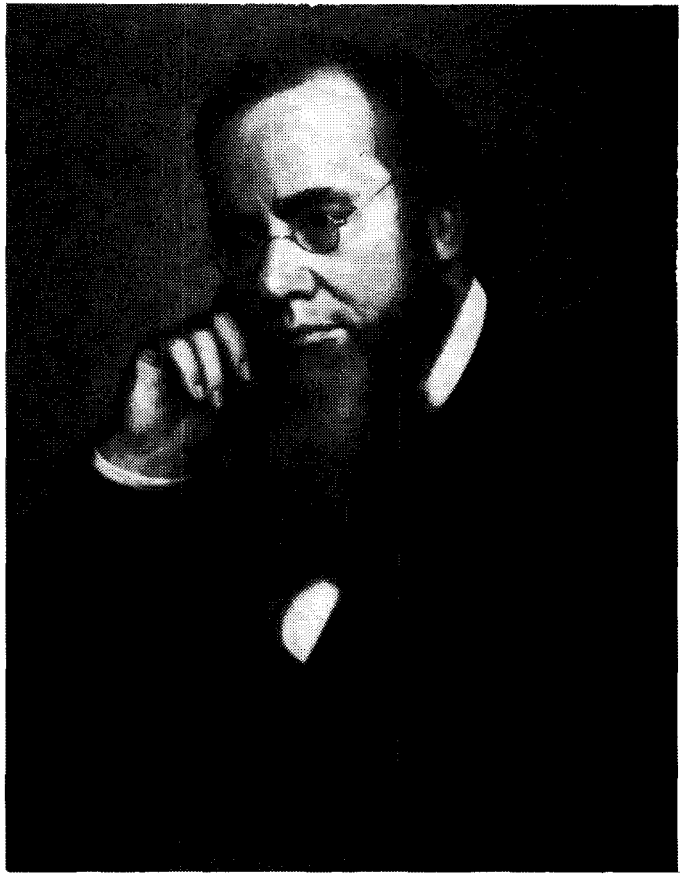
The site of Fort Armstrong, Rock Island, is one of the most valuable in our western country for an armory. The whole water power of the Mississippi River is available. If a western armory is to be established, I would advise that it be placed there. The island is under the control of an agent, who resides on it, and who is under the order of, and reports to, the quartermaster of Saint Louis. The agent should protect the property from depredation. I would not advise that any part of it be rented or leased.³⁸

The legislation which authorized the building

of an arsenal at Rock Island in July 1862 envisioned only a small facility designed for the "deposit and repair" of ordnance and provided \$100,000 for the building of the arsenal. Besides Rock Island, Indianapolis, Indiana, and Columbus, Ohio, were designated as additional sites for the building of other small arsenals.³⁹ As a result of the destruction of Harper's Ferry Armory, in Virginia, Congress realized the necessity of federal arsenals being far from the Mason-Dixon Line. Rock Island, being situated in the upper Mississippi River, satisfied this criteria. None of the arsenal buildings, however, were completed at Rock Island during the Civil War.

Shortly after Congress had passed the act of 11 July 1862, establishing an arsenal at Rock Island, General C. P. Buckingham conducted a preliminary inspection of the island for the War Department. On 24 October 1862, he wrote to the secretary of war:

Right: *Edwin M. Stanton served as Secretary of War during the period in which plans for the Rock Island Arsenal were expanded and upgraded to include manufacturing operations.*



The island is, without a doubt, the best place for an arsenal. The only question connected with the location of an Arsenal at this point is, I conceive, whether it shall be at the upper or lower end of the island . . . I think the advantages of the lower end of the Island for the purpose of an arsenal are superior to those of the upper end.⁴⁰

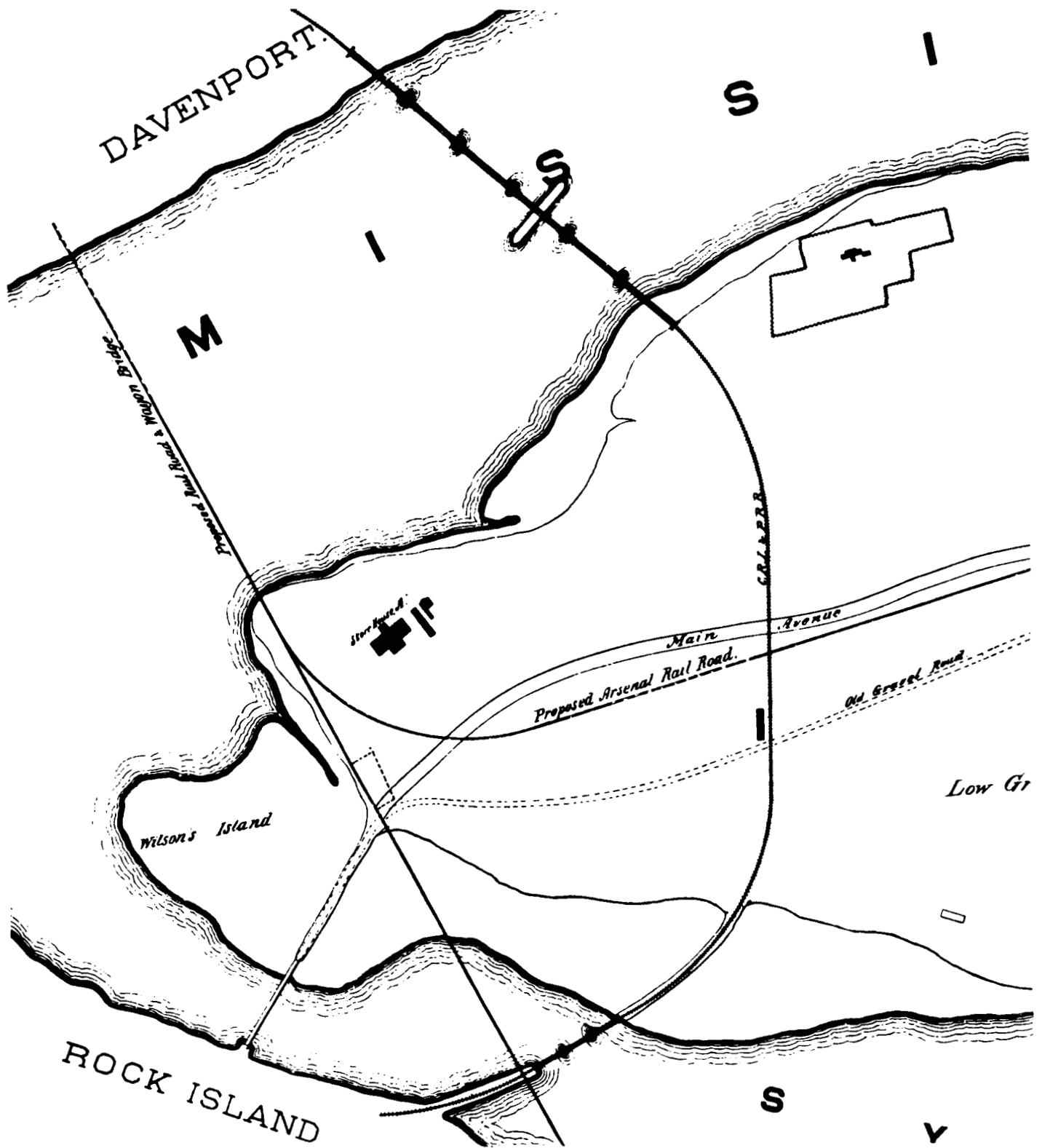
In 1862, the army appointed a board of officers to inspect the island and to recommend a construction site for the first buildings. The officers were to further report on the type of construction material to be used for the buildings. The board consisted of three ordnance officers: Major C. P. Kingsbury; Major F. D. Callendar; and Captain T. J. Treadwell. In their report to the chief of ordnance, the officers recommended the first arsenal building, designated "storehouse A" and today known as

the Clock Tower Building, be constructed on the western tip of the island. The officers also recommended limestone from LeClaire, Iowa, as the building material for the arsenal structures.⁴¹

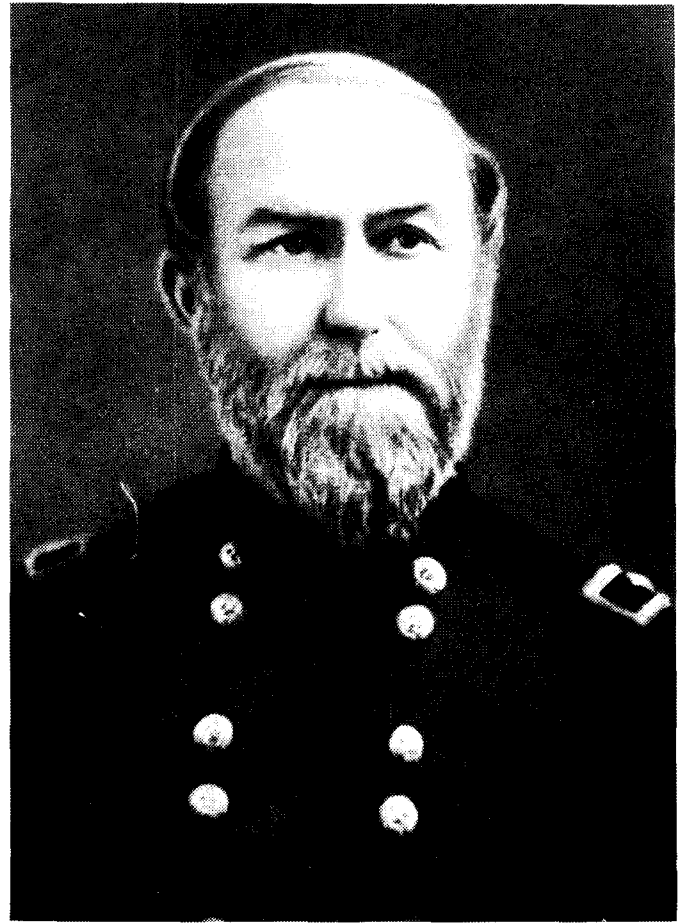
As views of prominent military leaders such as General George D. Ramsey, chief of ordnance, became known, sentiment in Washington began to develop for a larger arsenal than had originally been provided for in the act of 11 July 1862. General Ramsey, in a February 1864 letter to Edwin Stanton, secretary of war, expressed his views as to the advantages of having a manufacturing arsenal at Rock Island.

. . . After a careful study of this question of location, there is no position which, to my mind, affords so many advantages, and, at the same time, presents so few objections, as Rock Island, in the Mississippi River.

Below: The original location of the Chicago, Rock Island and Pacific railroad tracks across Arsenal Island and the site of the first railroad bridge from the island to Davenport, Iowa. Relocation of the tracks and bridge to the far western edge of the island in 1872 allowed the arsenal to use the entire island for expansion. Note: Storehouse A (Clock Tower Building) was situated east of the proposed bridge and track route.



Right: Major Charles P. Kingsbury was one of the three ordnance officers that selected the site of the first Rock Island Arsenal building. Afterwards, he became the arsenal's first commanding officer and supervised its construction from 3 August 1863 to 16 July 1865. In addition to his duties as commander, Major Kingsbury armed and equipped Iowa, Wisconsin, and Minnesota Volunteers during the Civil War.



In a military point of view it is perfectly secure from an enemy, advancing either by the lakes or the river. From it, supplies can be transported in any direction and at any season of the year. It is in the midst of a country teeming with coal and wood, and especially adapted to agriculture--an important element in cheapening labor. The site is elevated far above river floods, the climate and situation are health(y), and while the island is sufficiently isolated to secure it from sudden attacks, it is near enough to the cities of Rock Island and Davenport to afford ample accommodations for all necessary employees.⁴²

The board of ordnance officers submitted the following report to the Ordnance Office, dated May 18, 1863:

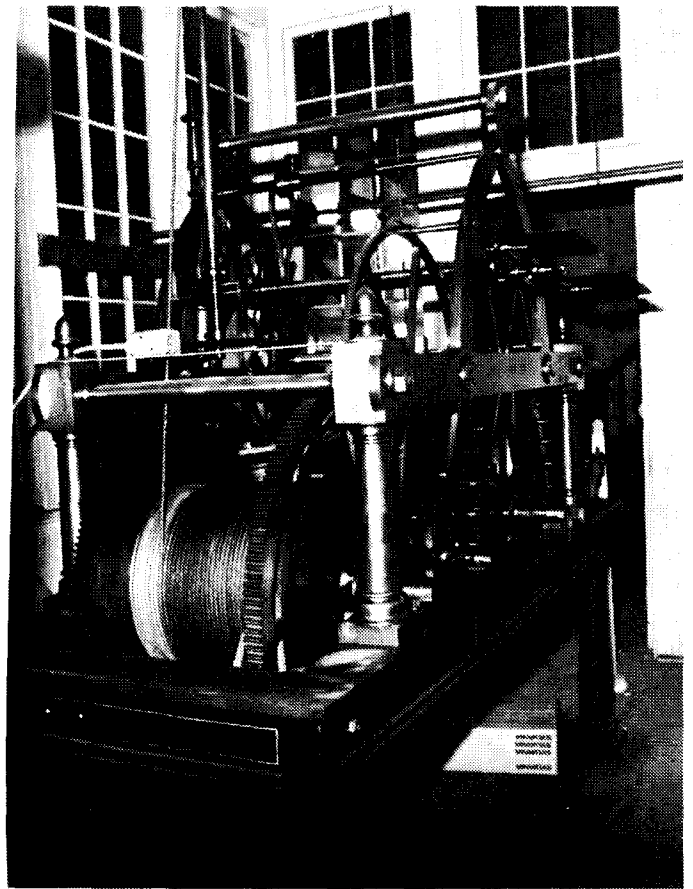
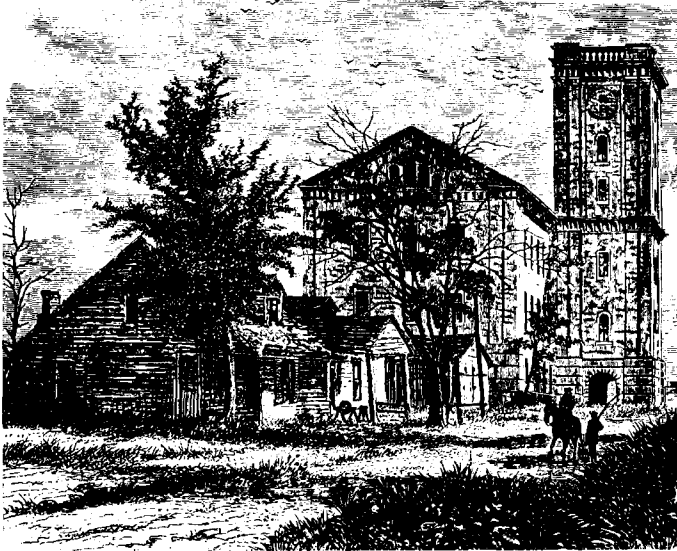
The undersigned, appointed a board under orders from the Ordnance Office, dated May 6, 1863, to select a site for certain buildings pertaining to the

proposed arsenal at Rock Island, respectfully report: That they have carefully examined the ground at the lower end of the Rock Island, selected by the War Department for a United States arsenal, and recommend that the front of the principal storehouse be on the prolongation of a line drawn from the southwest corner of a wooden building, now occupied by a tenant, (possibly the old General Winfield Scott headquarters or one of the old Fort Armstrong buildings) and that the southwest corner of said storehouse be placed at a point of this line 300 feet distant from said wooden building, the said line . . . (bearing) about south 40 degrees, west.⁴³

In addition, the board selected two possible sites for an ammunition magazine, also on the west end of the island. Once the officers' final report was approved, Major Charles P. Kingsbury was appointed to command the initial construction of the arsenal.⁴⁴

Left: An early etching of Storehouse A (Clock Tower Building), a stable, and a wooden house which served as General Winfield Scott's headquarters during the Black Hawk War of 1832.

Right: Colonel Rodman purchased the Tower Clock from A. S. Hotchkiss of New York City for \$5,000.00. The clockworks remain operating today as installed in 1868 on the sixth floor of the tower.



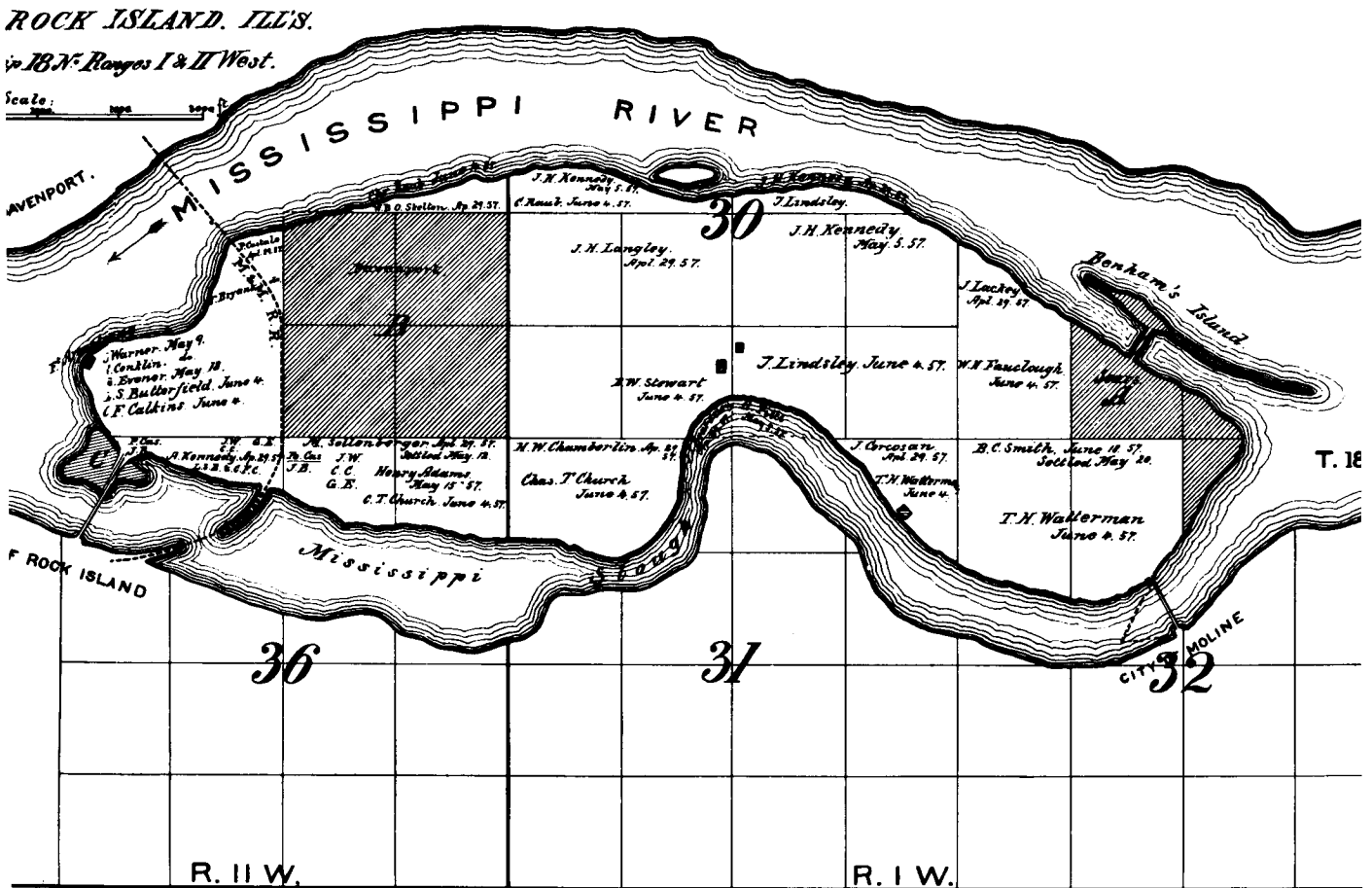
Ironically, in 1861 Major Kingsbury served as superintendent of the Harper's Ferry Armory in (West) Virginia for two days prior to the destruction of the armory's weapons and the abandonment of the installation in an effort to prevent Confederate sympathizers from seizing the supply when they arrived a few hours later to capture the armory.⁴⁵

Construction of the first building on the island began in 1863, and in April 1864, the cornerstone of the initial permanent building, storehouse A, was laid. Builders using LeClaire limestone erected a five story tower, nearly 120 feet in height, which housed a clock with dials facing in four directions. The clock's four dials were 12 feet in diameter, with a minute hand six feet long and an hour hand approximately 5 feet long. Kingsbury's successor, Brevet Brigadier General Thomas J. Rodman, purchased the clock from its manufacturer, A. S. Hotchkiss Company, New York, New York, in 1867. Considered to be one

of the finest in the country, the clock may be the only timepiece of its kind still operating with its original parts. The massive weights which operate the clock hang the length of three floors, and its clock bell weighs about 3,500 pounds. The clock was purchased for \$5,000.00. Begun during President Abraham Lincoln's administration, the Clock Tower was the only building erected from the original arsenal plans.⁴⁶

On 19 April 1864, Congress passed into law an act that authorized the army to reclaim the entire island and to settle all legal land claims held by others. This act, originally introduced as a bill on the floor of Congress by Illinois Representative Elihu B. Washburn, provided Major Kingsbury with the capability to build an arsenal equal to the Harper's Ferry Armory, and capable of manufacturing ordnance stores. Earlier legislation had only allowed the development of a depot.⁴⁷ General Ramsey's statements in his

Below: A map depicting the Rock Island land claims of Colonel Davenport, D. B. Sears, and others in 1857. Major Kingsbury sought the removal of these settlers and others from the island during his command.



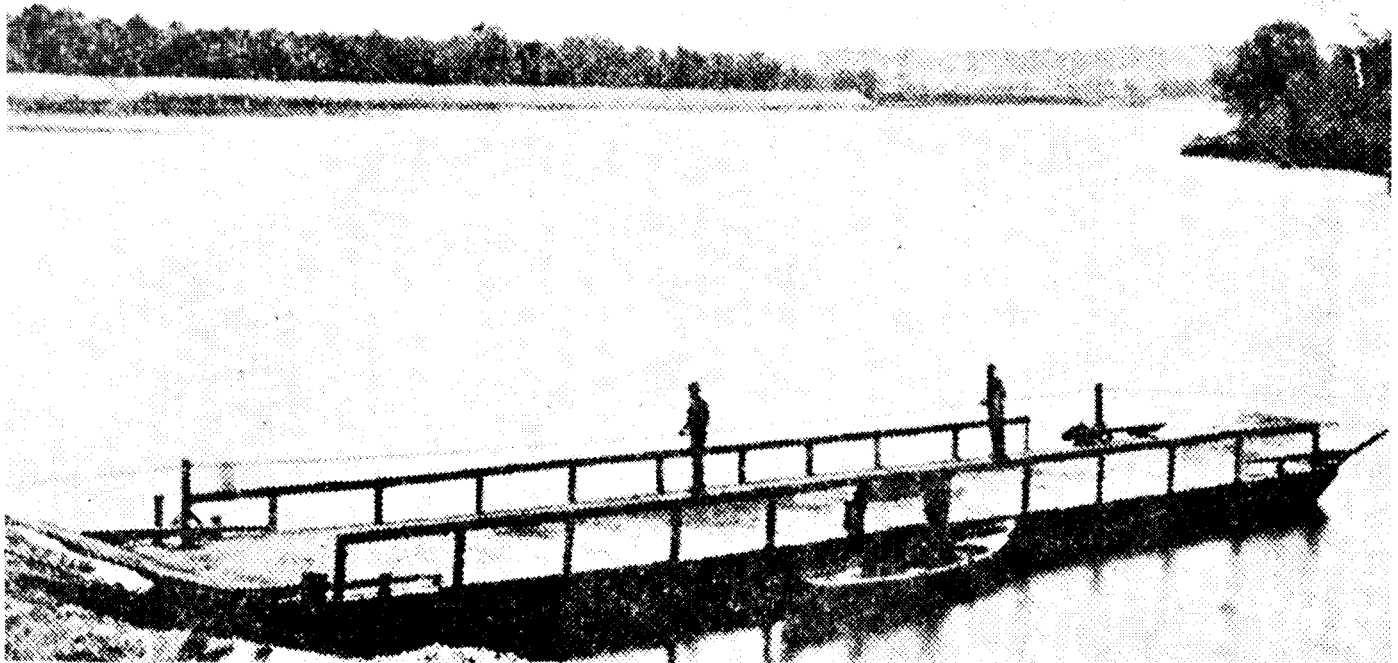
letter to Secretary of War Stanton, confirmed the intention of the act of 19 April 1864. Ramsey wrote that the act authorized the secretary of war to take complete and permanent possession of the island on behalf of the United States. The act stipulated that the island was to be held as a military reserve by the War Department, and that an arsenal for the construction, deposit, and repair of arms and munitions be built and maintained on the island.⁴⁸

A prerequisite, however, to the creation of a large manufacturing arsenal was the removal of settlers and manufacturing establishments on the island. Between the two periods of military occupancy on Rock Island, portions of Rock Island had been settled by civilians. These individuals believed the government would eventually release the land for public sale. In the meantime, they had already staked-out or claimed the more valuable sites, such as those sections at the eastern end near the dam.

However, once the U. S. Congress approved the act of 11 July 1862, followed by the act of 19 April 1864, civilian domicile of the island was short lived. A board of commissioners appointed by the president of the United States reviewed and settled the more legitimate claims. In 1865, President Andrew Johnson appointed Major General J. M. Schofield, Mr. James Barnes of Springfield, Massachusetts, and Mr. Sheldon M. Church of Rockford, Illinois, to this board.⁴⁹

The commission conducted hearings in October of 1866, at which time witnesses testified and presented evidence as to the validity and value of their claims. The commission adjourned on 19 October 1866, and on 4 February 1867, submitted its final report to the Circuit Court of the Northern District of Illinois. Judge Drummond reviewed the compensation due each claimant and awarded the sum of \$237,429.00 as final payment to settle these claims.⁵⁰

Below: In 1868 a wooden bridge, built by the city of Rock Island, to the Arsenal Island was carried away by ice. The federal government had purchased the bridge and a sandbar known as Wilson's Island for \$18,600 in 1866. Colonel Rodman ordered a rope-ferry to operate between the city and the island until a new iron bridge was completed.



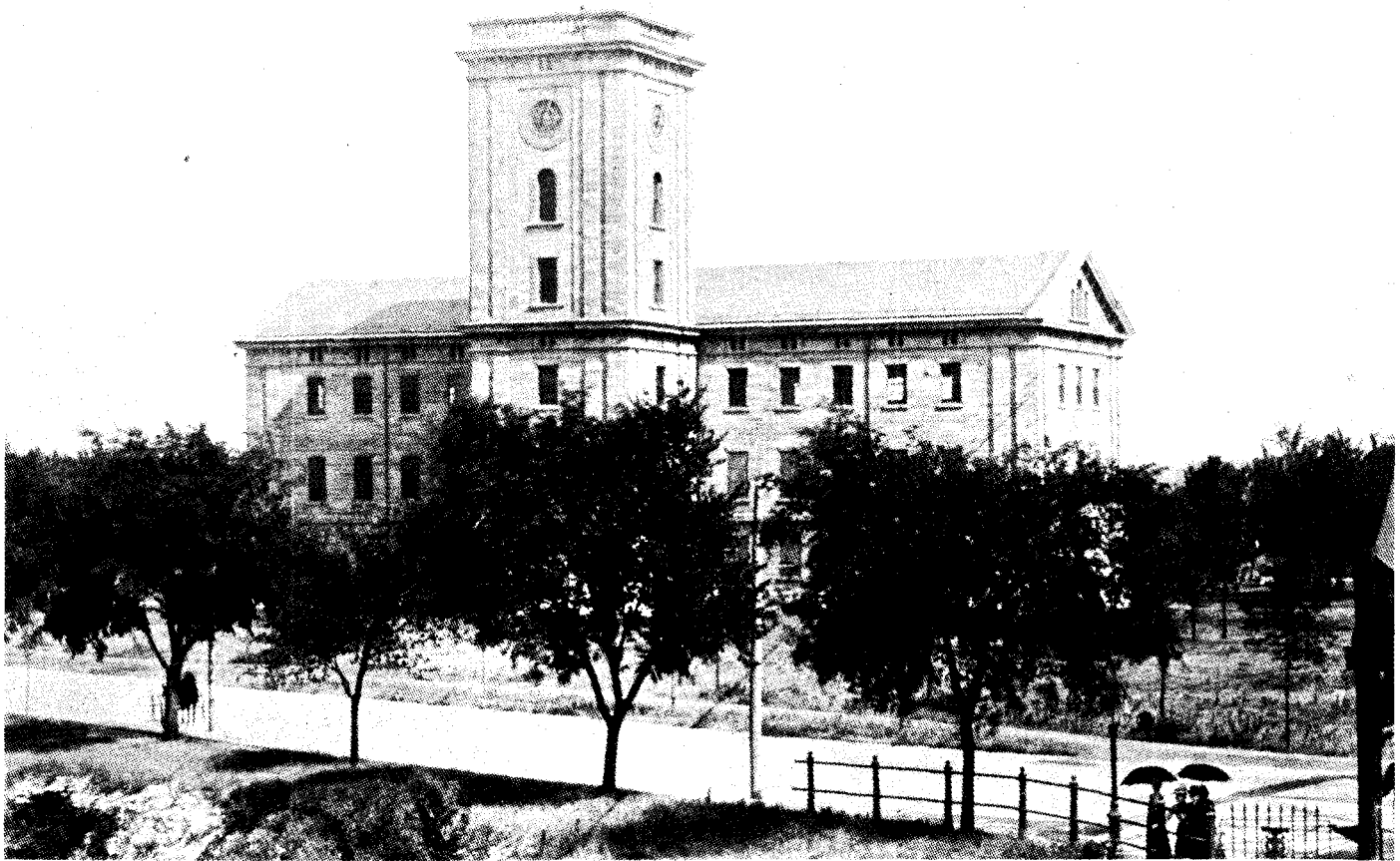
The congressional acts of 19 April 1864 and 22 June 1866 empowered the secretary of war to take complete and permanent possession of Rock Island, including the island's access bridges and water power. In doing so, the city of Rock Island received \$14,357.00 for its wooden wagon bridge and causeway over Wilson Island which connected the town with the island of Rock Island. The city of Rock Island had erected the bridge in 1863, but in 1868, a spring ice thaw destroyed it. Major Kingsbury, while commanding the construction of the Arsenal's Clock Tower Building, ordered a rope ferry installed as a substitute bridge until a new bridge could be constructed in its place in 1872.

The city of Moline, Illinois, received \$2,000.00 for its bridge and the roadway that connected Mill Street in Moline with the island. Mill owner and land developer, David B. Sears, received \$145,175.00 for 35.45 acres of land on Rock Island. His land was considered more valuable than others because it was developed and was located near water power from the wing dam at

the east end of the island. Sears had surveyed, plotted, and lotted his island property in the hopes of developing an island city. However, only a few lots were sold by the time the government had repurchased the property from Sears.

The government also awarded Colonel George Davenport's family \$40,740.00 for its 150 acre estate on Rock Island. The location of the Davenport property, which was near the original arsenal construction site, and the improvements made on the property, enhanced its monetary value and importance to the government. Government payments were especially generous considering both David B. Sears and Colonel Davenport had originally obtained their island properties for \$1.25 per acre. With the exception of the claims of George Stephens, Jonathan Huntoon, and Timothy Woods, the remaining six claims were small. The government settled these smaller claims for approximately \$1,000.00 each.⁵¹

Below: A latter 19th century view of the Rock Island Arsenal approach to the government bridge to Davenport, Iowa, and Clock Tower Building.



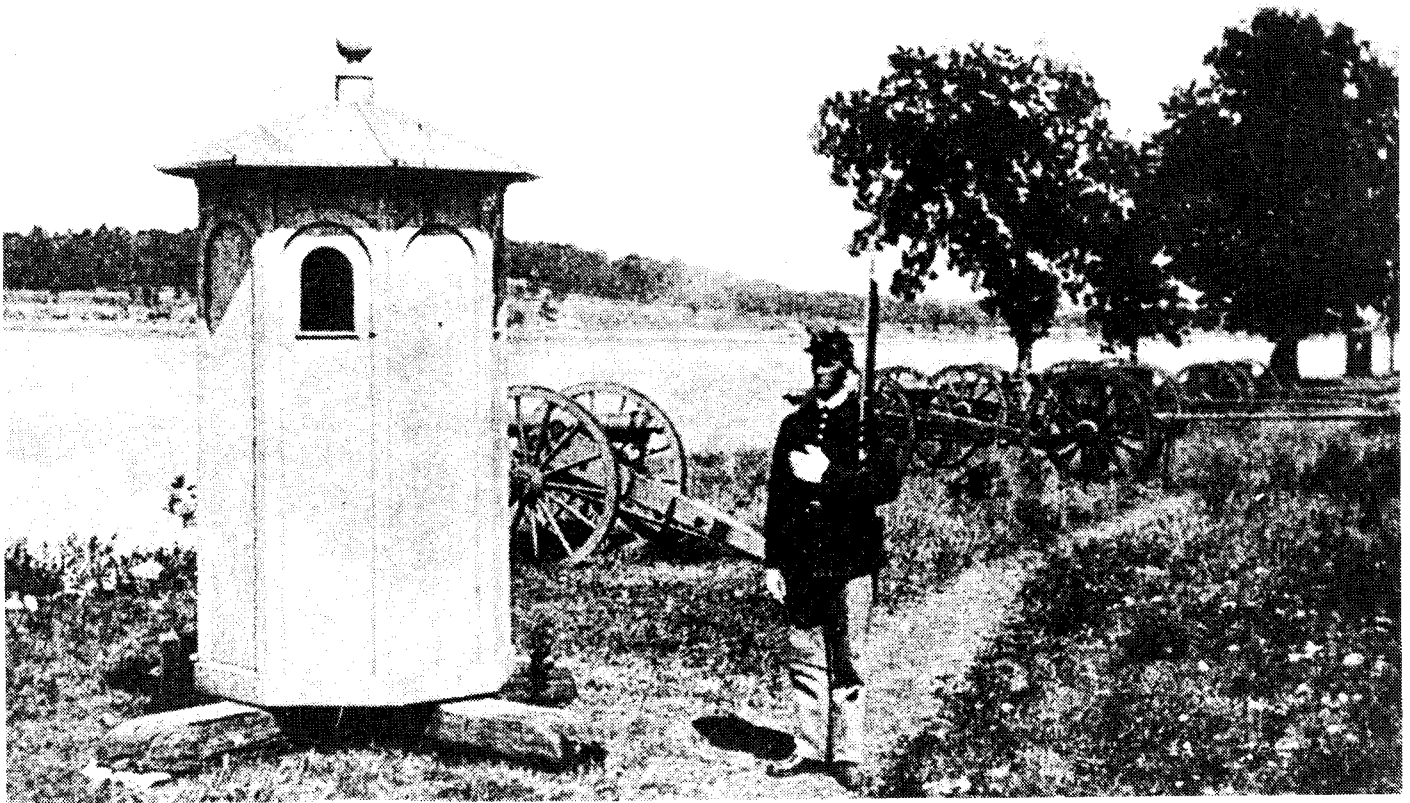
In letters to the chief of ordnance, Major Kingsbury approved the actions taken by the commission, however, he encountered difficulties with both the settlers on the island and with the soldiers who had been building the prison camp on Rock Island. Adding to these difficulties was the fact the city of Rock Island built a wagon bridge from that town to the island without Major Kingsbury's permission. To add insult to injury, the mayor of Rock Island, anxious to capitalize on business from the new prison barracks, now sought the major's permission to construct a road from the wagon bridge to the prison barracks on the north central portion of the island. Major Kingsbury ironically approved the request, but stipulated that the road be built away from his construction operations at the storehouse site near the ruins of Fort Armstrong. But once the road was completed, traffic between the prison camp and the town of Rock Island frequently left the road while taking a short-cut to the prison and encroached upon the arsenal building site.

These annoyances, and those created by wandering horses, cattle, and other livestock owned by the squatters on the island, hindered Major Kingsbury's construction operations.

Major Kingsbury also had to deal with delays in the shipment of limestone to Rock Island. The contractor, Joseph Parkins, claimed he could not continue to provide the stone at the contract price of \$7.50 a perch due to a sharp depreciation in the dollar in 1864. (A perch is a unit of measurement used in stone work, usually 16.5 feet (1 rod) by 1 foot by 1.5 feet, or 24.75 cubic feet.) Also, since the Mississippi River level had become so low, it was not possible to deliver the stone from the quarries by water.⁵²

In addition to these difficulties, Major Kingsbury was often called from his duty as arsenal commander to personally attend to the receipt and delivery of arms and supplies to volunteer troops in Iowa and Wisconsin, and frequently had to travel to Milwaukee, and Madison, Wisconsin and to Des Moines, and Keokuk, Iowa, to supervise the distribution of

Below: Sentry station, guard path and guard of probably the Civil War era. This photo was taken from a stereopticon card that depicted the north shore of the island of Rock Island between the pump station and sun dial. The location shown here was approximately at the northwest corner of the Rock Island Prison Barracks. Note the guard is armed with a long musket.



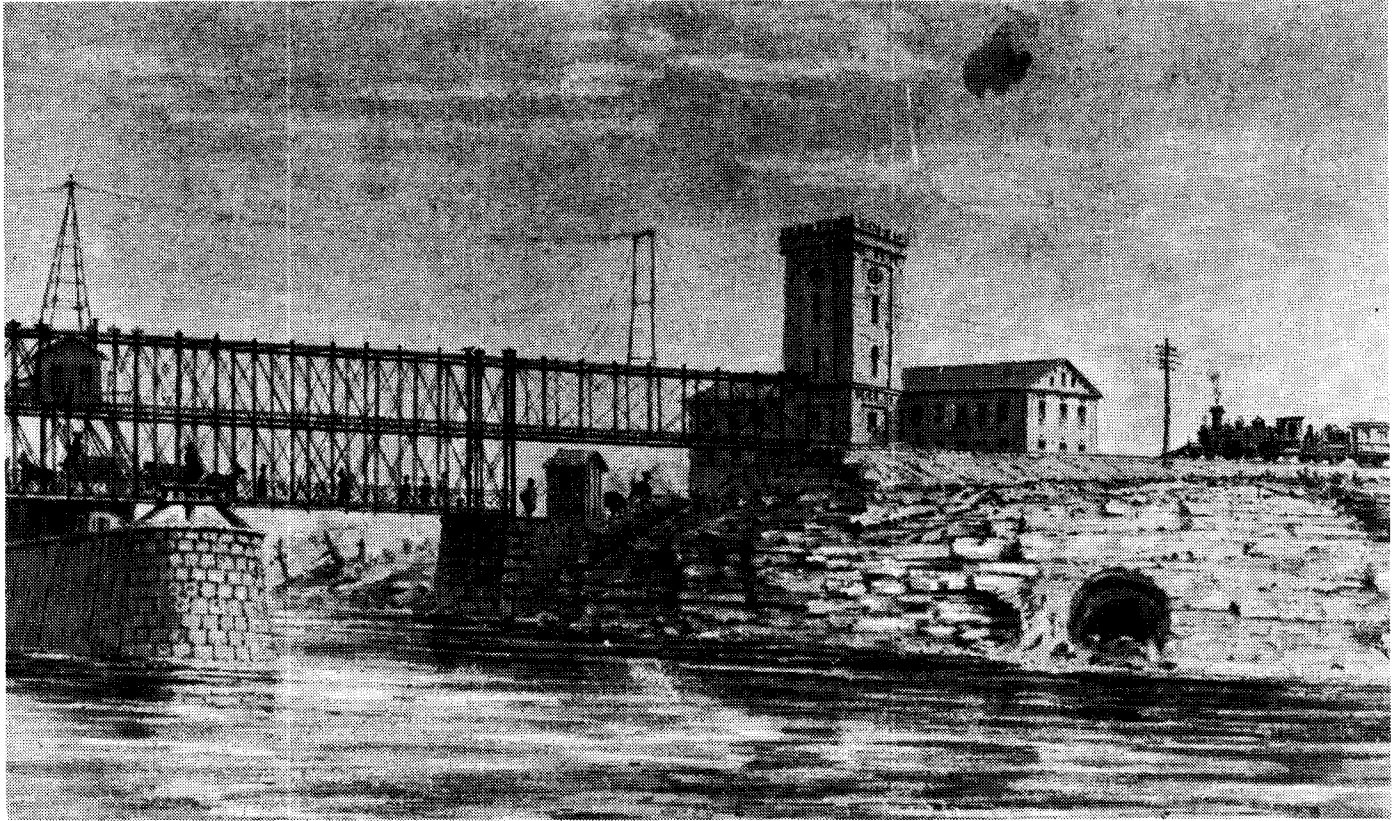
arms. A detachment of soldiers of the 4th Regiment, 186th Co., was assigned to guard arsenal property and construction sites on the island in April 1864. Conflicts between the prison guards and the construction workmen was an ongoing problem until the end of the Civil War.

Soldiers of the Quartermaster Department, who were building the prison on the interior of Rock Island, also routinely encroached upon Major Kingsbury's construction site; and their actions caused friction between the two commands. On 26 February 1864, Major Kingsbury wrote to the prison barracks commander, Colonel A. J. Johnson, to complain about teamsters hauling supplies and materials to the prison site and often leaving the road to trespass through arsenal grounds. Major Kingsbury notified the chief of army ordnance that Colonel Johnson's men also had chopped down an excessive amount of timber. Major Kingsbury reminded the chief of ordnance that the entire island would soon be permanently reserved for ordnance purposes by

congressional legislation, and that the prison barracks served only a temporary purpose and should have been placed on grounds which were already cleared.⁵³

In further correspondence dated 17 March 1864, Major Kingsbury again complained to the chief of army ordnance that the prison command had once more encroached on his building site. Colonel Johnson took control of the Colonel Davenport House after the government required the property. The arsenal commander requested that the chief of army ordnance immediately transfer possession of the Davenport House to the Ordnance Department. Major Kingsbury viewed Colonel Johnson's arbitrary action as another example of the prison's encroachment on arsenal grounds, and argued that it was imperative the Davenport House be retained by the arsenal as it would save the arsenal the expense of building an office and additional storage area. In accordance with instructions from the chief of ordnance, Colonel Johnson relinquished the house to the Ordnance Department.⁵⁴

Below: The relocation of the Chicago, Rock Island and Pacific Railroad tracks and bridge to the far western edge of the island was critical to the success of Rodman's plan for expansion of the arsenal over the entire island. Rodman encouraged the building of a new bridge, a double deck bridge with a wagon deck beneath the railroad deck. William Lamback's sketch of this new iron bridge with the Clock Tower Building in background is shown below.



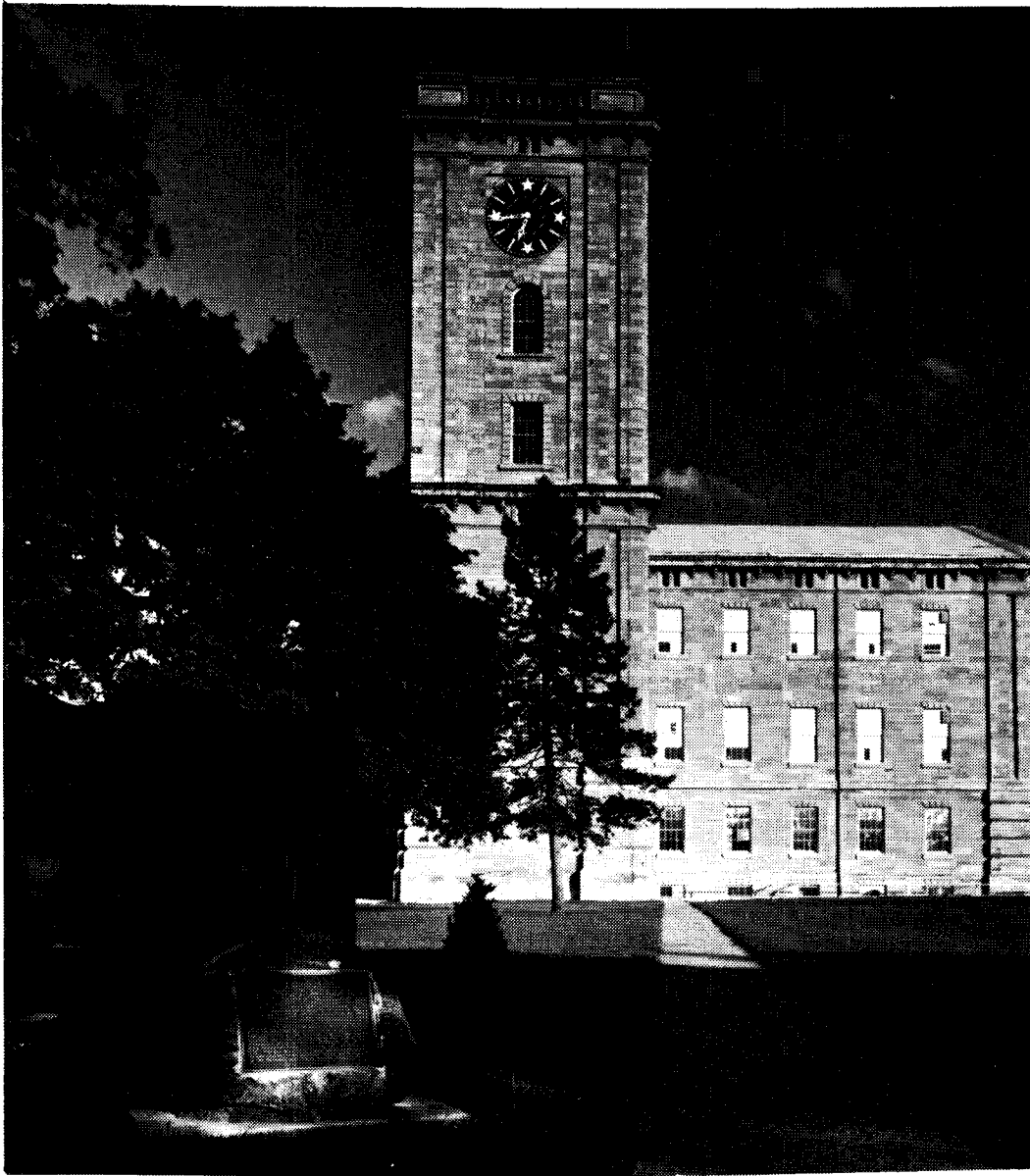
Conflict continued, however, between the two commands. On 10 June 1864 Major Kingsbury again wrote to Colonel Johnson regarding the activities and conduct of the commandant's men. He complained that men quarrying stone for the U. S. Government on the other side of the river were driven from their work by the musket fire of the prison guards, and that the quarry workers' lives were endangered by this practice.⁵⁵ Obstacles such as these, and the failure of the contractor, Joseph Parkins, to deliver the LeClaire limestone as scheduled, delayed the completion of the storehouse building.

These delays and difficulties frustrated and discouraged Major Kingsbury. He had already begun construction of "storehouse A" prior to congressional legislation which authorized the army to reclaim the entire island. Less than a dozen firms and individuals continued to use portions of Rock Island after the passage of this act. Reluctant to move, they persuaded Major Kingsbury and government authorities in Washington to allow them to remain as long as

their operations did not interfere with the arsenal's construction plans.

In May 1865, the new chief of ordnance, Alexander B. Dyer, visited Rock Island to inspect the construction site and to discuss several significant issues with Major Kingsbury which impacted on the future development of the arsenal. These issues were the removal of the squatters; future use of the prison barracks; plans for a greater arsenal; location of buildings; and water power development. Removal of the remaining private parties from Rock Island proved more difficult than imagined. Tired after two years of arguing with squatters, stone cutters, and local authorities, Major Kingsbury finally gave up. In June 1865 he requested and received a release from his command at Rock Island. Left unfinished was the partially constructed Clock Tower Building, "storehouse A". On 27 June 1866, a full year after Major Kingsbury's departure from Rock Island, the federal government acted upon the land claims.⁵⁶

Right: *The U.S. Army Corps of Engineers, Rock Island District, has occupied the Clock Tower Building since the building of the lock and dam at Rock Island in 1934. Note: the dial is approximately 12 feet in diameter, and the hour and minute hands are approximately five and six feet long.*

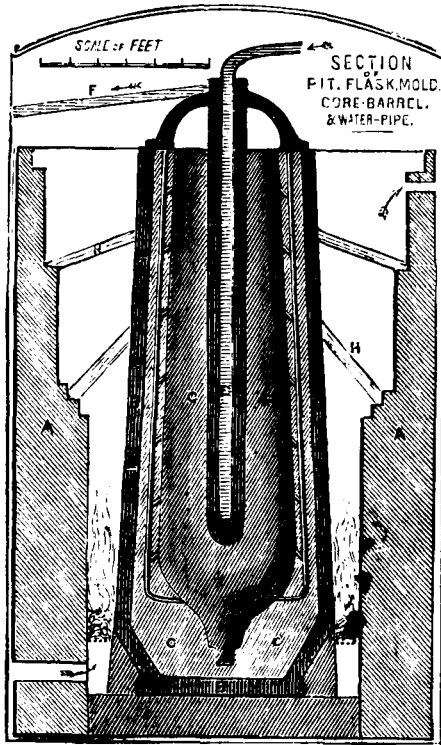


Edwin M. Stanton, secretary of war, acting upon Major Kingsbury's request for reassignment, switched the commanding officers of Rock Island Arsenal and Watertown Arsenal. Kingsbury's successor, General Thomas J. Rodman, obtained his superior's approval for design changes proposed in the Clock Tower Building, and in the overall plan for an arsenal at Rock Island. The two major changes approved were the placement of gables in the ends of the building with windows in each to light and ventilate the loft, and an increase in

the height of the clock tower by 20 feet to accommodate the change in the height of the roof. The clock tower, completed in 1867, served as a support for the main hoist which lifted supplies to the floors of the main building. General Rodman's alterations in the design increased the usefulness of the building and created a more imposing structure. Since its construction, the Clock Tower Building has become one of the most visible and recognizable landmarks of the Rock Island Arsenal and of the upper Mississippi River.⁵⁷

Right: Historians credited Rodman's method of casting gun tubes, which produced the Rodman Gun, as being one of the most significant advancement in ordnance technology of the Civil War period.

Below: Rodman's revolutionary casting method reversed all previous methods by having the inside of the gun tube cooled by flowing water while the exterior side of the flask mould was heated by the casting fire. His method cooled the gun from the inside so the iron next to the bore solidified first, thereby increasing the strength of the gun tube.



THE RODMAN GUN: Outline of Casting Process

- A. Side of pit dug in the earth.
- B. Flask holding in shape the earth mould.
- C. Mould, a mixture of earth and sand.
- D. Core barrel.
- E. Water.
- F. Escape flue.
- G. Gun.
- H. Braces for keeping flask upright.

CHAPTER THREE THE RODMAN YEARS AT RIA

The U. S. Army Ordnance Department decided to build a manufacturing arsenal at Rock Island and selected Brevet Brigadier General Thomas J. Rodman to command it in 1865. Rodman, a brilliant graduate of the U. S. Military Academy Class of 1841, had an impressive record of service prior to his assignment at Rock Island. He had investigated and developed new ordnance concepts in the field of metallurgy and propellants, and his rank of Brevet Brigadier General was bestowed on him for meritorious and distinguished service in the Ordnance Department during the Civil War. Rodman maintained this honorary commission until his death in 1871. However, his actual military rank

was Lieutenant Colonel. Since a lieutenant colonel was referred to as a colonel, Rodman's rank will be referred to as such from this point on.

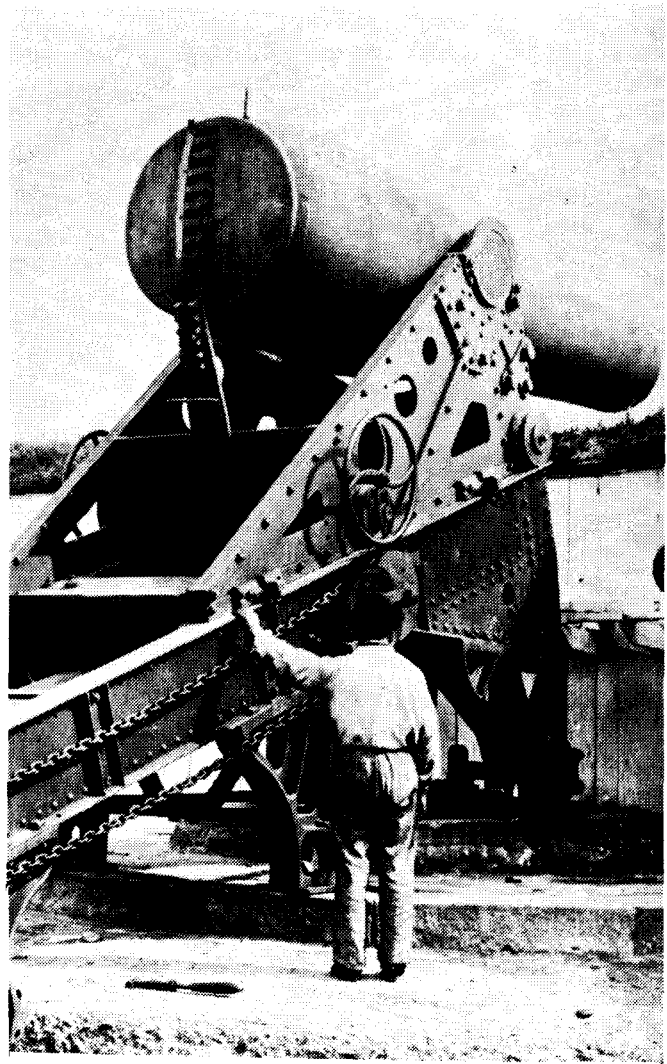
The "Rodman Gun"

One of Colonel Rodman's greatest achievements was the development of the "Rodman Casting Process," which revolutionized the art of casting cannons. His casting method cooled an iron gun from the interior, while keeping the exterior in a fluid state. The inner walls of the gun solidified first causing successive layers of metal to shrink one upon another. The result was a stronger, safer

Right: *The Rodman Gun designed for seacoast protection was also used to arm the monitor-type Union vessels during the Civil War. Note: the notches at the rear of the tube were used to assist in elevating the weapon.*

cannon that was more reliable, and longer lasting than other guns of the era. The life of a gun was increased 11 to 20 times when cast by the Rodman process. The army adopted the water-cooled, hollow casting of cannons in the year 1859, 14 years after Rodman had conceived the process.⁵⁸

Colonel Rodman transformed the design of cannons into a science. He consolidated the ballistic knowledge of foreign military powers and applied the science of his day to cannon design. With the development of the steam engine, methods of calculating pressure were available to Colonel Rodman. Through his scientific research of internal ballistics, Rodman was able to determine the pressure curve for specific guns. Based on this information, he designed the Rodman Gun so that the gun tube was cast thickest at the point of greatest pressure and then narrowed as the pressure decreased. The new "coke bottle" shape and the new casting process made the Rodman gun a major technological improvement over past designs and placed the Rodman gun among the most significant weapons advancements of the Civil War. In fact, historians credit Colonel Rodman and his gun with discouraging European naval intervention in the American Civil War. Installed as coastal artillery, the Rodman gun was vastly superior to the European naval weapons, and, therefore, served as a deterrent to any European nation which contemplated naval action against the American continent.



Rodman Gunpowder

Colonel Rodman's later work on gunpowder also proved significant. He developed a new gunpowder formula which laid the groundwork for the modern pellet powder. By 1860, he had begun to develop powder to fit the caliber of the gun by devising a formula whereby gunpowder could be compressed into disks. These disks, referred to as perforated cake powder, were approximately one or two inches thick and pierced with holes. The perforated powder burned slower than ordinary cannon powder. Rodman's perforated cake powder also provided more thrust and a more uniform pressure along the gun's bore, thereby reducing the strain on the gun and increasing its firing distance.

Earlier experiments with different types of powder led Rodman to the development of "prismatic" powder. This prism-shaped powder maintained chamber pressure at a greater level than other gunpowder without increasing the

Right: Colonel Rodman earned the rank of Brevet Brigadier General for his distinguished work in the field of metallurgy and propellants during his command of Watertown Arsenal, in Massachusetts, during the Civil War.



pressure or strain on the gun tube. The muzzle velocity of the projectile was also increased without an additional strain on the tube. This concept increased the surface area of powder by perforation, and made angles on the outer surface of the gun thereby promoting rapid even burning. Rodman may well be called the Father of the Scientific Study of Internal Ballistics as the result of his achievements in the field of ballistics at Watertown Arsenal, Massachusetts, during the Civil War.⁵⁹

At the close of the Civil War, Colonel Rodman turned his engineering genius to the field of architecture and building construction at Rock Island Arsenal. As previously mentioned, in 1865, the secretary of war granted Major Kingsbury his request for reassignment by having Kingsbury and Rodman exchange commands. Under Major Kingsbury's command, arsenal improvements were confined to the small quarter section of Rock Island which extended west of the Chicago and Rock Island Railroad tracks. The remaining three-fourths of the island, east of the railroad tracks, was not

developed. The chief of ordnance instructed Rodman to examine the island thoroughly regarding future development of the arsenal. Upon his arrival in August 1865, Colonel Rodman inspected the island, and immediately wrote to Washington. In his letter, he expressed his belief that ongoing expansion of the facilities would be necessary, and that the entire island would have to be reserved for that purpose.

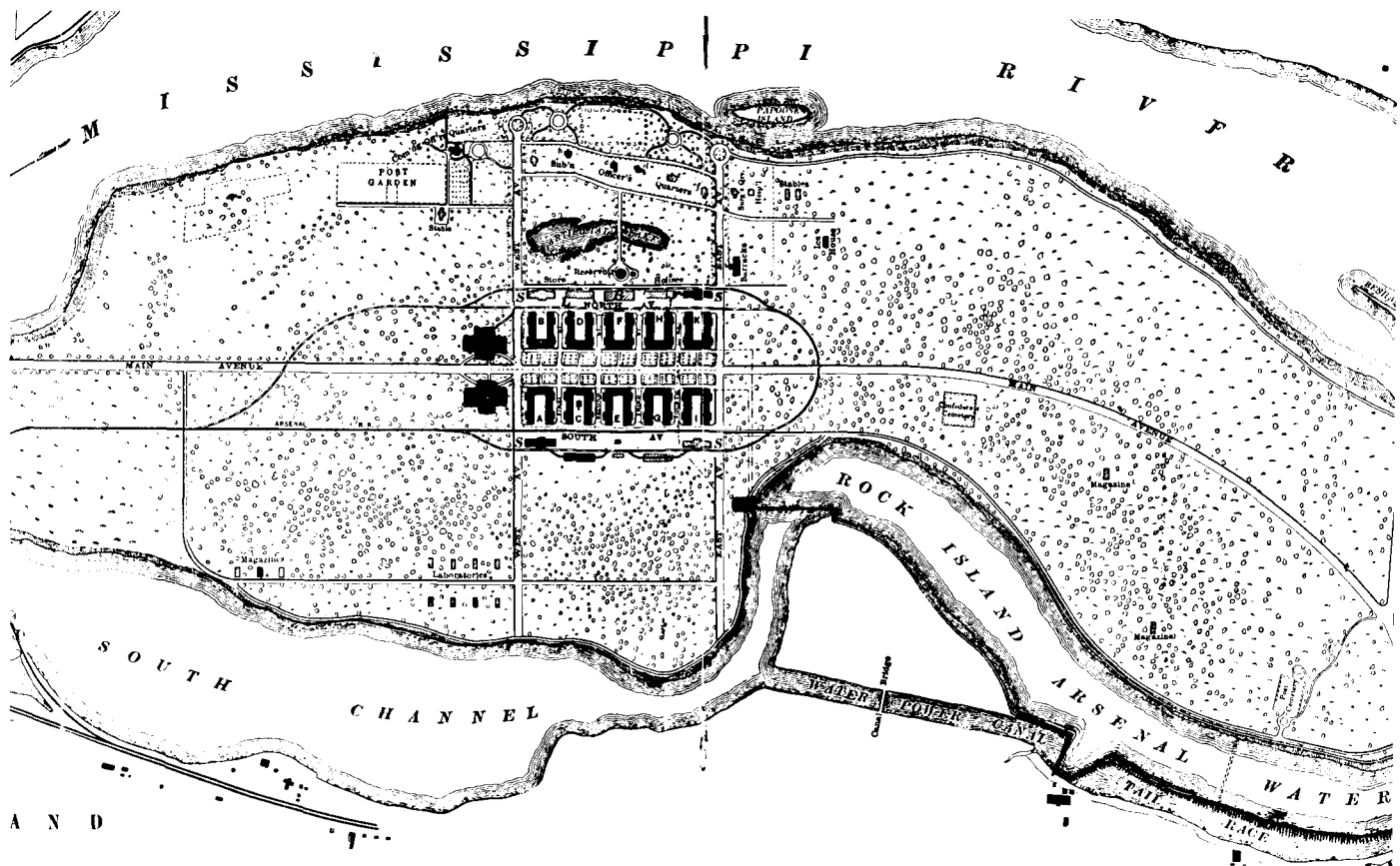
Rodman's Master Plan

Rodman welcomed the opportunity to build a well-designed, national arsenal at Rock Island. His plans called for the development of an arsenal larger in scale and scope than originally designed. The War Department endorsed Colonel Rodman's concept of a large national arsenal at Rock Island, which was centrally located and easily accessible by rail and river. Though not its first commanding officer, Colonel Thomas J. Rodman is today considered the "Father of the Rock Island Arsenal" because of the critical role he played in the design and expansion of the arsenal.

Below: Colonel Thomas J. Rodman, the second Rock Island Arsenal commander, has historically received credit for the conceptual design of the 19th century Rock Island Arsenal. Rodman relocated the site of the arsenal to the center of the island and initiated the relocation and improvement of access bridges to the island. While in the midst of supervising the building of the Rock Island Arsenal, Colonel Rodman died on 7 June 1871, and was buried adjacent to the National Cemetery on Arsenal Island.



Below: Diagram noting the location of the buildings which formed the 19th century Rock Island Arsenal. Note the bridge and artificial "lake" which served as a buffer between the arsenal manufacturing complex and the officers' residential zone.



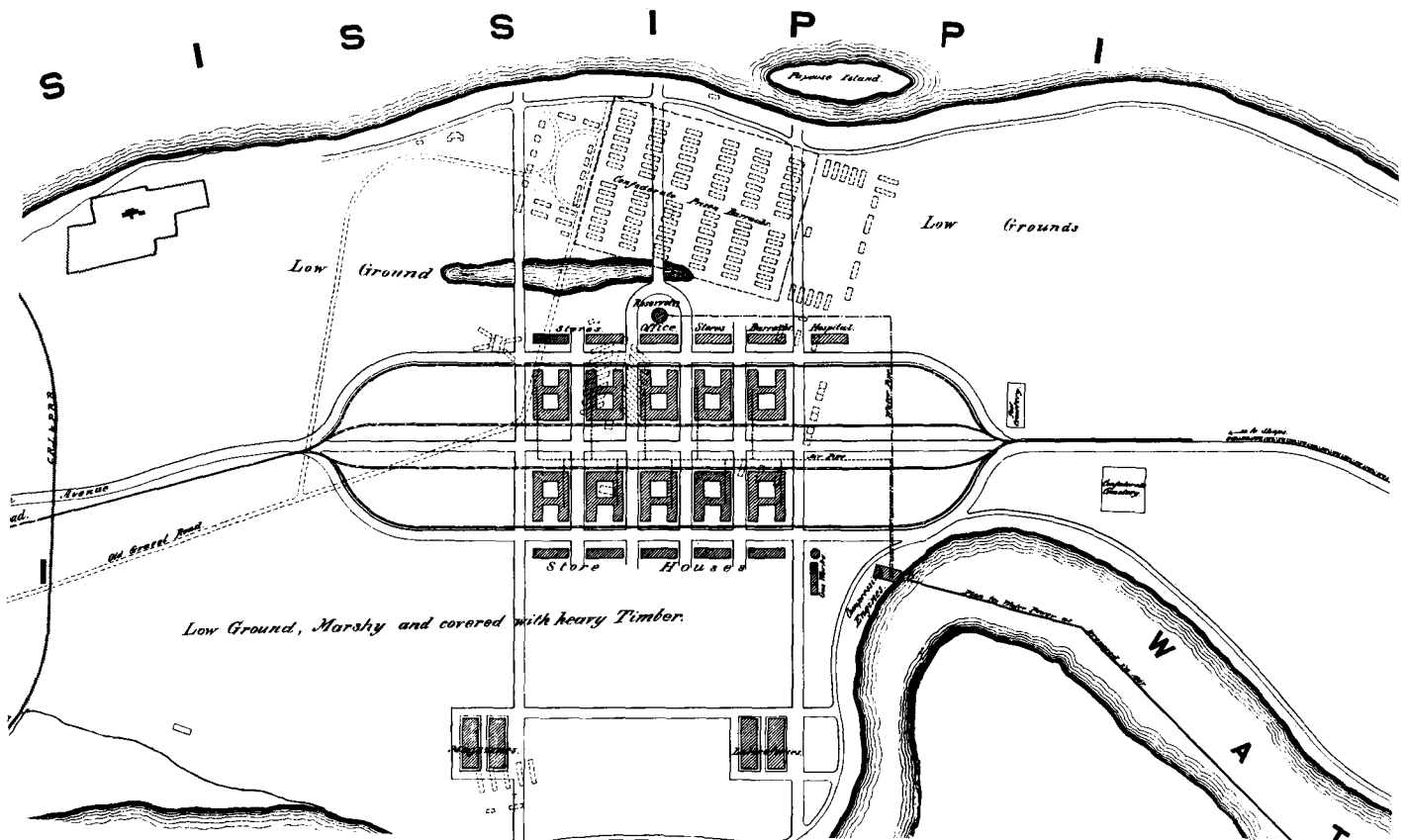
Two weeks after filing his report, Colonel Rodman met with Brigadier General Alexander R. Dyer, chief of ordnance, to discuss future plans for the Rock Island Arsenal. After careful scrutiny of Rodman's broad plans for the arsenal, General Dyer approved them. Rodman returned to RIA and from October 1865 until February 1866 developed more specific plans for the arsenal. His plans and drawings for the arsenal included designs for a manufacturing complex, and officer's residential zone, and water power plant. Rodman's grand plan called for the complete use of the island for building purposes. He moved the site of the arsenal's construction to the high ground in the center of the island to allow for future expansion, and to make better use of the potential waterpower of the Mississippi River.⁶⁰

Rodman's master plan included the construction of ten great stone shop buildings, divided equally into two facing rows along the main east-west thoroughfare, now designated Rodman Avenue. These stone shops formed the

core of the arsenal's 19th century manufacturing complex. Major ancillary buildings, such as the post headquarters, fire station, barracks building, and storehouse, bordered the manufacturing shops. North of the manufacturing complex Rodman placed the military residential zone which consisted of the RIA commanding officer's quarters and quarters for his subordinates. Rodman designed the commanding officer's quarters, known now as Quarters One, in an Italianate villa style. The assisting officer's quarters, built along Terrace Drive overlooking the Mississippi River, were constructed over the site of the Civil War Rock Island Arsenal Prison Barracks and were of more modest Italianate design than was Quarters One.

Colonel Rodman's plans also included the construction of an arsenal dam and powerhouse south of the manufacturing buildings on the southern channel of the Mississippi River, now known as Sylvan Slough. He conceived the use of the teledynamic system of cables and towers which mechanically transported power from the

Below: Note: The Old Map of Rock Island Arsenal included manufacturing buildings with enclosed court yards. Contrast this map with the finalized master plan on page 31. Also note the outline of the Rock Island prison camp which occupied the land primarily north of the manufacturing complex.



river to the southern row of shops along Rodman Avenue.

Rodman initially planned to construct manufacturing buildings with enclosed court yards. However, before finalizing his plans, he revised the drawings and opened the court yards to provide additional natural light. Natural lighting was a major consideration in architectural design prior to the advent of electricity. Rodman also added protruding portico entrances to the sides of the manufacturing buildings which improved their appearance and strengthened their walls. He inserted a foot bridge and small artificial lake into the plans to serve as a buffer between the residential and manufacturing zones, and to provide an attractive path by which the officers could pass to and from work.

Rodman's plans featured construction of a manufacturing complex which combined both arsenal and armory capabilities at one installation. The five shops built along the northern edge of Rodman Avenue, buildings 60, 62, 64, 66, and 68, formed the arsenal's small arms plant and were collectively known as

Armory Row. The buildings housed manufacturing shops B, D, F, H, and K, respectively. The five shops built along the southern edge of the avenue, buildings 102, 104, 106, 108, and 110, formed Arsenal Row. These shops were designated for general ordnance manufacturing and included shops A, C, E, G, and I. Each center shop was constructed of one story with a gabled monitor roof. The middle shop in Armory Row, building 64, functioned as a rolling mill and forge shop; the center shop in Arsenal Row, building 106, functioned as the arsenal's foundry and blacksmith shop. The other eight shop buildings were uniformly constructed with three stories. The ten manufacturing buildings all had the same "U"-shaped floor-plan with 300-foot wings extending back from a 210-foot by 60-foot base. Each of the eight three-story buildings covered slightly more than an acre of land, with a little more than three acres of floor space. The ten Rodman-planned, symmetrically-designed, stone shops still stand today along both sides of Rodman Avenue.

Below: An 1878 view of shops G and I (buildings 108 and 110) under construction. All the stone shops were built basically with identical floor plans. Note stone yard in the foreground and wire-cable towers to the rear of the buildings at extreme left.



A National Arsenal at Rock Island

Construction of the first manufacturing shop buildings began in 1866 and continued until the last stone shop, building 68, was completed in 1893.

Erected over a nearly 30-year period, the arsenal's stone buildings reflected the feeling of Manifest Destiny which swept Congress and the nation in the latter 19th century. This view was reflected in the comments of Brigadier General Stephen V. Benet, chief of army ordnance, in a letter to William W. Belknap, secretary of war,:

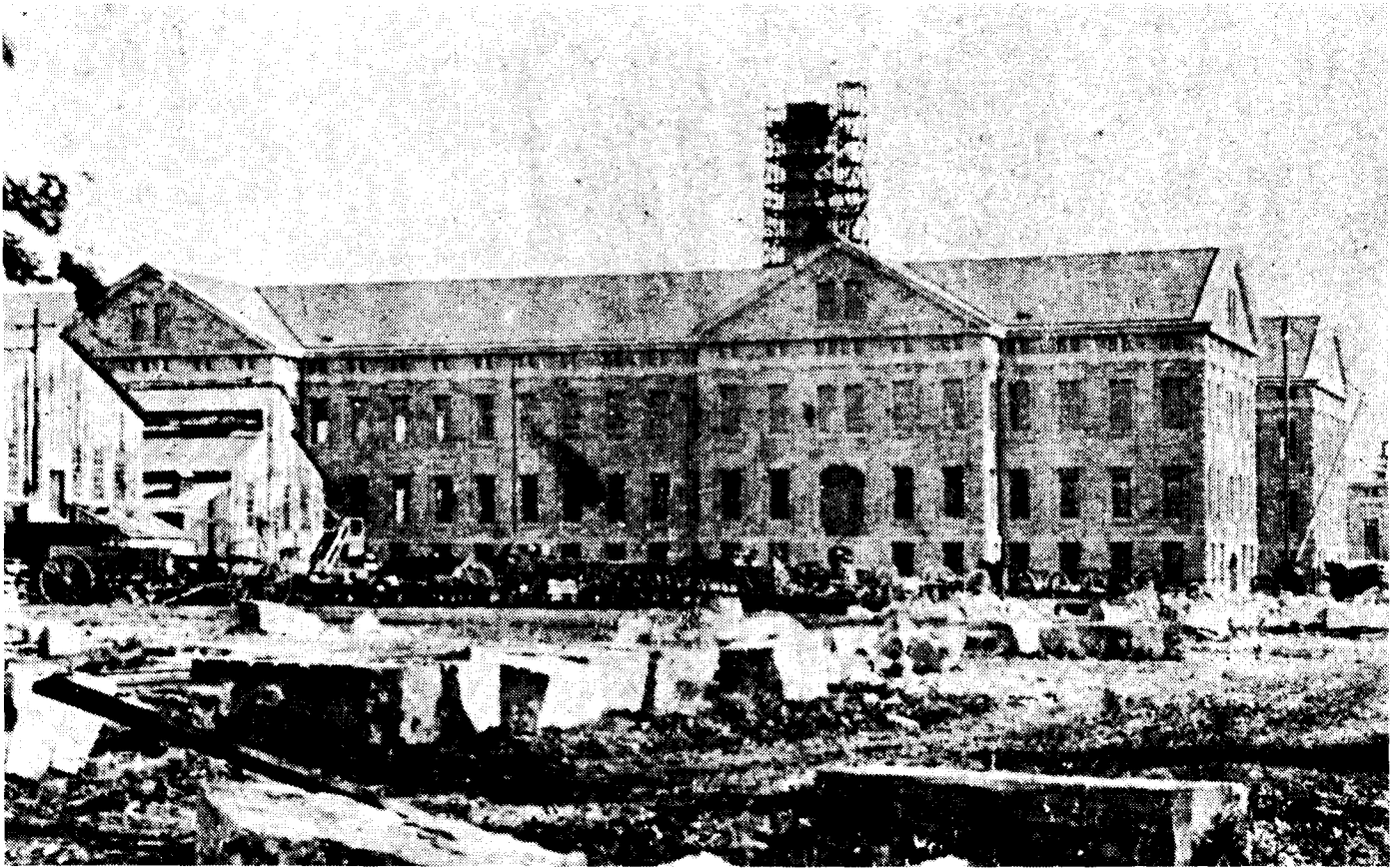
The Rock Island Arsenal in its present incompleated state, now supplies all the militia of most states and territories drained by the great river (Mississippi River) and its tributaries, many of the fortresses that guard the coast line of the Gulf of New Mexico, and more than one-half of our Army, now scattered from the Mississippi River to the Rocky

Mountains and beyond. When completed and fully equipped as a manufacturing arsenal, its capacity will equal the supplying of all the armies that may be organized in the Mississippi River Valley in any war of the greatest magnitude.⁶¹

Earlier, Brigadier General Alexander B. Dyer had written the secretary of war on 24 October 1871 that:

(Rock Island Arsenal) should be made the great arsenal of deposit and construction for the Mississippi Valley, and that it should possess the manufacturing capacities of the national armory at Springfield, Massachusetts, and of one of our largest arsenals of construction, and it was planned with that end in view, and has been so built.⁶²

Below: A rare 1872 view of shop C (building 104) near completion. Note the industrial tower under construction and the temporary factory buildings with monitored roofs to the left. The arsenal produced building hardware and ordnance stores for troops stationed in the American West from these temporary buildings. Once shop C (building 104) and shop E (building 106) were completed, the temporary shops were razed.



Built-of-Stone: The Construction of 19th Century RIA

The story of the construction of the Rock Island Arsenal shop buildings is one of the more fascinating tales in the history of Arsenal Island. The inception and growth of the arsenal stone buildings occurred during the commands of Major Charles P. Kingsbury (July 1863-July 1865), Brevet Brigadier General Thomas J. Rodman (August 1865-June 1871), and Brevet Lieutenant Colonel David W. Flagler (June 1871-April 1886). By the conclusion of Flagler's command in 1886, the arsenal's direction of development already was so firmly established that it continued on for an additional decade or so without significant change.

In 1866, Rodman ordered cheap temporary shops with gabled monitor roofs be constructed on the future site of shop A, building 102. He also temporarily converted prison barracks along Gillespie Avenue to serve as a make-shift headquarters and officer's quarters. From these

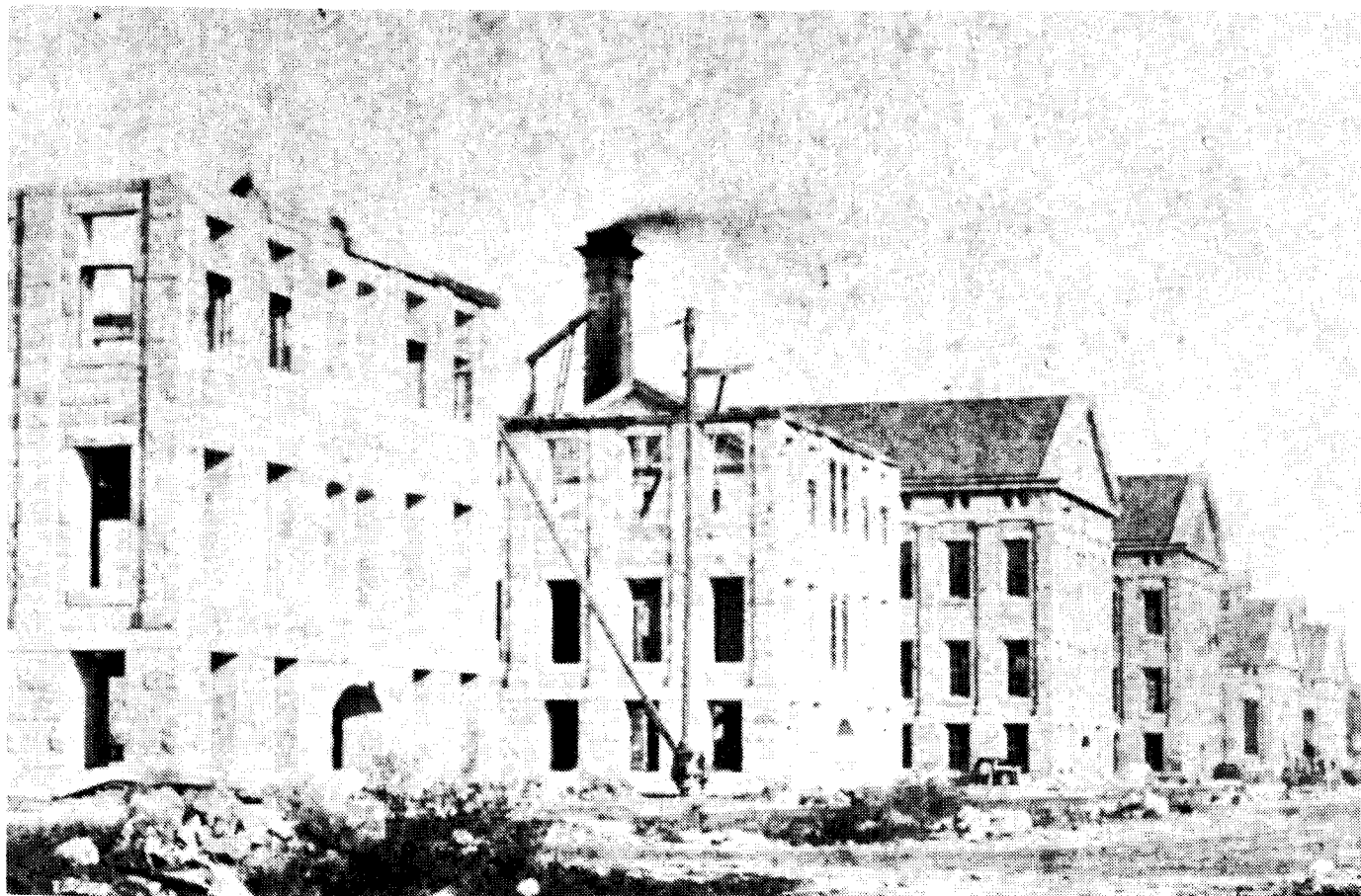
inexpensive, temporary, wooden buildings, the arsenal began initial construction work for the permanent stone buildings.

19th Century Greek Revival Architecture of the Arsenal Stone Shops

For nearly the first three decades, the arsenal primarily concentrated on the completion of Rodman's ambitious construction program. Shops B (building 60) and C (building 106) were the first of the ten stone shops under construction. The 19th century Greek Revival architectural style of these and the eight future buildings featured pillowed or rock-faced limestone accented by pilasters, architraves, and pedimented gable ends. The ten original shop buildings were built of massive rock-faced limestone.

Unlike his predecessor, Colonel Rodman did not procure stone quarried from LeClaire, Iowa; instead he acquired stone from Sangers and Steel of Joliet, Illinois.⁶³ The stone derived its name from the region in which it was quarried.

Below: A rear view of Arsenal Row with shop A (building 102) under construction in foreground. Shop A was built 1873-1876. The last building visible in the photograph is one-story and has small windows in entablature of structure which indicates the building is shop E (building 106), the Rock Island Arsenal foundry. Note the typical derrick or crane in the court yard of shop A.



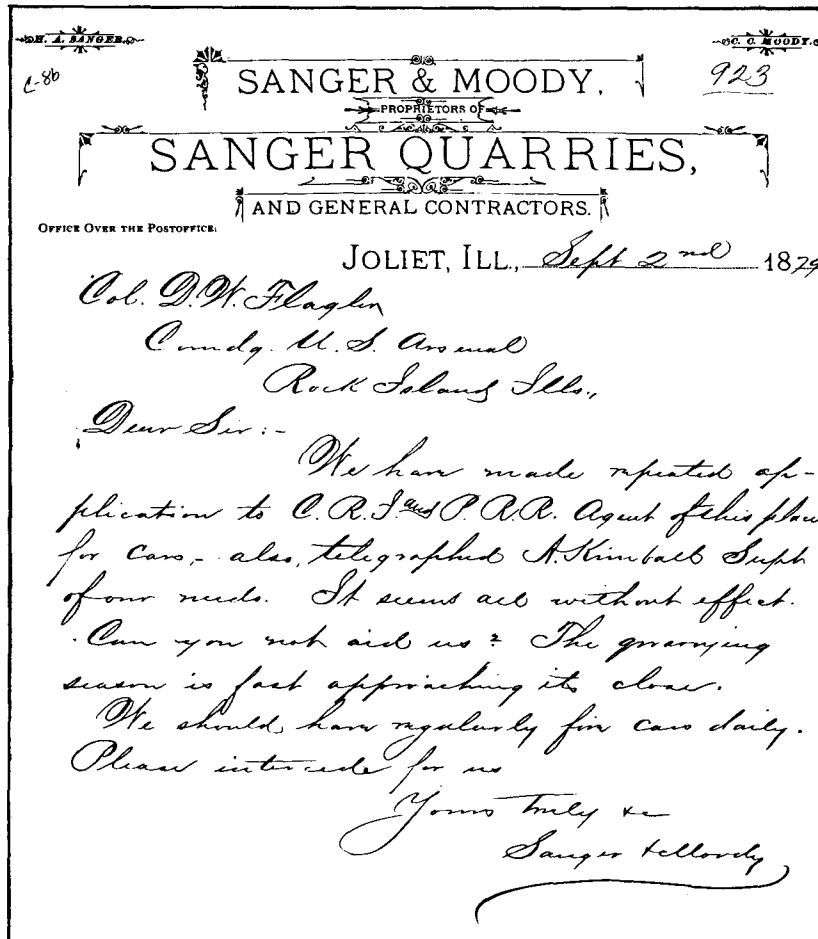
Therefore, shops B and C, and several of the other stone buildings, were said to be built of Joliet limestone.

An immense project such as this required enormous quantities of stone and the manufacture of considerable amounts of construction hardware. In the year 1869 alone, 2,925 railroad cars of stone were received for use in building the shops, dams, and bridge. Stone masons laid 5,510 cubic yards of stone in new shop buildings, while an additional 6,100 cubic yards of stone were laid in the dam wall project. The stone work required the repair of 92,321 stone cutter's tools during the year. The chief of ordnance, in 1869, approved the building plans for the commanding officer's quarters. Also during that year, workmen erected the first Rodman-planned arsenal building which was a circular limestone reservoir, that exists today only as a ruins.⁶⁴

Generally speaking, the limestone was

shipped by train to the Rock Island Arsenal from the various quarries. Early maps of the island showed a single railroad track that extended from the main line at the western tip of the island to the construction site of the manufacturing buildings. The stone was unloaded from rail cars and placed in a centrally located stone yard. Workmen used tramways and derricks to transport the stone from the yard to the actual building site. A tramway, an open box-shaped street car pulled by horses, operated on tracks in single units. Derricks also operated on tracks which ran the length of the construction site. These large cranes, consisting of movable booms equipped with cables and pulleys connected to an upright beam, hoisted and moved the heavy stones into place. The small circular marks made by the ice-prong-like clamps, which were embedded into the stone prior to it being hoisted into place, are still visible a century later.

Below: Letter from Sanger to RIA Commander Colonel D. W. Flagler requesting assistance in obtaining railroad cars for shipment of stone to the arsenal. Mr. Sanger, who earlier defaulted on delivery of stone to the Rock Island Arsenal, formed Sangers Quarries with a partner named Moody and again received the contract to provide stone for the arsenal.



Difficulties Procuring Stone

Delays in delivery of stone hindered the construction progress of the arsenal and, on occasions, resulted in stone-cutters and masons being laid off until the next shipment arrived. Rodman periodically stationed an officer at the quarries to oversee the government's interests.

These delays in particular affected the construction of shops B and C, and the building of the commanding officer's quarters. Discontented with their contract, Sangers and Steel sold stone originally quarried for the arsenal to customers willing to pay a premium price. The Joliet firm demanded an increase in government payments and refused to ship any more stone to the arsenal until its demands were met. Sangers and Steel halted its stone deliveries to the Rock Island Arsenal for the last time in August 1870. Colonel Rodman eventually purchased stone from Mr. Edwin Walker of Lamont, Illinois, at an average price of 38½ cents per cubic foot, which was 1½ cents less than the price demanded by Sangers and Steel. Sangers,

however, formed a partnership with a Mr. Moody, and again received contracts to provide limestone for the construction of the arsenal buildings. This stone was nearly identical in color, texture, and quality to the Joliet stone.⁶⁵

A local newspaper article of the period provided insight into the size of the labor force engaged in the construction. The Davenport *Daily Democrat* issue of November 10, 1870, noted the federal government employed about 1,000 men to work on various arsenal construction projects including shops B and C, and the commanding officer's quarters. The article further stated that the commanding officer of the Rock Island Arsenal was assisted by an efficient staff of officers and civilian supervisors. The newspaper article specifically cited Mr. A. T. Fleming, master armorer; Mr. William Channon, master carpenter; Mr. R. Lloyd, master mason; and Mr. George Downs, foreman; as holding these supervisory positions at the time the article was printed. In addition to

Below: One of the earliest group photographs of Rock Island Arsenal shop personnel dated 1873.



the workmen, a large number of horse and mule teams were engaged in the construction activities.⁶⁶

Labor Disputes

A labor force of this size did not operate without some problems, and on occasion labor disputes slowed construction of the arsenal. Events happening elsewhere also had an impact on Colonel Rodman’s progress at Rock Island. For example, congressional legislation passed during the construction of shops B and C established an eight hour work day for all laborers, workmen, and mechanics employed by, or on behalf of, the government of the United States. The wages paid under the old and new work plan were:⁶⁷

| | 10-hour day | 8-hour day |
|------------|-------------|------------|
| Laborers | \$1.80 | \$1.44 |
| Masons | \$4.50 | \$3.60 |
| Carpenters | \$3.00 | \$2.40 |
| Machinists | \$3.00 | \$2.40 |
| Teamsters | \$3.50 | \$2.80 |


The daily wages of master workmen, which ranged from \$4.00 to \$6.00, were not affected by the new law. After being paid according to the new wage plan, many laborers refused to continue to work on the building projects. The island temporarily became nearly deserted. The *Rock Island Union* newspaper expressed the opinion that:

The government pays pretty liberal wages, and if the old employees refuse to work under the rulings of the Secretary of War, it is probable that their places will soon be supplied by others.⁶⁸

However, Colonel Rodman met with the stone-cutters and raised their wages so that they would be compatible to those offered stone-cutters for an 8-hour work day in Chicago, Illinois, and St. Louis, Missouri.⁶⁹

The rebuilding of Chicago after the great fire of 1871 drastically increased the demand for stone and stone craftsmen. The arsenal,

Below: Local contractors responded to advertisements requesting bids for various building materials such as stone, iron, wood, and slate. The letter by Charles G. Hipwell, slate roofer, addressed to RIA Commander Lt. Col. D. W. Flagler contained his bid to slate the roof of arsenal shop H. Note: The bid dated 6 July 1883 was accepted.



Office and Yard,
Corner 4th and LeClair Streets,
Post Office Box 392.

V. HUOT

Office of
HUOT & HIPWELL,
Practical Slate Roofers,
AND
DEALERS IN SLATE ROOF MATERIAL.

Oravel Roofs put on by Experience.

C. G. HIPWELL.

Davenport, Iowa, *Oct 12th 1880*

Col. D. W. Flagler
Commanding Rock Island Arsenal
Rock Island, Ill.

Dear Sir,

In compliance with your
wishes I respectfully submit the following
Proposal "viz"

To furnish the best quality of
Northampton County Penn. Black Slate (Parker)
size 10 x 20. To not less than 3/16 in thick.

May the same on the building now in course
of erection at Rock Island Arsenal be fixed
to the weather using #8 Coppered nails for
sum of Nine ⁰⁰/₁₀₀ \$9.00 per square. Labor
and material to be furnished by us. To complete
the job in the best workmanlike manner

I would add that we will furnish
Vermont Tugated or sea green slate under
the above specification for the sum of

*accept
for payment
date 7/9/83*

therefore, was forced to increase its pay to skilled laborers due to the flight of arsenal workers to Chicago.

Procuring Building Materials from the East

Initially a large portion of the building materials for shops such as B and C was produced by private firms situated in the east. The New York firm of Cooper & Hewitt furnished most of the 15-inch iron "I" beams used in the construction of the first and second floors of shops B and C. Union Iron Mills of Pittsburgh, Pennsylvania, provided 11-inch "I" beams that were also used in the building of the first floors.

The Phoenix Iron Company of Philadelphia, Pennsylvania, furnished 9-inch and 11-inch beams, wrought iron columns, and cast iron columns. It also manufactured caps and bases for both shops, plus the wrought iron frames for their roofs. Contractors shipped these purchased columns in sections which were riveted together by arsenal workmen.⁷⁰

Local Tri-Cities Firms Awarded Contracts

Gradually, local and regional private contractors received an increasing number of arsenal contracts. The arsenal awarded James Clark & Sons, of Utica, Illinois, the cement

Right: *Charlie Hipwell arrived at Rock Island Arsenal in the early 1870s as a foreman of an east coast roofing firm. Recognizing the opportunity at the arsenal, Hipwell formed his own business in Davenport, Iowa, and prospered as a slate roofer and dealer.*



contract at \$1.55 per 300-pound barrel; W. B. Barnes, of Rock Island, Illinois, received the lime contract for 90 cents per 200-pound barrel delivered; F. Hass, also of Rock Island, provided copper material at \$13,000 per shop building; Atkinson & Murdock, Rock Island, Illinois, laid the fire-proof brick arches in shops B and C for \$15.50 per 1,000 bricks; and Mr. J. S. Keator, Moline, Illinois, supplied pine lumber for \$17.00 to \$22.00 per thousand board feet. In addition, several private firms, beginning with Sanger & Steel, provided limestone from the quarries near Joliet, Illinois, for the construction of the Rock Island Arsenal.⁷¹

Colonel Rodman, and his successor Major Flagler, also awarded contracts for building to private firms in Iowa. The firm of French & Davies, Davenport, Iowa, provided the oak flooring for shops B and C at \$41.00 per thousand board feet. Mr. Charles C. Hipwell, foreman of Aiken and Company, Pittsburgh, Pennsylvania, after supervising the slate work of these first two shop buildings, left that firm to establish his own business in Davenport, Iowa. His Davenport firm slated practically all the stone shop buildings and officers' quarters. Initially the slate contract was awarded to Lyman Bridges of Chicago, Illinois, but within a short time the roofing company of Knox, Kine, and Company of Pittsburgh, Pennsylvania, had replaced Bridges. Mr. Bridges had his contract with the arsenal canceled after he failed to comply with the terms of the agreement in regard to quality of material or timeliness.

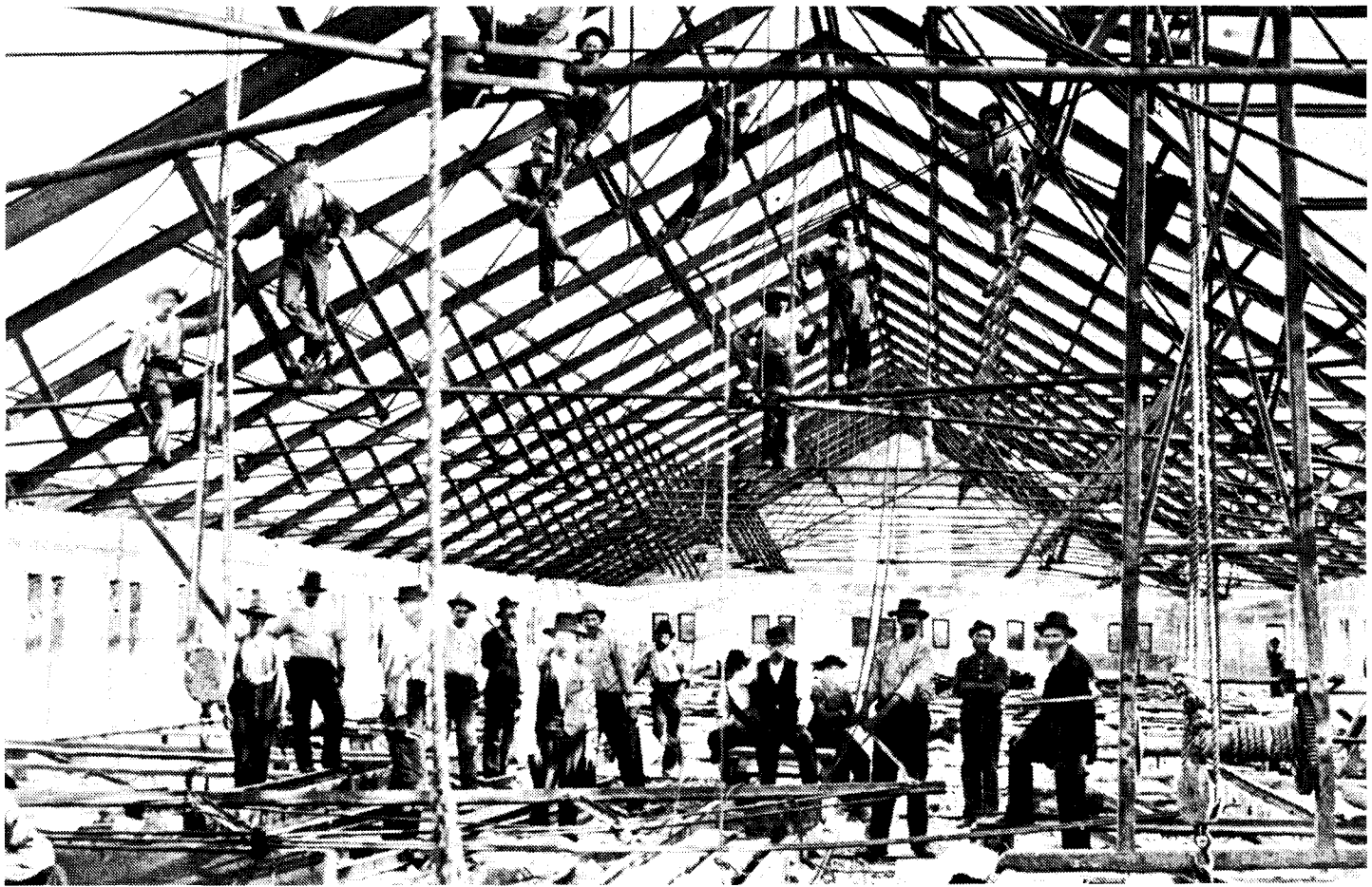
Aiken and Company eventually replaced Knox, Kine, and Company and completed the slate roofing of shops B and C for \$15.25 per square of slate. This represented a savings of \$5.75 per square over the canceled contract price. Mr. Hipwell received the remaining slate contracts with bids under \$10.00 per square.⁷²

The arsenal also purchased all the lumber required for building a particular structure in advance so that the wood could be stacked for seasoning before being used to make doors, door frames, window sashes, and window frames in the arsenal shops. The arsenal saved money and time by manufacturing these items and their accompanying hardware.

Rodman Tensile Test Machine

Acquisitioning quality building material to construct the arsenal was a concern of Colonel Rodman and his successor, Major Flagler. Colonel Rodman, determined to procure high grade iron for his arsenal, built a tensile test machine which he used to test iron samples of private contractors to determine if their samples met government specifications.

Below: A rare view of arsenal workmen constructing the roof of one of the 19th century stone buildings. Note the iron, Fink trusses being assembled which eliminated the need for columns as support and created an open bay-effect in the attic.



Iron, Copper, Slate, and Other Building Materials

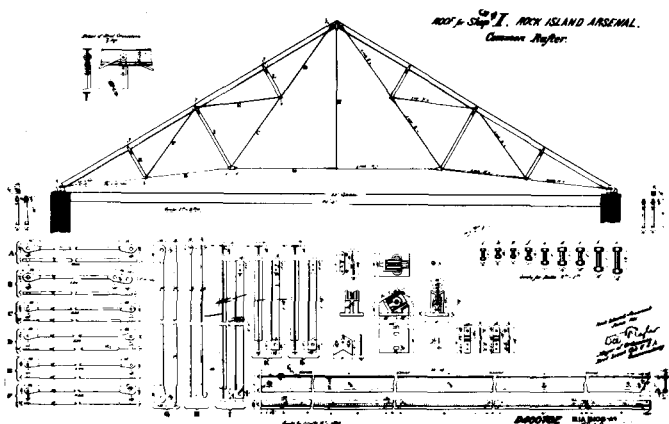
Besides limestone, arsenal builders used an enormous amount of other material in the construction of the stone buildings. For example, shop B (building 60) alone was built with more than 780 tons of wrought iron supplied by eastern mills. Roofers originally covered the building with a slate roof of 51,500 feet, with heavy sheet copper gutters and iron snow guards an inch thick. Stone-cutters formed the upper tier of the shop building, and then lined the gutters with copper. Shop B was furnished with more than 1,000 feet of such guttering. Wrought iron trusses were used to support the roof. Builders fastened the rafters of the shops securely on one end by mortising them into the stone, and dowelled the opposite end upon iron

ball bearings which rested in grooves carved into the stone. A corresponding groove in the foot of the rafters covered the ball bearing; this allowed for seasonal expansion and contraction caused by the heat of summer and the cold of winter without damaging the wall of the shops. Carpenters covered all but the third floor of the shops with 1½ inch thick oak. The third or attic flooring was covered with pine of the same thickness.⁷³

Workmen constructed the shop buildings of massive rock-faced limestone with approximately three-foot thick walls starting at the base of the building and tapering about six-inches with each additional story. This tapering created a step effect which provided a shelf or lip

Below: Drawing of rafters for shops G and I (buildings 108 and 110) signed by the RIA Commander Brevet Lieutenant Colonel D. W. Flagler and dated June 1881.

Right: Ornate cast-iron staircases were a product of the 19th century RIA foundry and are still in use in the stone shop buildings.



upon which iron beams rested. The exterior walls rested on a foundation built upon bed-rock. The 76 piers of masonry and cement anchored in the basement of the stone shops supported the columns and floors of the above stories. Each pier was partially imbedded beneath the surface flooring of the basement and rested on bed-rock. Brick layers constructed fire-proof brick, vaulted ceilings beneath each floor of the manufacturing shops, among the lattice of "I" beams. The brick arches were then covered with plaster. These fire-proof brick, vaulted or arched, ceilings were designed to prevent fire from spreading to the wood flooring of the next story. Beneath each ceiling lay the open bay of the machine shop.

The open bay interior of the shops provided light and space for manufacturing operations. The shop interior featured cast-iron, and a few wrought iron columns; and ornate cast-iron stairways which are still in use today.

Improvements During Rodman's Command

Colonel Rodman supervised the completion of the Clock Tower and had three of the large stone buildings near completion at the time of his death in 1871. These three structures were: shop B, known today as building 60; shop C, building 104; and the commanding officer's quarters, now known as Quarters One, building 301. The Greek revival architecture of shops B and C provided the style for subsequent industrial and administrative buildings constructed at the arsenal during the 19th century.

Other improvements during Colonel Rodman's tenure as commanding officer of the Rock Island Arsenal, 1865-1871, included the settlement of civil property claims on Rock Island and the approval of his plans for a combined armory and arsenal at the island. Colonel Rodman enhanced access to the island by having a wagon bridge to the city of Rock Island erected and by having the Chicago, Rock Island and Pacific Railroad tracks

Below: Monument marking Rodman's grave adjacent to the National Cemetery at the far eastern edge of the island. Note the two Rodman-type guns protecting the site.



relocated to the western edge of Arsenal Island. He initiated the construction of a double deck bridge from Rock Island to Davenport, which was completed a year after his death. He also contracted for water power; had the arsenal grounds cleared for new buildings; and laid a network of roads throughout the island.

Rodman's Funeral

Colonel Rodman's habit of working long hours as RIA commander took its toll on his health. Ignoring his doctor's warning, he continued his demanding daily routine which led to his death at the age of 56 on 7 June 1871. His funeral service was conducted inside the nearly completed commanding officer's quarters which he designed. Rodman was buried on Arsenal Island, as he requested. His gravesite is adjacent to the National Cemetery, which was once the

old post cemetery.

The respect bestowed upon Colonel Rodman by the arsenal and surrounding communities was reflected in the size of his funeral procession. The funeral was conducted in elaborate style. An army band led the funeral cortege, followed in succession by a military escort, the horse drawn carriage on which lay the coffin, a number of carriages containing the Rodman family, and more than 1,000 civilian mourners - many of whom had worked for Colonel Rodman. Before Rodman's death the army had assigned a young captain named Daniel W. Flagler as his assisting officer. Flagler succeeded Rodman as the arsenal's third commanding officer and proceeded with Rodman's plans for the construction of a grand arsenal.⁷⁴

Right: Lieutenant Colonel Daniel W. Flagler succeeded Rodman as Rock Island Arsenal commander and was largely responsible for implementing Rodman's conceptual plan of the arsenal. He served as arsenal commander from 1871 to 1886. During the Spanish-American War Flagler held the position of chief of ordnance.



CHAPTER FOUR THE FLAGLER YEARS AT RIA

The Commanding Officer's Quarters

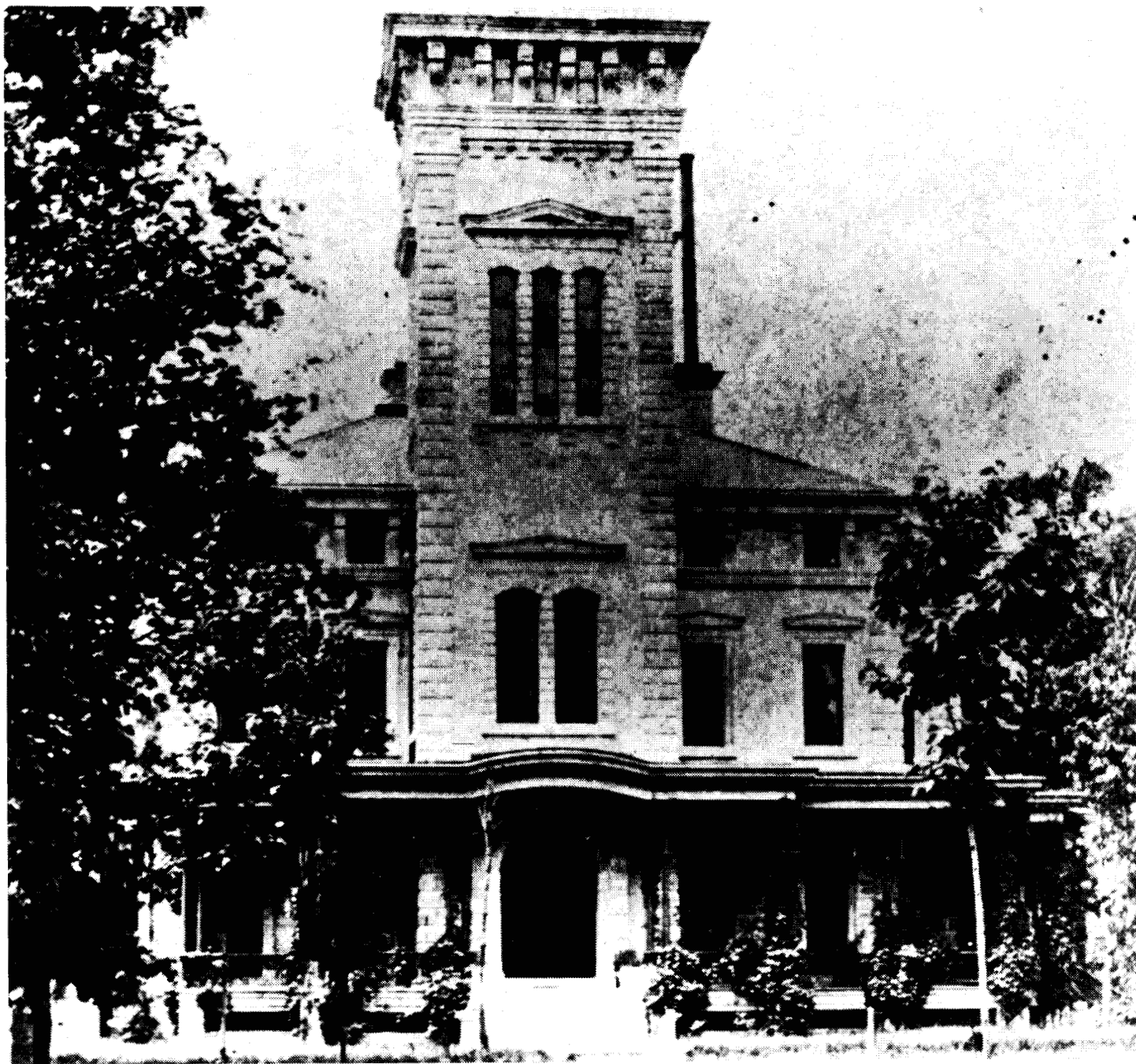
Among Flagler's first tasks as Rock Island Arsenal commander was the completion of the commanding officer's quarters begun by Rodman. Although begun in May 1870, the commanding officer's quarters was not completed until October 1871, nor was it landscaped until the Spring of 1872. Delays in procuring stone slowed work on the quarters during the summer months and forced work to be continued into the winter season. Fire, hot water, and salt were used to prepare the mortar. The building walls were finally completed in January 1871.⁷⁵

Day workers were hired to complete the remainder of the structure. Army Ordnance officers supervised these workmen who were hired primarily by the day, due to the shortage of building stone caused by delays in procurement and delivery of quarried stone from the

contractor. The officers also conducted the necessary engineering work which included tests, experiments, and calculations for the project.

Once completed, the commanding officer's quarters' features included a massive I-shaped main core, a west wing, and an observation tower above the east side of the main block. The building's foundation was constructed of two foot thick limestone masonry. Its exterior walls were built of Joliet limestone, and its interior loadbearing walls were made of plaster brick masonry. Large wrap-around piazzas, or porches, which stretched around the east and north sides of the building, featured girded iron grillwork forged at the Rock Island Arsenal. Also, most of the building's brass fixtures, including door knobs, hinges, and other metal hardware, were produced in the arsenal shops. The structure was covered with a hipped roof which contained skylights and a tall square observation tower. The nearly 20,000 square feet of floor space within quarters one was divided

Below: *The Rock Island Arsenal commanding officer's quarters, now designated quarters one, was completed in 1871. This structure, built of Joliet limestone approximately two feet thick, contains over 50 rooms and is today considered the largest family residence owned by the U.S. Army.*

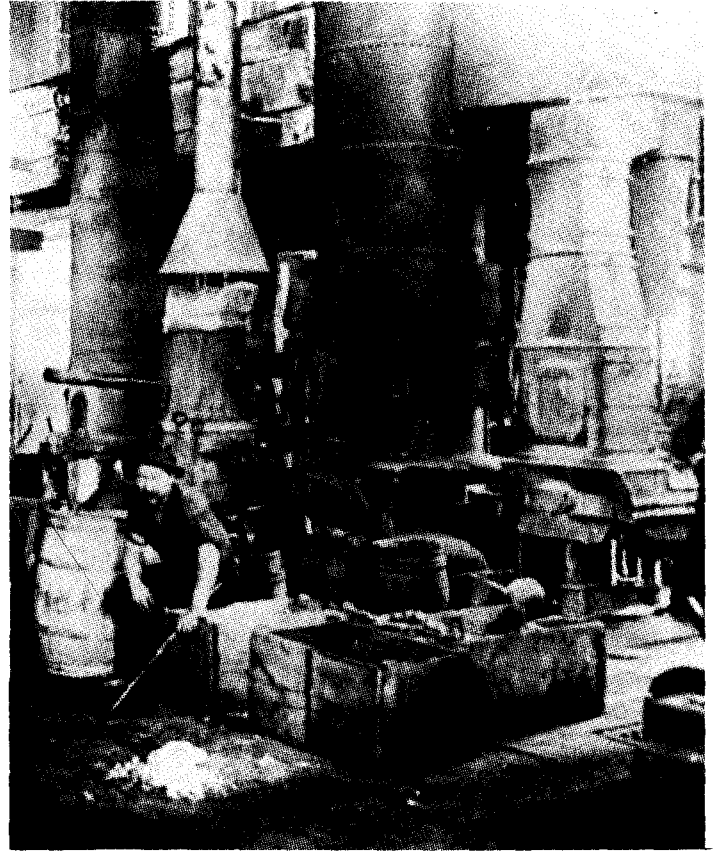
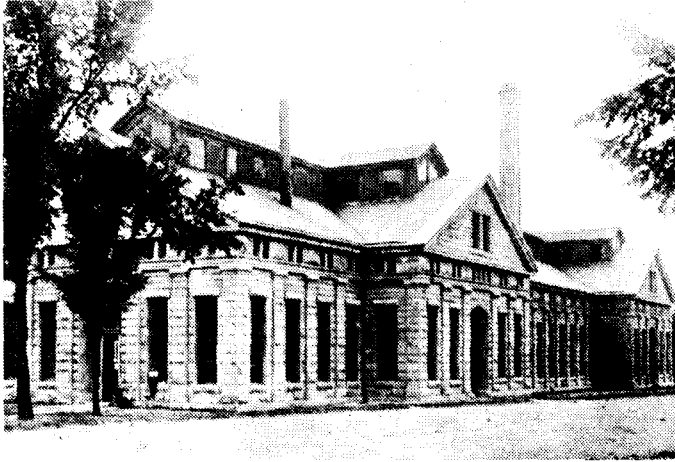


Below: *Quarters four, circa 1880s. Subaltern officer's quarters 2, 3, and 4 built 1872-1874, east of quarters one, along Terrace Drive overlooking the Mississippi River. These quarters were scaled-down Italianate villas modeled after the commanding officer's quarters.*



Below: The Rock Island Arsenal iron-melting furnaces situated in shop E (building 106) during the late 19th century. The foundry initially poured castings of hardware used in the construction of Rock Island Arsenal buildings.

Right: Constructed in 1874, shop E continuously functioned as the Rock Island Arsenal foundry until 1988, when the operations were relocated in the new Kingsbury Manufacturing Complex.



into over 50 rooms which explains why the quarters is today considered the largest government residence next to the White House. The commanding officer's quarters became the architectural model for the scaled-down Italianate design of the subaltern officer's quarters built east of quarters one. These subaltern officer's quarters consisted of quarters two, three, and four.⁷⁶

Workmen began erecting shop E (building 106) and the RIA blacksmith shop in 1871, and finished shortly after the completion of shops B and C in 1873. After the completion of shop E, workers transferred the machinery in the temporary structures to the recently finished shops C and E, and then razed the temporary structures. In 1871, Colonel Rodman ordered cupolas (cylindrical shaft type blast furnaces used for remelting metals such as iron before casting) for the foundry. These new furnaces allowed the arsenal to produce iron columns, angles, and other necessary parts for the

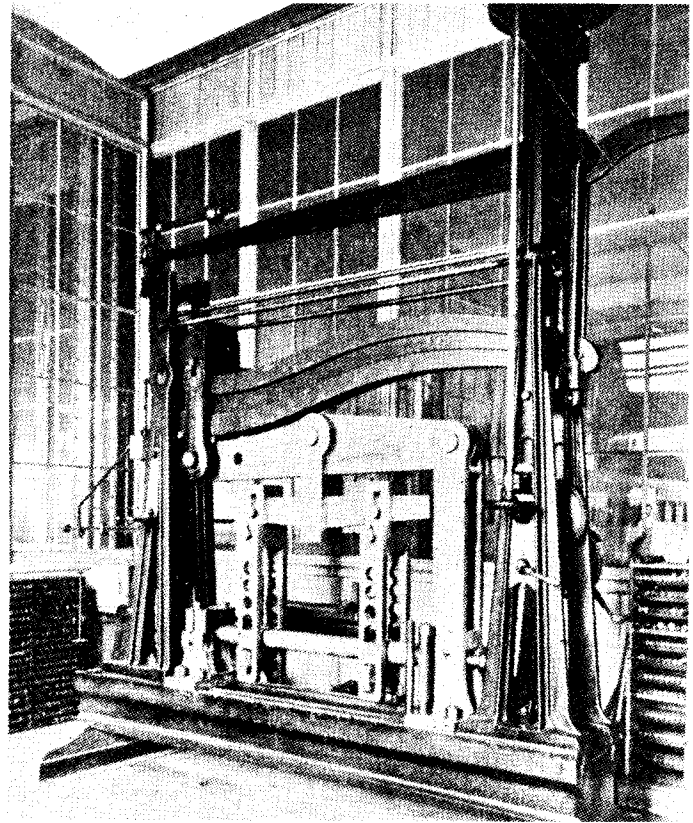
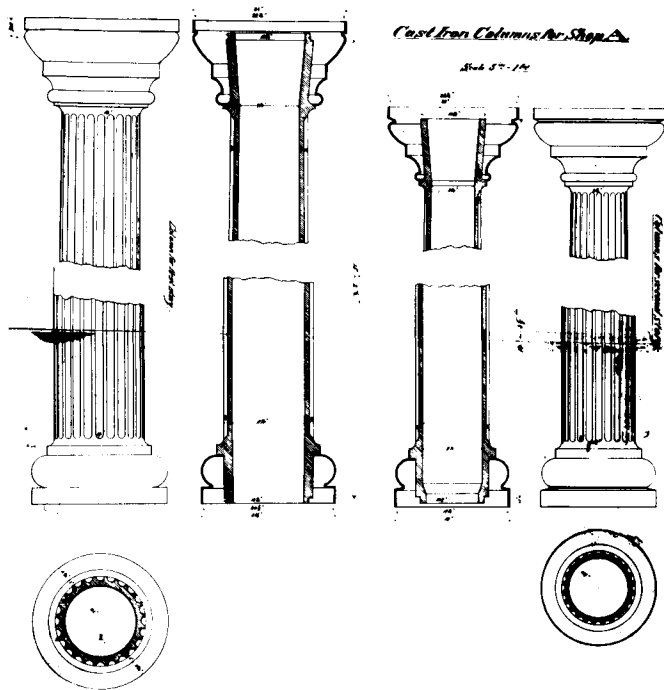
construction of buildings. From this time on, the arsenal foundry and blacksmith shop were actively engaged in the production of building materials or ordnance supplies.

The continued acquisition of commercially-produced iron which repeatedly failed to meet specifications of the contract frustrated Major Flagler. As a result, he instructed Lieutenant W. P. Butler to test iron samples sent to Rock Island by N. S. Bouton and Company of Chicago.

The tests proved the iron samples to be inferior in strength, weight, and character. The arsenal sent a record of the testing results to N. S. Bouton and Company. The Chicago firm proceeded to have its iron retested by another firm -- the American Bridge Company. Lieutenant Butler traveled to Chicago to inspect the testing procedures after the American Bridge Company had asserted that N. S. Bouton and Company's iron tested satisfactorily. He found their methods questionable and stated in his report that:

Below: Drawing of cast iron columns for shop A cast in RIA foundry. Columns such as these were made of iron recycled from Civil War era horseshoes, cannonballs, and gun tubes. The Doric columns which are visible in the old manufacturing shops were forged at the RIA. The riveted columns visible in buildings 60 and 104 were purchased from private eastern firms and shipped unassembled to Rock Island.

Right: Rodman tensile testing machine was still used at the RIA after 1900.



... On examination, the machine of the American Bridge Company was found to be a heavy hydraulic cylinder, using glycerine instead of water. The piston is 17 inches in diameter. The gauge is the ordinary mercury gauge, very carelessly used. No allowance was made for friction. Its results should not, therefore, shake confidence in the machine (Rodman's tensile testing machine) at Rock Island Arsenal. All measurements were made roughly, by an ordinary two foot rule, in the tests of the American Bridge Company while those at the Arsenal were to within 0.0001 inch.⁷⁷

The Rodman tensile test machine measured the capacity of a metal to resist force, whether tensile, transverse, torsional, or crushing. Internal force could also be applied by the machine to test strength of cylinders. The machine had a testing range of 50 to 100,000

pounds. In 1899, the Rodman tensile machine was still in operation, and was being set up in shop D, in anticipation of the establishment of an armory at Rock Island to manufacture rifles.⁷⁸

Scrapped Civil War Relics Recycled into Iron Columns

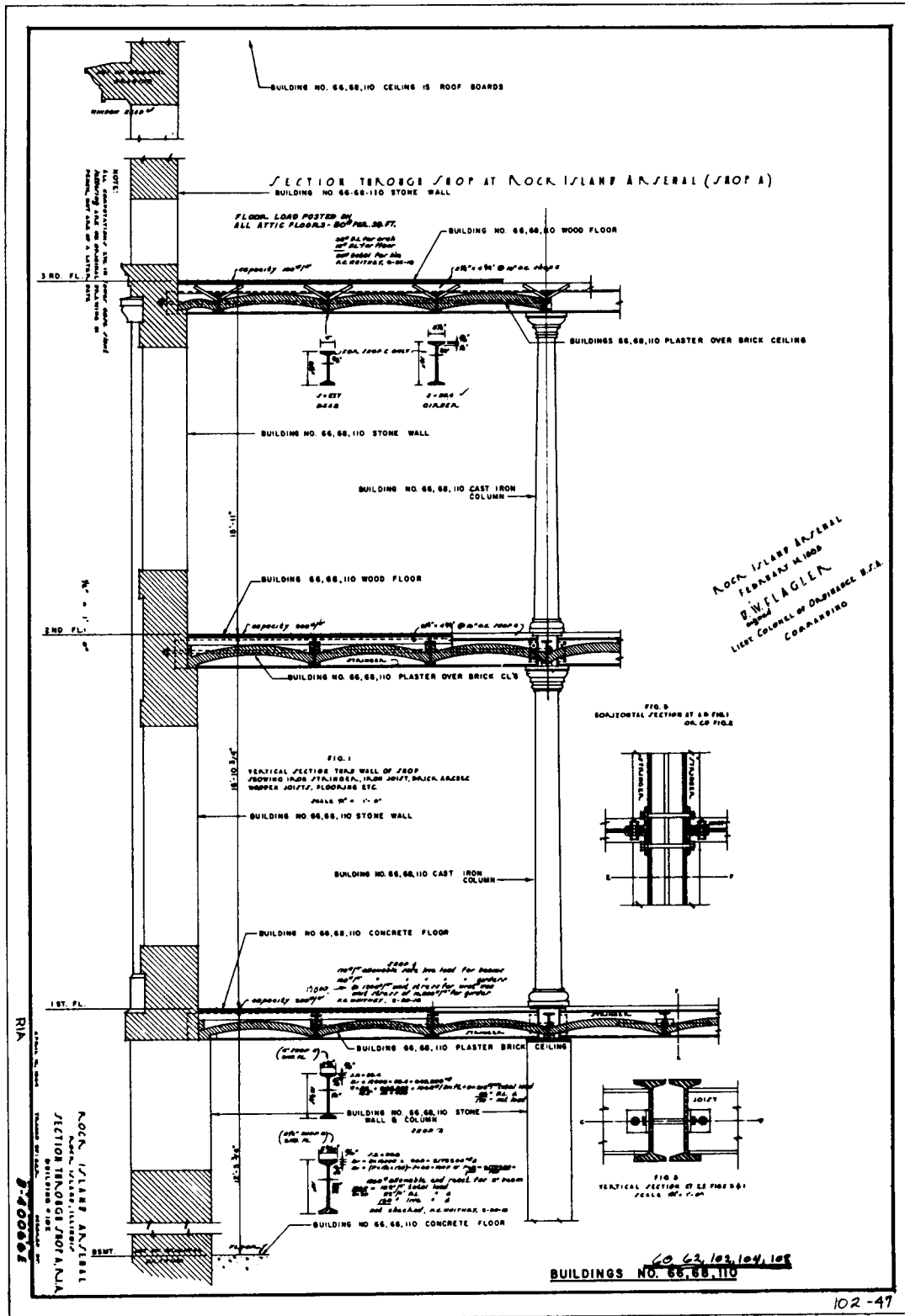
Major Flagler, anxious to reduce construction costs and eliminate delays caused by delinquent deliveries, decided the columns could be produced in the arsenal shops. He wrote the chief of ordnance for approval of his idea to convert tons of old horse shoes, cannons, and other accumulated Civil War scrapped metal into wrought iron bars. These bars could then be cast into the iron needed for construction of the stone shops. Previously, it was the government's policy to sell all scrap metal to dealers.

Once approved, the salvage operation proved successful. Flagler boasted that the metal produced by his arsenal's blacksmiths and foundry masters was of superior quality

Below: A late 19th century view of machinists at work in shop C (building 104). The commercially-made, riveted columns, and the machines being driven by a center source of power indicate that this is an interior view of shop C. Note: the fire-proof brick-vaulted ceilings typical of all the 19th century RIA shops.



Below: Cross section drawing of ceiling and floor construction of shop A, dated 1885, and traced in 1944. Note: Tapering of the exterior wall by six inches at each story furnished a lip or shelf upon which the beams rested. Also note the fire-proof brick vaulted ceilings which were plastered over, and the position of the columns placed directly above each other to support the ceiling and floor above.



Right: Arsenal gun yard #1, situated along Main (Rodman) Avenue, at the present site of the headquarters building (building 390). A collection of United States guns and foreign guns captured during the Mexican War, 1846-1848; the Civil War, 1861-1865; and the Spanish-American War, 1898 were placed on display in two arsenal gun yards.
Left: RIA shot yard. After the Civil War the U.S. Army closed several of its depots and transferred their ordnance stores to the Rock Island Arsenal.



compared with the metal available commercially.⁷⁹

The foundry only made castings, which resulted in savings that paid for the pattern forms, thereby contributing to the uniformity and symmetry of the original stone buildings. By recycling the island's supply of scrapped metal into iron columns, the arsenal saved the government approximately 50 percent or more of a private contractor's price. Iron pipes for sewers mains, fences, roof trusses, and various other fixtures were produced from this recycled metal. Arsenal workers also salvaged brass saved from artillery projectiles, along with other metals. Brass rotating bands from these projectiles were turned into hinges, locks and other hardware used in the building of the stone shops.⁸⁰

The *Moline Review* newspaper of 1 November 1879 printed a descriptive paragraph, about the work being accomplished at the Rock Island Arsenal during late 1879.

Col (Brevet) D. W. Flagler, the commandant of Rock Island Arsenal, is pushing his vast building operations with commendable energy. Acres of huge stones are scattered over the grounds and the click of the hammer and chisel is heard from hundreds of busy mechanics. In the foundries the serviceable shot and shell accumulated and captured during the war are being worked up into iron railings and stairways, bronze doorknobs, sash weights and pulleys and the hundreds of other metal appliances required in the erection of the immense shops. The closest economy is practiced and every available piece of metal is applied to some use. The machinery of the shops is all run by the water power and the longer it is used the more its usefulness is demonstrated.⁸¹

Below: Arsenal workmen removing scrapped canteens, cups, and other metal items from courtyard of shop C (building 104). The arsenal initially sold the scrap metal to salvage dealers until RIA Commander Flagler received permission to melt-down the metals and recast into building hardware.



Difficulty Securing Bed-rock For Shop D, 1871-1872

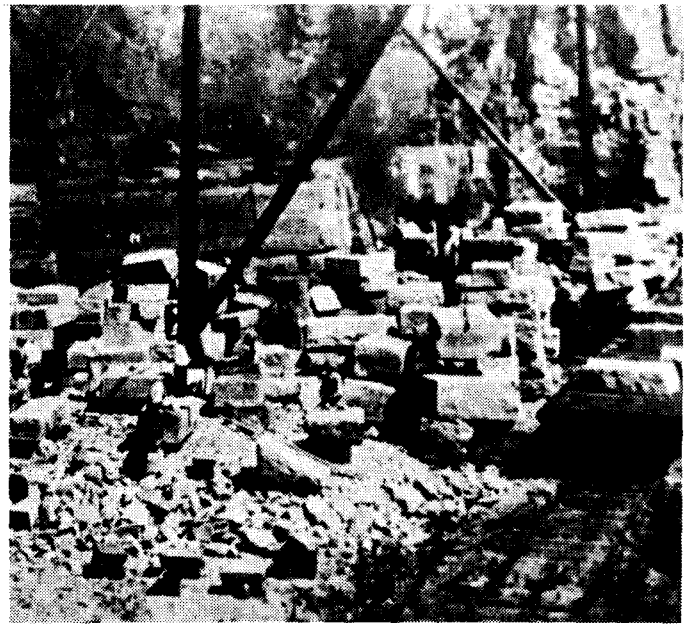
Shop D's (building 62) excavation in 1871-72 had uncovered a pocket or cavern beneath the surface of the building site. Lieutenant Charles Shaler, Jr., ordnance officer in charge of the excavation, submitted in his report a description of the character of the pocket and the method used to secure the foundation. He stated that the excavation began in early May 1871.

The foundation was laid with considerable difficulty and at great expense. According to Lieutenant Shaler, what had initially appeared to be solid rock often turned out to be a thin sheet of clay. A seam of clay ran through the north end of each wing which, when moist, was very loose, but when dry was so hard that a pick was required for its removal. The seam of clay was about 30 feet in width. As the excavation reached 34 feet beneath the surface, water poured into the excavation. Lieutenant Shaler wrote that:

A sewer, built to carry off water from the roof of shop B, burst one evening after a heavy rain and by morning had flooded the excavation. The water seeped into the ground and was carried off by a subterraneous passage not apparent before the incident. Continuing rain halted work for that day, and by the next morning a large area of ground had sunk into the opening. Arsenal workmen cleared out the opening and used sheathing boards to support the walls against future collapse. Again, heavy rains interfered with work, making the clay too plastic-like causing large limestone boulders, some weighing over three tons, to slide toward the excavation, caving in the sheathing. It was necessary for the third time to remove the material, and the broken sheathing boards and beams which considerably slowed the operation.⁸²

Left: The post building (building 225) built in 1874 of Stone City limestone, quarried near Anamosa, Iowa, by convicts imprisoned at the Iowa State Penitentiary. The building still functions today as the RIA's police and fire stations.

Right: A copy of a stereoscopic photograph showing a typical 19th century quarry operation at Stone City, Iowa.



Lieutenant Shaler went on to report that this third attempt at excavating the site was successful down to the water level. Further excavation, however, revealed a wide cavern or pocket that passed through the center of the west wing across the foundation site in a southeasterly direction. The floor of the cavern was covered with sand, and according to Shaler, "ripple marks were found that showed it to have been a water course." To obtain a sound footing for the walls of shop D, a "core of beton," concrete mixture containing round pebbles, was laid in a convex arch of seven consecutive layers that abutted the side walls of solid rock. In this pocket alone, 270 cubic yards of stone were laid. Lieutenant Shaler also found it necessary to conduct arches of this type in five different places. The actual foundation for shop D was made of stone from a quarry on Arsenal Island located near the ferry boat landing.⁸³

1873, Iowa Convict Labor Quarry Stone for RIA

In 1873, the Rock Island Arsenal procured

stone for the construction of the post building (building 225), in addition to the subaltern officer's quarters (quarters 3), from quarries in Stone City, Iowa. Convicts from the Iowa State Penitentiary in Anamosa, Iowa, quarried the limestone. The price paid for the stone, which was delivered by railroad car to the arsenal, was \$8.00 per cubic yard. Martin Heisey and J. A. Green, both of Anamosa, Iowa, received contracts to provide rubble stone (irregular fragments or pieces of rock used in masonry); pilaster blocks of stone (used in rectangular columns with capital and base that were set into walls as an ornamental motif); and dimension stone priced at \$12.50 per cubic yard delivered on rail cars to the arsenal. On one occasion, the delivery of stone was slow due to the difficulty experienced by contractors in securing transportation. Railroad companies originally arranged to deliver the stone, but the agreement did not last. Trains from Anamosa ran only to the Duck Creek rail station on the west bank of the Mississippi River. Stone shipped by rail to the

Below: The old barracks building built in 1873, now designated building 90. The building was designed to quarter 200 soldiers and functioned as a barracks through World War I.



Duck Creek station was unloaded and transported by wagon teams over five miles to the arsenal.⁸⁴

Construction of Barracks Building

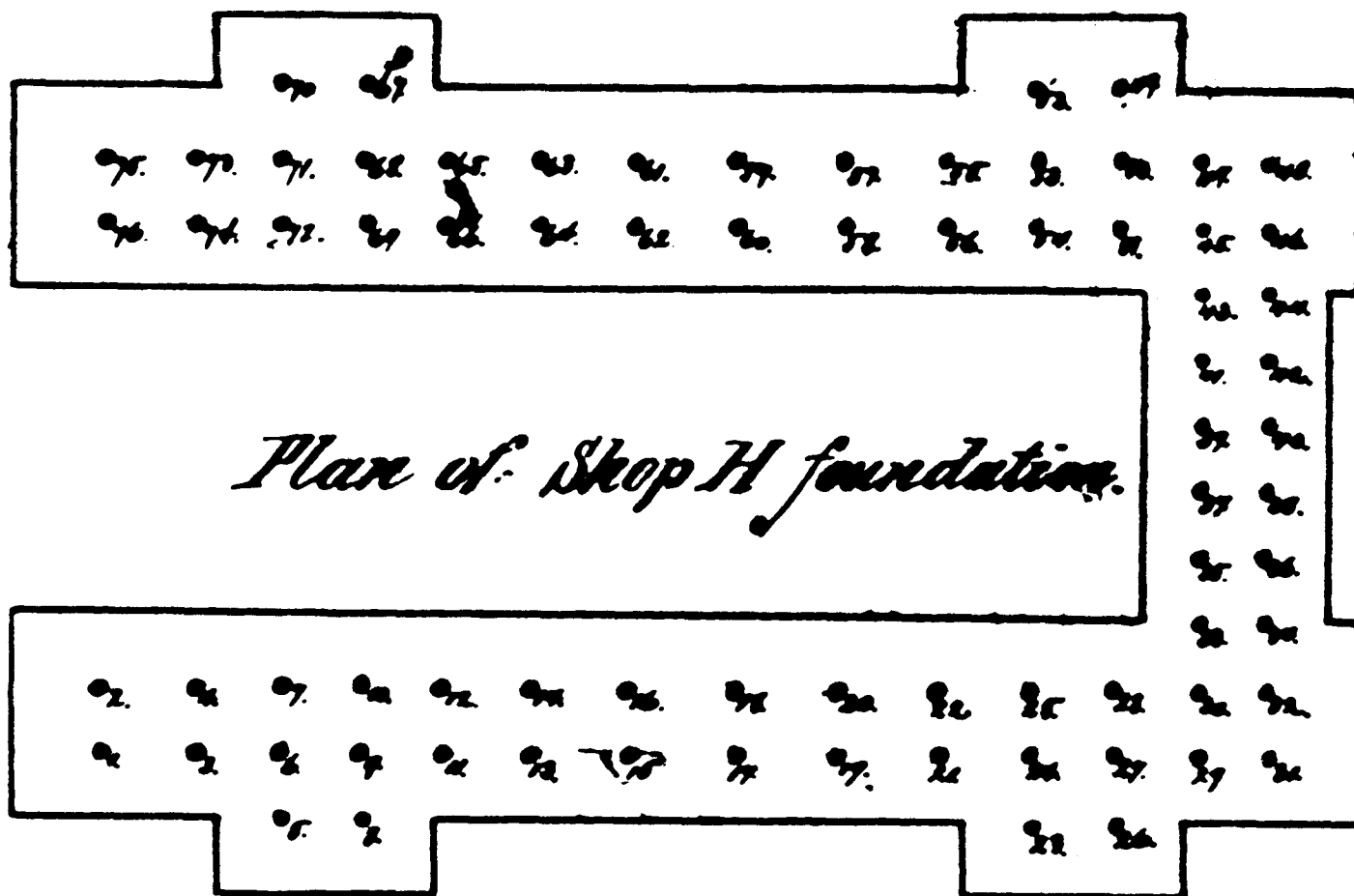
In addition to the shop buildings, plans called for the construction of ancillary structures such as the barracks building (building 90). Though originally designed similar to the architecture of the shops, design changes in the barracks were made to reduce construction costs. The walls were built of range rubble, without the tool marks characteristic of the heavy ashlar stone used in the construction of the shop buildings. Even with these alterations the cost of the building exceeded its original estimate. The labor situation at Rock Island Arsenal and the subsequent cost of construction was also greatly affected by the irregularities in the procurement of stone. Because of the unsettled labor picture, it became necessary to leave the third floor of the barracks building, designed to accommodate 200 soldiers, partially unfinished for a time. As

an aside, its floor plan included a kitchen, mess rooms, sewerage, water supply, heating, pantries, storerooms, and water closets in addition to sleeping bays. Nearby an additional mess, a bakery, and laundry buildings were constructed as auxiliary structures to the Barracks Building.⁸⁵

1879-1880, Difficulties in Finding Bed-Rock for Shop H

Other problems hindered and delayed construction of the Rock Island Arsenal. Major Flagler considered the excavation of building foundations among the most difficult work encountered in his tenure as arsenal commander. He cited the excavation of the foundation for shop H (building 66), which occurred in 1879-1880, as the most troublesome.⁸⁶ To support the immense weight of the stone buildings, each shop structure's foundation was constructed upon solid bed-rock. The foundation supported the stone walls preventing the building from sinking under such

Below: Each of the stone shop buildings were anchored by 76 piers partially embedded in the basement floor and resting on solid bed-rock to provide support for the upper floors and columns directly above.



tremendous weight. Furthermore, in each building, 76 stone piers were constructed to support the interior floors. The columns that secured the upper stories of the buildings were placed directly in line with the stone piers below.

The difficulties that had to be overcome in order to obtain a secure foundation for pier #26 of shop H were drastically more serious than any of the other similar cases. Workmen on pier #26 excavated to a depth of 74 feet while operating in a space only 10 by 12 feet wide.⁸⁷ This excavation was considerably deeper than those dug for other shop-buildings. A network of sheathing timbers, irregularly wedged into place to prevent the pit walls from collapsing, consumed even more space. The timbers had to be especially strong to resist pressure from loose sliding boulders. Steam pumps, pipes, and plank tubes further cluttered the floor of the excavation trench, and workmen had to hoist material through the plank tubes.⁸⁸

Major Flagler ordered that deep vertical

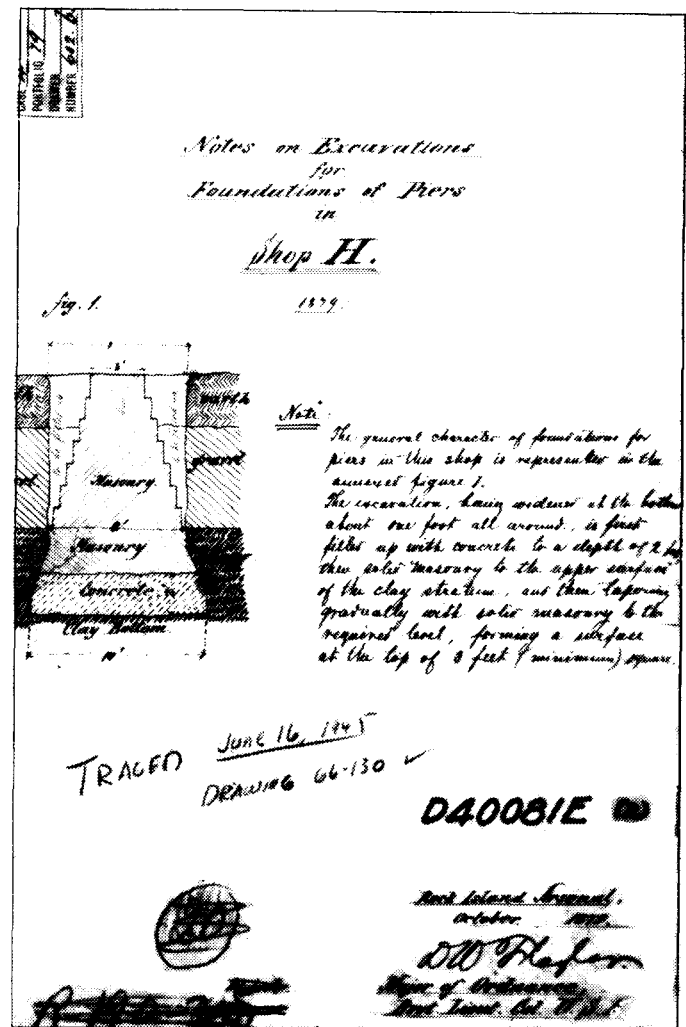
soundings be conducted from the bottom of pier #26's excavation pit. Workmen used sledgehammers to drive steel-pointed, jointed iron bars and drills into the floor of the excavation in search of solid rock. The drills passed through layers of soft clay that alternated with loose rock, sand, and gravel. According to Flagler, "the ooze or wash of the soft clay through the sheathing sometimes left vacant places behind the sheathing till caving in filled them up." The loosely-filled, clay mixed with stone was so soft in places that workers and tools were in danger of suddenly sinking out of sight. Sounding rods striking these isolated large boulders produced false soundings, thereby adversely affecting the trained ear of the workmen. In addition, the workers discovered irregularly-shaped crevices or pockets that had been formed by underground water pressure. It appeared a ravine, carved by an ancient waterway, ran diagonally in a southeast to northwest direction through the construction site of the shop buildings. This ravine affected the excavation of several shops, in particular,

Right: RIA Commander Colonel D. W. Flagler's notes on excavations for foundations of piers in shop H, dated October 1879.

two-thirds of shop I, nearly all of shop H, half of shop K, and a corner portion of shop D. However, it was during the excavation of shop H, specifically pier #26, that the builders had greatest difficulties due to the discovery of the largest of these crevices. In their search for good solid bed-rock to secure shop H's pier foundation, arsenal workers had excavated below the water level of the Mississippi River.⁸⁹ Steam pumps were used to pump out water by the gallons which had flowed into the excavation trench. The inflow of water made deeper excavation impractical, and further sounding attempts seemed useless. Flagler stated in his report to the chief of ordnance that:

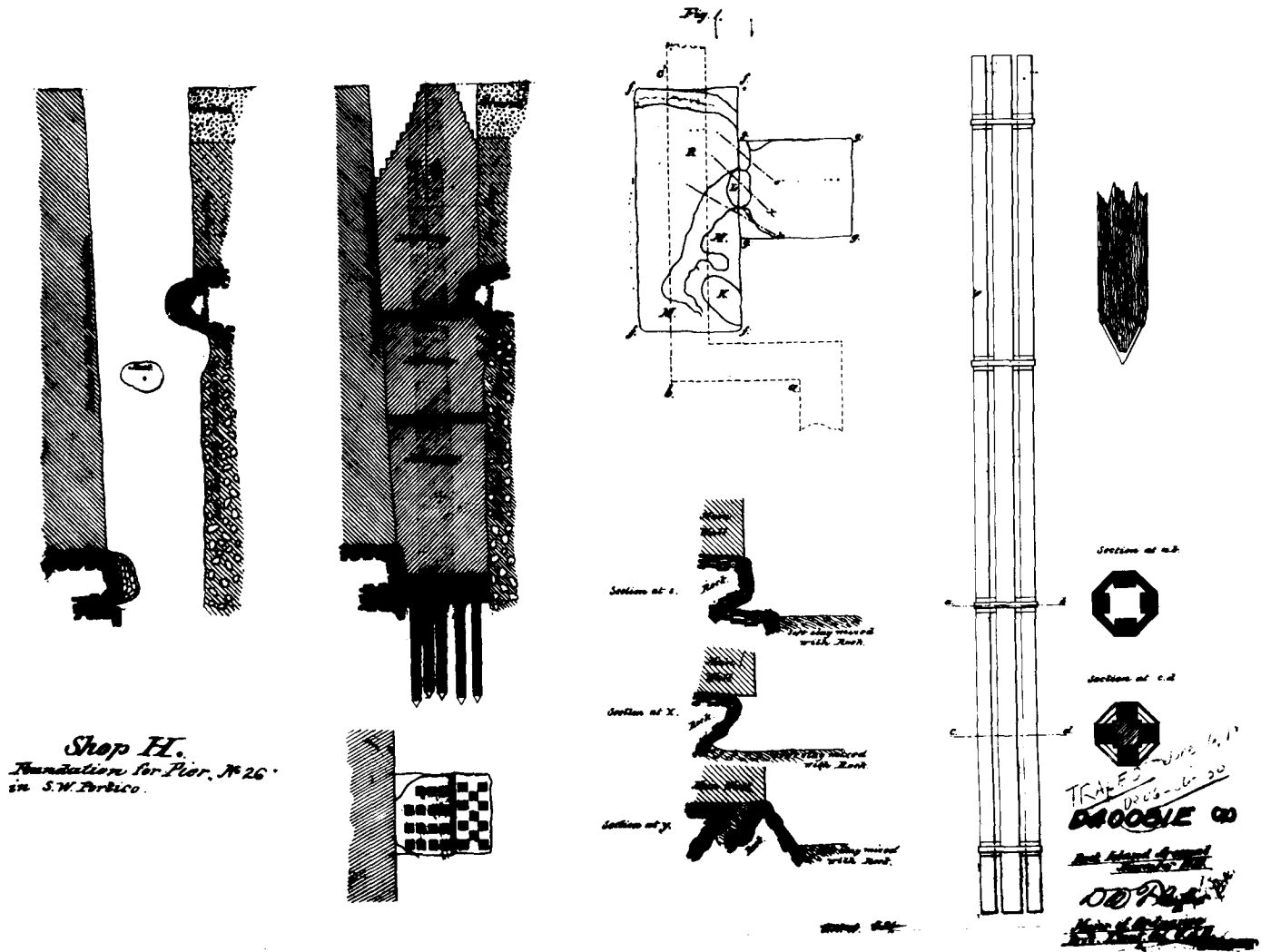
... I (Flagler) would then have filled up the hole, abandoned putting in a pier, and have substituted therefor(e) the iron column and truss described a few pages back, had not the careful soundings made at this point led me to fear that the foundations of the adjacent main wall of the building, put in the previous year, were not as secure as I had supposed.⁹⁰

Major Flagler realized that the foundation work done the previous year, in 1879, was not built upon solid bed-rock as he had earlier thought. Flagler decided to excavate as far as possible and do whatever was necessary to secure and strengthen the "old foundation". Unsuccessful in attempts to find solid rock to support the foundation of pier #26, Flagler ordered that heavy beams of timber, called piles, be driven into the earth as a substitute bed-rock for the



pier foundation. At the bottom of the excavation, piles were driven with the use of a timber tube which guided the drop-weight among the sheathing timbers, and prevented accidents to workmen. The drop operated within the 30-foot tube and protected the men working in the excavation trench from being struck by the drop-weight as it hammered down on the piles. The 900-pound drop-weight, powered by steam, continued to strike the pile until its drop of 27 feet could no longer move the pile. The loose, water-saturated clay was a poor material to sustain piles. The bottom end of the piles were shod with heavy sharp-pointed iron shoes to split, break, or push aside boulders embedded in the clay. Twenty-six twelve-inch square piles were driven to depths varying from 14 to 17 feet.⁹¹

Below: Rock Island Arsenal Commander D. W. Flagler's notes pertaining to the excavations of foundations and piers for shop H (building 66), dated October 1879. Note the cross-section view of excavation of Pier #26, showing the depth of the excavation to the left and the cross-section of the pier's foundation to the right. Also note the 26 pilings used to provide footing for the foundation at the bottom of the excavation. Published originally in the RIA Commander's Annual Report to the Chief of Ordnance for the years 1879-1880.

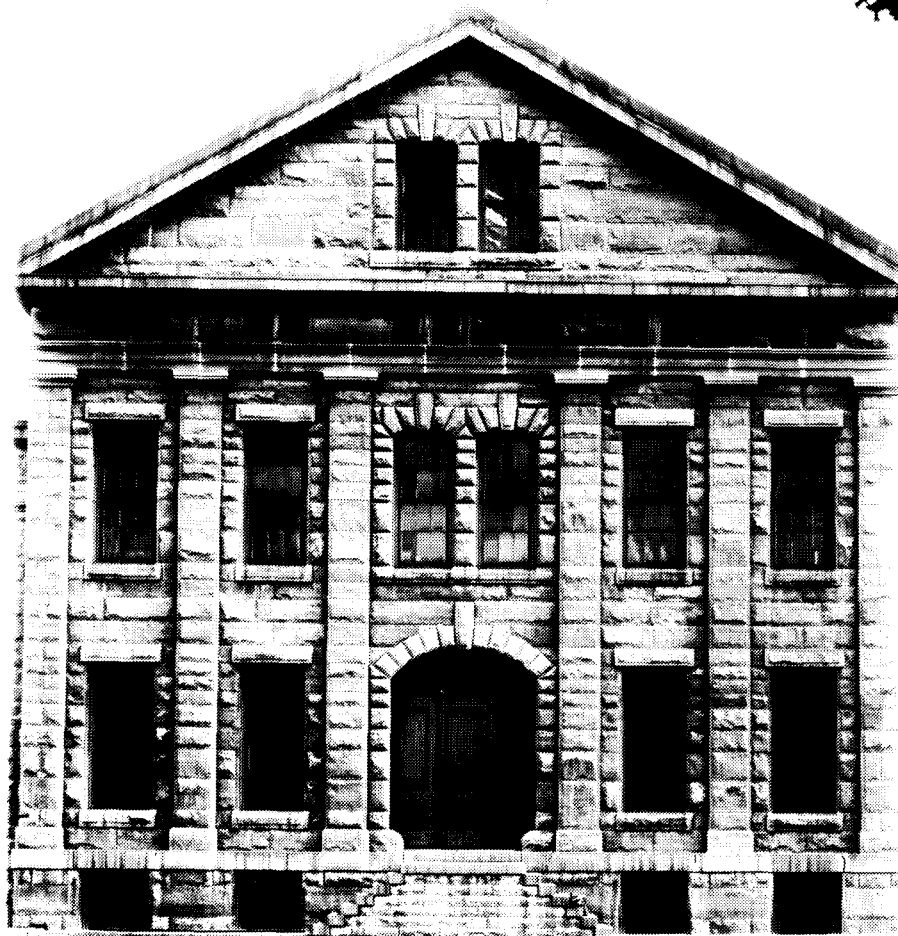


The flow of water into the trench increased the difficulties of finding a footing for the piers and created serious problems which hampered the excavation of the foundations for shop H. Steam pumps were placed at low places in the trench to drain and discharge water through pipes and troughs into sewers. Numerous hand pumps were used to reduce the cost of exclusively using steam pumps. The removal of water from so many pits over such a large area was a difficult

task. After excavating, it was necessary to operate the pumps until the masonry was raised above water level. The workmen doing the digging had to stand in one to two feet of water, especially after the excavation passed below the water level of the Mississippi River. A couple of small pumps operated around-the-clock discharging approximately 180 gallons of water per minute from the pits.⁹²

Major Flagler described the procedures

Right: *The facade of the entrance to shop H. Note the massive rock-faced limestone blocks accented by pilasters (columns partially embedded into the wall), keystone arches, and small windows encased in the entablature.*



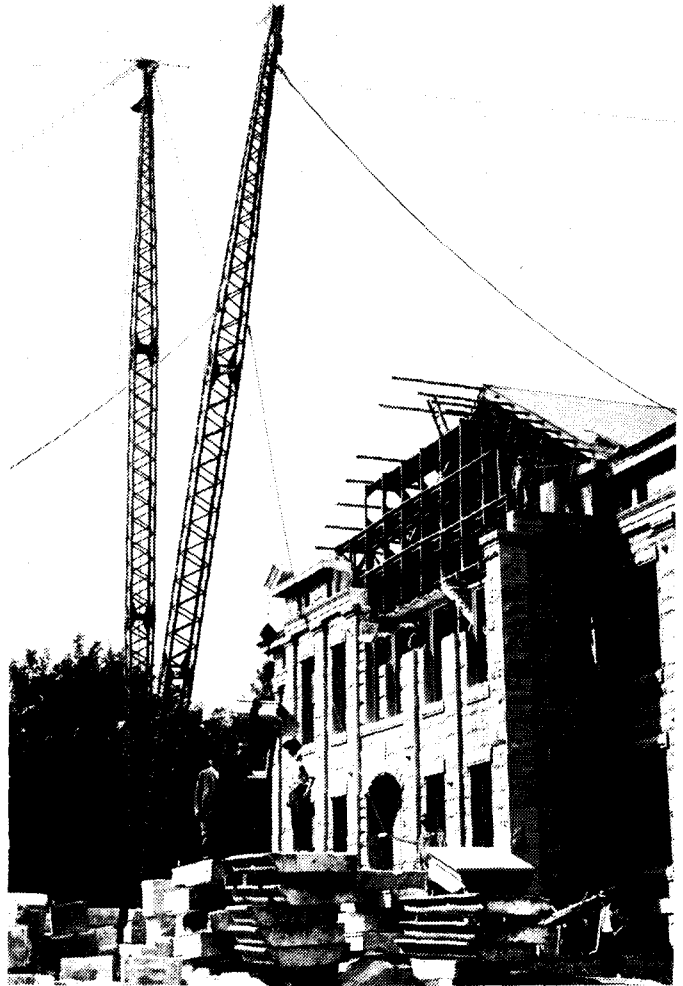
followed by the workmen in securing the footing for the (old) foundation of shop H in his report to the chief of ordnance ending 30 June 1880. He stated that:

Arsenal workmen cleaned the loose rock and mud from the crevice which ran beneath the old foundation, before they drove in the piles. Workmen used long hoses and other devices to clear the space and to re-fill it with well-rammed concrete. A pump operated continuously, keeping the water low enough so that the piles could be driven with an inclination under the old foundation. Using this method, the bed of concrete and loose fragments of rock were jammed more firmly into the crevice.

Once the workmen finished driving the piles, they evenly sawed the tops off. The interstices or spaces between the piles were cleaned out to a depth of four feet and then refilled with

concrete, well-rammed with iron tamping bars. On top of the concrete, workmen placed footing stones, twelve feet thick. Upon the footing stones, laborers laid ordinary masonry with occasional courses of footing stones, till the surface of the ground was reached. The work continued until heavy frost set in. Hot water was used at times for mixing the mortar and keeping it warm till it could be lowered in the pit below the frost line. Workmen brought the masonry up to within seven feet of the surface. Then laborers filled the hole with clay till warm weather arrived. In the spring, workers removed the clay and completed the pier. The workmen commenced the excavation on August 1, and completed it on November 4, 1879. The arsenal finished the pile driving on November 16, and the masonry work on December 4 of that same year.⁹³

Right: *The repair and replacement of cracked wall in East wing of shop H. The foundation was not secured on solid bed-rock which over a period of years caused the wall to sink under the tremendous weight of the massive stone wall. The wall was repaired and secured 35 years later at a cost of \$65,000.*



Alternative layers of concrete and Joliet rubble-stone masonry were laid and held in place by large footing stones. Major Flagler cited in his report to the chief of ordnance that it took seven weeks to excavate and fill the crevice, during which time 402 cubic yards of masonry, including concrete and stone rubble, were used. Despite the use of pumps while putting in the masonry, much of the concrete had to be laid in water. Flagler reported that: "gangs of men" were employed at night and during the weekends a portion of the time. He credited Mr. W. A. P. Totten, foreman of laborers, in charge of the excavation and sheathing work, and Mr. Robert McFarlane, in charge of the masonry work, for their efforts in supervising the project.⁹⁴

By the end of June 1800, a total of 4,292 cubic yards of masonry had been put into the foundations of shop H (building 66), followed by an additional 4,647 cubic yards used for the foundations of shop H the next fiscal year. The two year total amounted to 8,939 cubic yards which measured over a 1,000 more yards of

masonry than would be later used in the walls.⁹⁵

In 1880, Major Flagler wrote a final report to the chief of ordnance pertaining to the difficulties that his workmen had encountered in securing foundations for shop buildings, in particular, shop H. He concluded the report with his opinion as to the worst foreseeable scenario that could possibly happen in regard to these foundations. He stated that the foundation of shop H would settle only a little and would occur very slowly. He felt that since the foundations could not give way to endanger the structure the worst that could possibly happen would be sufficient settling of the wall foundation to cause serious cracks in the wall. If that occurred, Flagler believed the only remedy would be to disassemble and rebuild the wall.

Thirty-five years later, Major Flagler's prediction as to "the worst that could ever happen" occurred. By 1912 arsenal photographers had begun to document cracks in the wall of shop H. By 1915, the east wall of the east wing of shop H was dismantled and rebuilt.

Below: The Rock Island Arsenal manufactured artillery battery wagons from the early 1890s through 1918. In the photo below a turn-of-the-century battery wagon drawn by arsenal horses stands ready for road test during the midst of winter.



1880, Appropriation Law Changed

Another major hindrance to the building of the arsenal had nothing to do with procuring stone; maintaining skilled laborers; or finding bed-rock to build upon. Rather, it had to do with federal law which required that appropriations made in June of one year had to be used before June of the following year; in essence, the funds had to be used within the same fiscal year that they were appropriated. Any unspent balance had to be returned to the U.S. Treasury Department. This law caused extreme difficulties because it was hard to finish a building in one year. Little outside work could be accomplished during the long winter months; therefore, work was often suspended during cold weather, and was further delayed while waiting for new appropriations from Congress. Colonel

Rodman and Major Flagler both complained to their superiors regarding this method of funding. Not until 1880 did the government finally exempt buildings at Rock Island Arsenal from this legal restriction. Before this the arsenal lost several of the best working months of the year while waiting for congressional appropriations to be passed and made available on the first of July of each fiscal year.⁹⁶

1880, Announcement for Bids for Building Material

With the use of local newspapers, such as the *Moline Review*, announcements that the Rock Island Arsenal was accepting bids for building material was widely disseminated. On the following page is an announcement of this nature which ran on 16 July 1880.⁹⁷

Below: *The Rock Island Arsenal Commander placed notices in local newspapers announcing that the arsenal was accepting bids for specific building materials. The Moline Review carried the announcement below on 16 July 1880.*

Proposals for Wrought Iron I Beams.

Rock Island Arsenal, Ill., June 24, 1880.

SEALED PROPOSALS are invited to furnish, delivered on cars at this Arsenal, about -- 830 pounds 15 in. I Beams, 200 lbs. per yard.

430,000 pounds 12 in. I Beams, 200 lbs. per yard.

480,000 pounds 12 in. I Beams, 125 lbs. per yard.

480 pounds 12 in. I Beams, 125 lbs. per yard.

127,000 pounds 4 in. I Beams, 30 lbs. per yard.

90,000 pounds 7 in. Deck Beams, 58 lbs. per yard.

20,000 pounds Angle and T irons.

Full bills and specifications can be obtained from the undersigned. All the Iron must be delivered within five months after date of contract, but the contractor may deliver it as much sooner as he pleases.

The successful bidder will have to enter into contract, and give good and sufficient bonds.

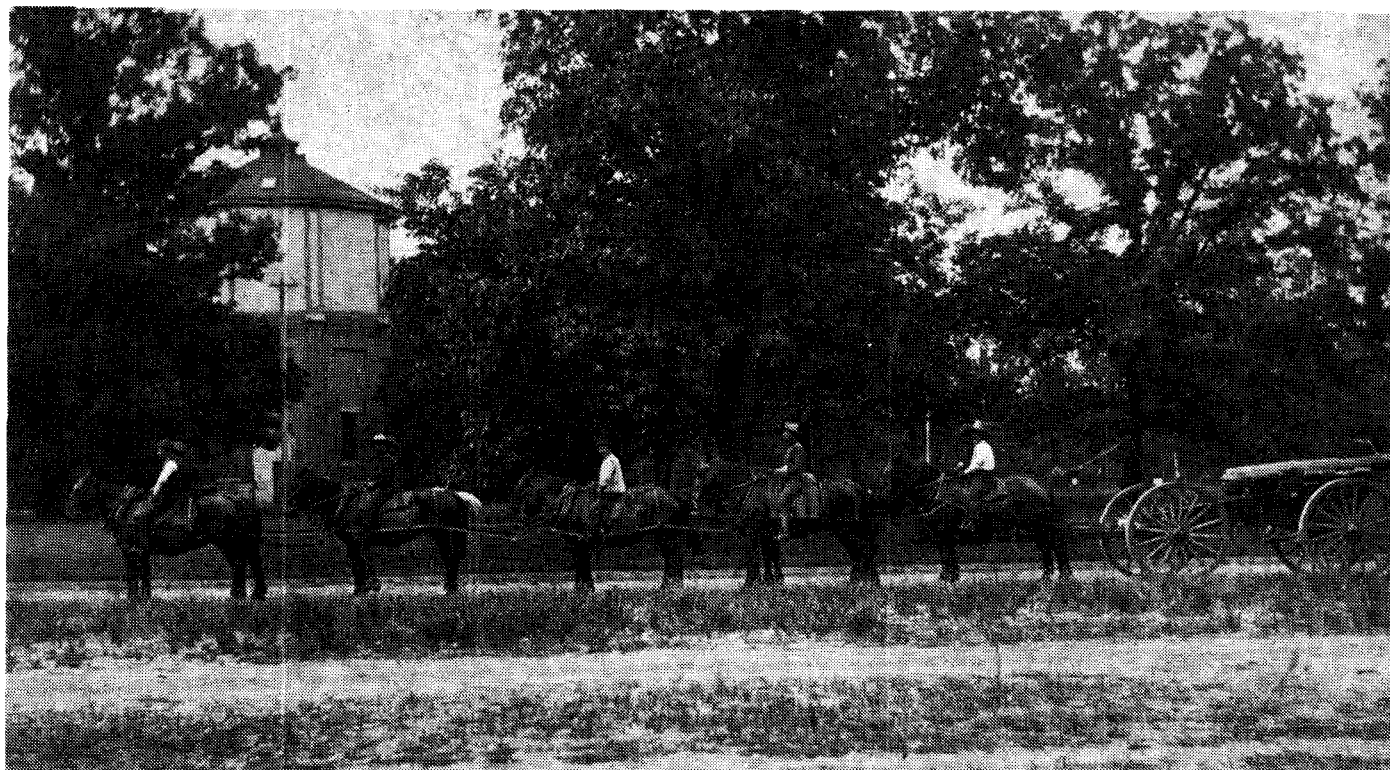
The Government reserves the right to reject any or all bids, and if necessary, bidders must show that they are able to perform the contract.

Bids from irresponsible parties who are not members or agents of firms competent to perform the contract, will not be considered.

Bids will be opened at 10 a.m. July 14th, 1880, and bidders are invited to be present.

D. W. FLAGLER
Major of Ordnance
Commanding

Below: A late 1800s photograph of 7-inch siege howitzer and RIA-made carriage. Probably the artillery harness equipment on the horses was manufactured at the Rock Island Arsenal. Note the high water tower which once stood just south of the multiple-sided water reservoir. Possibly a road test on a newly completed carriage model documented by the photograph.



To further illustrate the difficulty the arsenal encountered in obtaining stone during its major construction period of the latter 19th century, the arsenal made announcements in local newspapers stating that it was again seeking to procure building stone. One such advertisement soliciting bidders appeared in the 15th August 1881 issue of the *Moline Review-Dispatch*. It explained the bidding procedure in the following manner:

PROPOSALS FOR STONE

Rock Island Arsenal Ill., Aug. 15, 1882. SEALED PROPOSALS are invited to enter into contract to furnish, delivered at this arsenal, about 1800 cubic yards of Dimension, Ashlar, Rubble and Footing Stone for the construction of one store-house.

The architecture of this building is to be similar to the barracks already built at this arsenal. Bidders should not make bids until after examining drawings and specifications, and obtaining full information at my office,

and should also examine the work of the building mentioned above.

Bidders must state the name and location of the quarries from which they will furnish stone; be prepared to show that they have such control over quarries as to insure their ability to furnish the stone, and the quarries must be opened sufficiently to show that the required amount of stone can be obtained from them, the stone must be of known good quality and endurance, and not differ greatly in appearance from that in the shops and adjoining buildings.

The successful bidder must give good and sufficient bonds for a faithful performance of his contract. The U.S. reserves the right to reject any or all bids. Proposals must be in triplicate, and will be opened Sept. 20, 1882. Bidders are invited to be present.

D. W. FLAGLER,
Lt. Col, of Ord, Comd.⁹⁸

Right: A U.S. Army corporal standing guard possibly at an entrance to post headquarters building (building 360). The belt and bayonet worn by the guard indicates the photograph was taken in the late 1800s. Chevron strips remained "V" shaped until 1902, when they were officially inverted.



Innovations in Construction of Arsenal Buildings

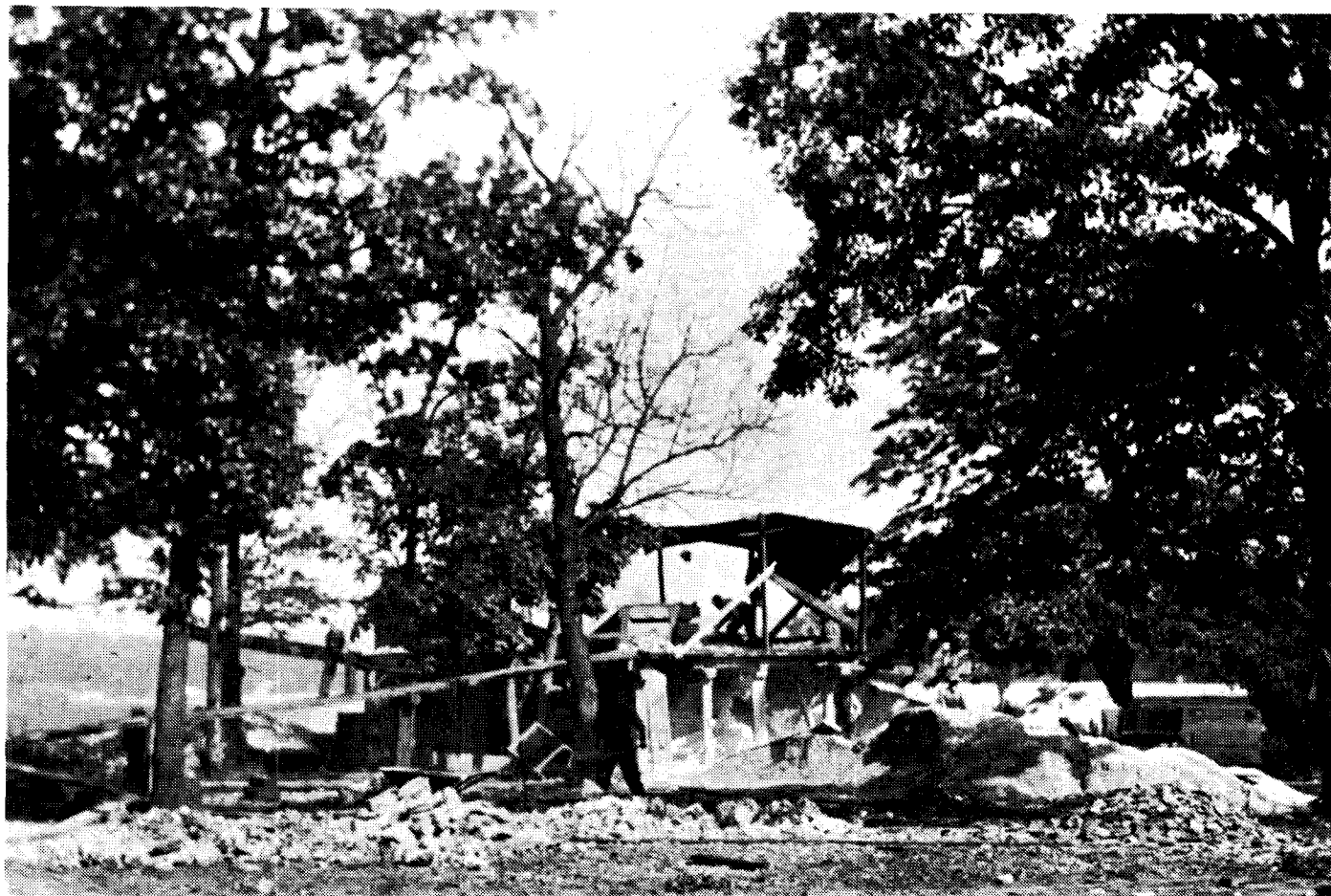
During the course of a building project that took 30 years to complete, some innovations appeared in the construction of the arsenal stone buildings. As early as 1872, Major Flagler had experimented with the use of concrete for paving and construction. He reasoned that if a mixed concrete with the proper toughness and hardness could be produced at the arsenal, it would be more economical and more durable than stone. Major Flagler's early tests, however, failed to produce a consistently hard concrete. To be noted is the fact that Flagler was promoted to the rank of Lieutenant Colonel in 1881.

It was not until 1883 that Flagler's investigations and experiments in producing a suitable concrete proved satisfactory. The successful concrete mixture was initially used in the construction of storehouse "A". Storehouse "A" was the first of a series of storehouses originally planned to be erected behind each of the manufacturing shop buildings. Storehouse "A", located to the rear of shop A (building 102), measured 254 feet by 60 feet, with two porticos 15 feet by 60 feet. The four-story building had a total area of 63,600 square feet. This storehouse was the first Rock Island Arsenal building built with an all-concrete foundation. From this time

on, all arsenal foundations, basement floors, and most sidewalks were constructed in concrete. The concrete replaced the more costly flagstones used in earlier construction.⁹⁹

Flagler's experiments with different types of cement led him to recommend the use of "South Bend" Portland cement produced in South Bend, Indiana. He found it superior to the best English cements available. Not only was the quality superior, but the cost of the South Bend cement was more economical at \$2.85 per barrel of 400 pounds delivered. Flagler, in describing the methods employed by his workmen, provided some insight into how the stone buildings were

Below: Rock crusher in operation on Arsenal Island pulverizing stone possibly for mixing with cement and paving roads.



constructed. He reported that:

. . . The arsenal obtained sand, of good quality, from local contractors for 63 cents per cubic yard delivered by wagons at the work site. The rock, a very hard limestone containing large quantities of flint, which had been excavated from the water power canal project in the south channel of the Mississippi river, was hauled across the river on ice during the winter. The limestone cost, delivered at the work site, .50 cents per cubic yard. Workmen used a Totten crusher to pulverize the stone. For foundation work, the crusher was placed at the edge of the basement excavation and the rock was poured from the crusher onto a plank at the edge of the basement, a drop of seven and a half feet. A sprinkler kept the pile of broken

rock thoroughly wet. Workmen then shoveled the rock into barrows and dump boxes for thorough mixing with sand and cement. Eventually the workmen became expert enough to measure the ingredients with their shovels.

Wheelbarrows were used to transport concrete to foundation work nearby. When transporting the concrete over distance, workmen pushed it in dump boxes of one cubic yard capacity, on tramway cars. These cars were afterwards used for delivering stone and mortar to the derricks for building walls of the stone shops. Workmen did not wet the concrete until it arrived at the place of use, and just prior to dumping it, water was added. A layer of concrete was thoroughly rammed and tamped until its surface was just covered with water.¹⁰⁰

Below: Water sprinkler (appears to be in back of shop A, building 102) used to water down the road to keep the dust down.



CONSTRUCTION COSTS

Flagler included the following breakdown of material and cost in his report so that in the future, the Army Ordnance Department would use it as a guideline in determining construction costs.¹⁰¹

INGREDIENTS AND COST

1 cu. yd. crushed rock-cost before crushing \$0.50

1 cu. yd. sand at 63 cents \$0.21

1 cu. yd. cement (1 barrel) 400 lbs. \$2.85

Cost of material per yd. \$3.56

Capacity of crusher 33 yds. per day.

Labor to lay 33 cu. yds. of concrete: 2 men at crusher; 2 mixing sand/cement and bringing to crusher; 2 mixers; 2 wheelbarrow men; 2 tampers 10 men in all, at \$1.50 per day each \$15.00

Cost of running crusher \$2.75

1 mason superintending \$2.75

Miscellaneous expenses \$2.00

Total for 33 yds. \$22.50

Labor for 1 yd. \$0.68

Material for 1 yd. \$3.56

Cost per yd. \$4.24

Below: Three different Arsenal commanders closed out the 19th century following Flagler's departure in 1886.

Left: Colonel Thomas G. Baylor, RIA commander, 1886-1888.

Middle: Colonel James M. Whittemore, RIA commander, 1888-1891.

Right: Colonel Adelbert R. Buffington, RIA commander, 1892-1897.



Improvements During Flagler's Command

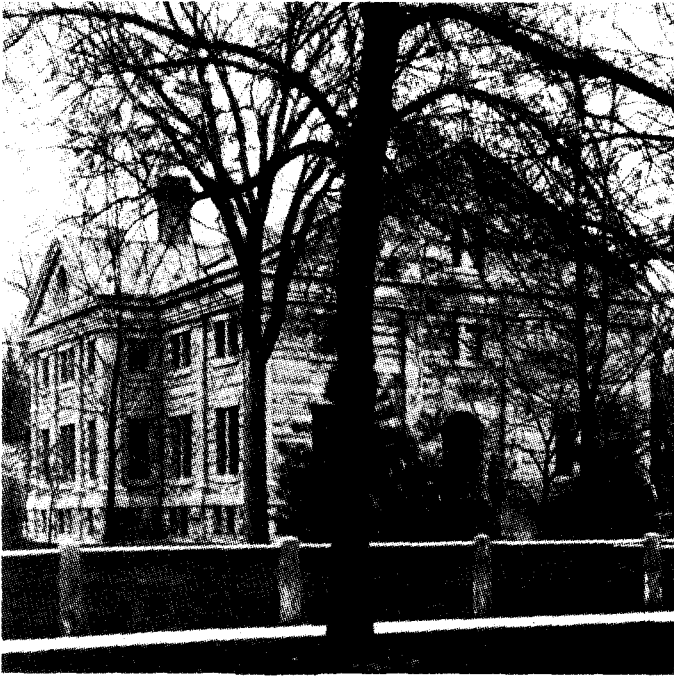
Following Rodman's master plan, Flagler supervised completion of the commanding officer's quarters in 1871, shop C in 1872, and shop B in 1873. Between 1874 and 1886, Flagler built seven stone buildings on Main Avenue: shops A, B, E, F, G, H, and I. Also, Flagler added to the manufacturing core several ancillary buildings, including a magazine, barracks, fire station, lumber shed, storehouse for shop A, gate house, and officer's quarters 2, 3, and 4 during his command of the Rock Island Arsenal. After Flagler's departure in April 1886, Colonel Thomas G. Baylor, (1886-1888); Colonel James M. Whittemore, (1888-1891); and Colonel Adelbert R. Buffington, (1892-1897) commanded the Rock Island Arsenal. The arsenal's last stone buildings were completed during the tenure of these three arsenal commanders.

Construction After Flagler Departs RIA

The close of Lieutenant Colonel Daniel W. Flagler's term as commanding officer in 1886 virtually brought to an end the first great construction period of the Rock Island Arsenal. Flagler had basically completed the original plan of General Rodman. Few important construction projects were concluded at the arsenal after his departure and before the turn-of-the-century. However, the following projects from the late 19th century do merit recognition.

Following Flagler's term as commander, the construction of the final Rodman-plan buildings, shop K (building 68) and storehouse K (building 56) lagged and continued to drag on slowly through the commands of Colonels Baylor, Whittemore, and Buffington. Arsenal workmen had completed the storehouse for shop K in 1893, seven years after its foundation had been laid. In that same year, skilled laborers applied the finishing touches to shop K, a good 12 years after its initial construction.

Below: *The Rock Island Arsenal Commander's office and desk situated in the old post headquarters (building 360). This 1898 view of Colonel Stanhope Blunt's office reveals an assortment of RIA-made ordnance stores such as saddles, saddlebags, haversacks, tin cups, ammunition belts, horse curry brushes, and fencing mask displayed in front of, on, and around the commander's desk.*



Building 360, The Old Post Headquarters 1889-1922

In 1888, Congress appropriated funds for the construction of a new headquarters building, later designated building 360. The Rock Island Arsenal maintained its headquarters in this building until after World War One. In 1922, arsenal operations were reduced and consolidated into fewer buildings. As part of this return to peace-time status, the arsenal headquarters was transferred to shop B (building 60).¹⁰² Though not an arsenal structure, the rebuilding of the government bridge from Davenport in 1895-1896 should be included as a major construction project of the late 1800s because of its impact on arsenal transportation. One project that Rock Island Arsenal commanders repeatedly requested appropriations for, during the last decade and a half of the

19th century, was the building of a new post hospital.

Quarters 34, The Old Post Hospital

The building then used as a hospital was a drafty old frame confederate prison building. Colonel Buffington expressed his frustration and defended the necessity of replacing the arsenal's old hospital building in his report to the chief of ordnance dated 1896. He argued that:

... Previous reports have been made as to the inadequacy of the post hospital. It is an old frame structure, erected during the Civil War, about thirty-five years ago (for prison purposes). It is drafty and leaky, and the timbers are decayed. Patients placed in this building for treatment must have blankets hung around their beds in cold

Below: *The old Post Hospital, a drafty old wood frame Rock Island Prison barracks building functioned as the Rock Island Arsenal Hospital through the close of the century. Congress finally approved a request for a replacement building in 1907.*



weather to keep off the draft, and the beds must be moved from place to place in wet weather to avoid the rain. The Inspector General had reported that this building is utterly unfit for hospital purposes and not worth repairing. Estimates have been repeatedly submitted, and are again included this year. It is really a cruelty to place a sick man in this structure.¹⁰³

Unfortunately this project did not receive congressional approval until after the turn-of-the-century. In 1907, a brick building was constructed as the new hospital. Today this building functions as officer's quarters (building 81) for the Rock Island Arsenal.

The RIA's First Great Period of Constructions Comes to a Close

A decline in appropriations for construction at Rock Island coincided earlier with Flagler's departure from the arsenal. Basically the arsenal's building phase had been completed, and the conclusion of Colonel Rodman's original plan was in sight. Congressional priorities turned to providing appropriations that would furnish shop machinery; provide adequate sources of power to the shops; maintain arsenal roads and grounds; and improve the access bridge from Davenport, Iowa. The first great construction period of the Rock Island Arsenal was brought to a close in the decade and a half prior to the turn-of-the-century.

Below: *The first dam built on Mississippi River in 1841; it stretched from Moline across the south channel of the Mississippi River to Arsenal Island.*



CHAPTER FIVE WATER POWER AT ROCK ISLAND

The Mississippi River's potential water power at Rock Island and the island's access to water and rail routes made Rock Island a choice western site for an armory or arsenal for manufacturing of supplies. These natural attributes also made Rock Island an attractive plum for commercial development.

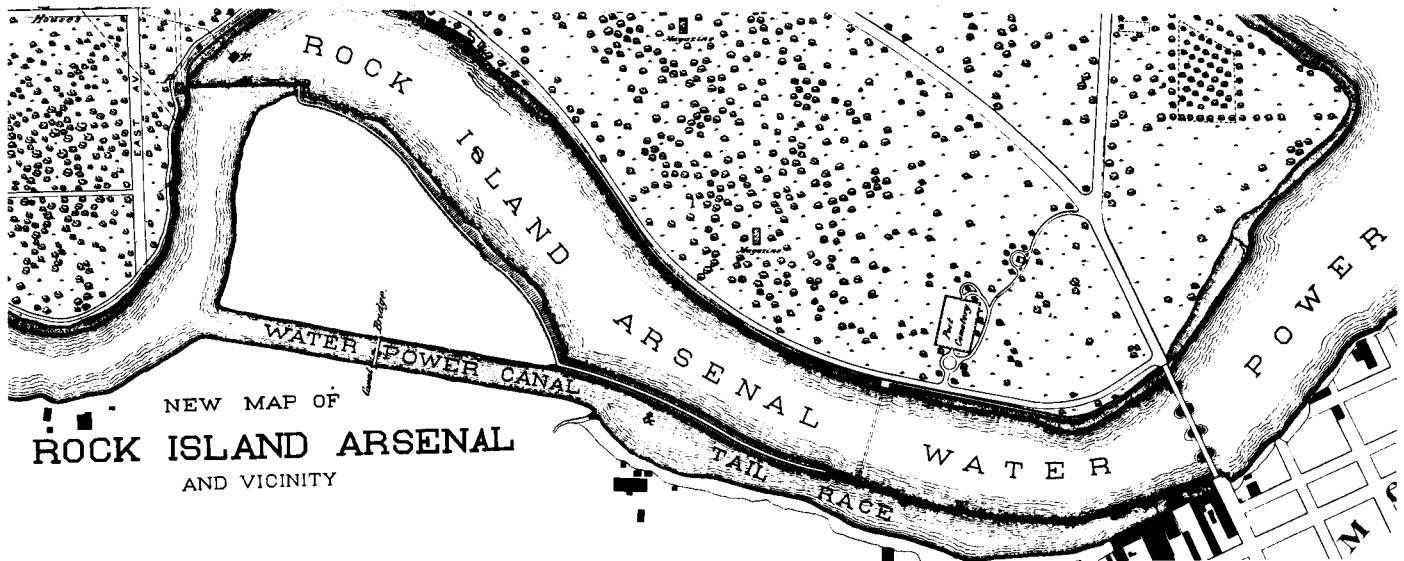
In the late 1830s, long before the construction of the arsenal, private enterprise began developing water power in the south channel of the Mississippi River, now known as Sylvan Slough. In February 1837, the legislature of Illinois granted to David B. Sears and John W. Spencer a charter to build a dam across the south channel of the Mississippi River near the head of Rock Island, across from Moline, Illinois. Mr. Sears and associates controlled the water power for several years. In 1851, the firm of Pitts, Gilbert, and Pitts of New York acquired the dam

and remained in control of its water power until 1859. After a scheme to raise money for improvements and repairs through the sale of bonds failed, the entire property was turned over to the stockholders. Horace K. White and his New York associates then purchased bonds for improvements and repair of the dam, which eventually led to White's acquisition of the property on 25 April 1864.

As previously mentioned, on 19 April 1864, Congress approved an act which authorized the Rock Island Arsenal commander to clear the island of all property claims made by private parties and local communities. This act provided for establishment of a board of commissioners, appointed by the president of the United States. The board reviewed the legitimate claims and made recommendations as to their settlement.

In February 1865, Charles Atkinson and associates obtained a charter from the state of Illinois for the Moline Water Power Company, and by December of that same year they

Below: Portion of Rock Island Arsenal map which shows the plans and development of water power at Rock Island, signed by Brevet Lieutenant Colonel D. W. Flagler, RIA commander.



purchased the water power franchise at Rock Island.¹⁰⁴

Rock Island Arsenal's water power history spanned more than 50 years, from 1865 to after the-turn-of-the-century, and during those years at least eight major water power-related projects were completed by the Rock Island Arsenal. The eight projects included: construction of a stone lateral dam wall in the south channel of the Mississippi River; excavation of a tail race canal through solid rock; building of a stone dike along Sylvan Island; construction of the arsenal dam; building of an arsenal power house; digging of tunnels and erecting of towers to transmit the power to the shops by wire cable; building a stone dike at the edge of the island's shore to the head of the island along the south channel; and extending a wing dam off the main channel of the Mississippi River from Benham's Island. Flagler wrote in his *History of the Rock Island Arsenal* that:

Work on the upper (dam) wall, the

island earth dike, the stone dike, the canal, and wing dam were carried on simultaneously and although an account of expenditures on the water power was carefully kept, the cost of the different parts of the work was not kept separately.¹⁰⁵

Colonel Rodman initially planned to use condensed air to power the machines in his arsenal shops. His plan called for transmitting condensed air from Benham's Island dam on the north channel and from the old Moline dam on the south channel of the Mississippi River to the arsenal shops. He quickly abandoned this idea, and developed a new plan to mechanically transfer power from a dam on the south channel of the Mississippi River, which was nearer the construction site of the arsenal manufacturing buildings.

As early as 1865, Colonel Rodman proposed using water power derived from the Moline Water Power Company to drive the machinery in his

Right: Charles Atkinson,
president of Moline Water Power
Company.



arsenal shops. He suggested building a masonry dam and allowing Moline Water Power Company to use its water at the east end of the dam, while the Rock Island Arsenal used its water downstream at the west end of the dam.

As earlier stated, Congress passed another act on 22 June 1866, which further empowered the arsenal commander to take complete and permanent possession of Rock Island, including the island's access bridges and water power. On 27 June 1866, Congress appropriated \$100,000 to secure water power at Rock Island.¹⁰⁶

Authorized by the above congressional legislation, Colonel Rodman notified the Moline Water Power Company to vacate by 1 September 1866 all portions of the south channel that separated Rock Island from the Illinois shore. After lengthy negotiations, Charles Atkinson, president of the Moline Water Power Company, agreed to relinquish to the federal government his company's rights to the water power and property, north of the south channel's mid-line. This included sandbars (deposits of sand), stone, or other materials adjacent to Rock Island. In exchange, the government agreed to provide in perpetuity, free of cost, one-fourth of the water power derived from existing or subsequent plants to the Moline Water Power Company. In addition to the above agreement, the Moline Water Power Company reserved the privilege of renting to customers any surplus power not needed by the arsenal. On 22 September 1866, the Moline Water Power Company received authority from the chief of ordnance to collect

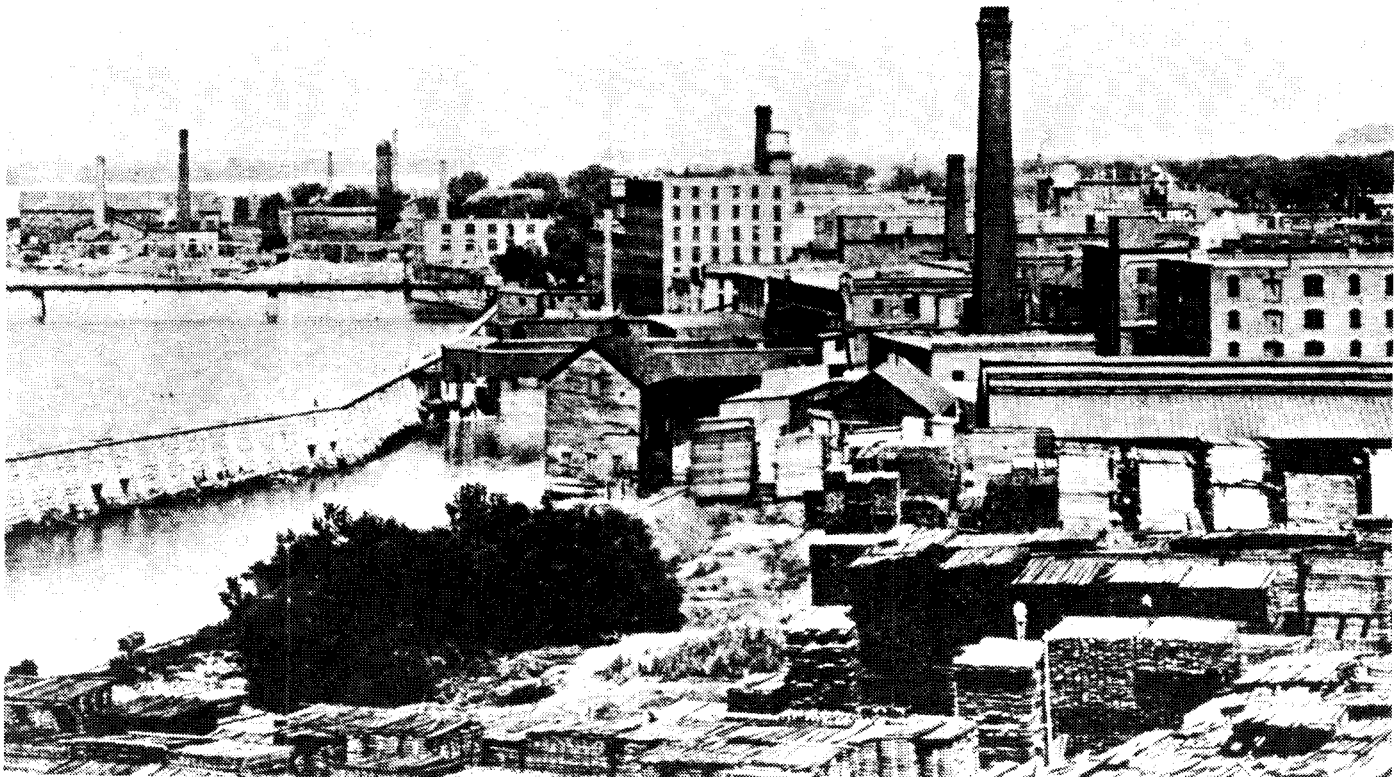
rent or fees from nearby factories using their water power.¹⁰⁷

Flagler reflected in his *History of Rock Island Arsenal*, that the one-fourth agreement, in exchange for the arsenal's use of three-fourths of the water power was the key to the government's difficulties with the Moline Water Power Company. Flagler wrote:

... It is presumable that the right of the company could have been purchased for less sum than this (\$500,000) and the United States would have been left sole owners of all the power, and would have been free from a troublesome, 'entangling alliance' with a private corporation.¹⁰⁸

Congress passed a joint resolution empowering the secretary of war to administer the recommendations of the 1864 and 1866

Below: Moline lateral dam and water power pool, looking northeast. The development of waterpower by the Rock Island Arsenal attracted businesses to the area. John Deere and others relocated their businesses in Moline, Illinois.



commissions to adjust claims stemming from actions taken by the government to regain complete possession of the island.

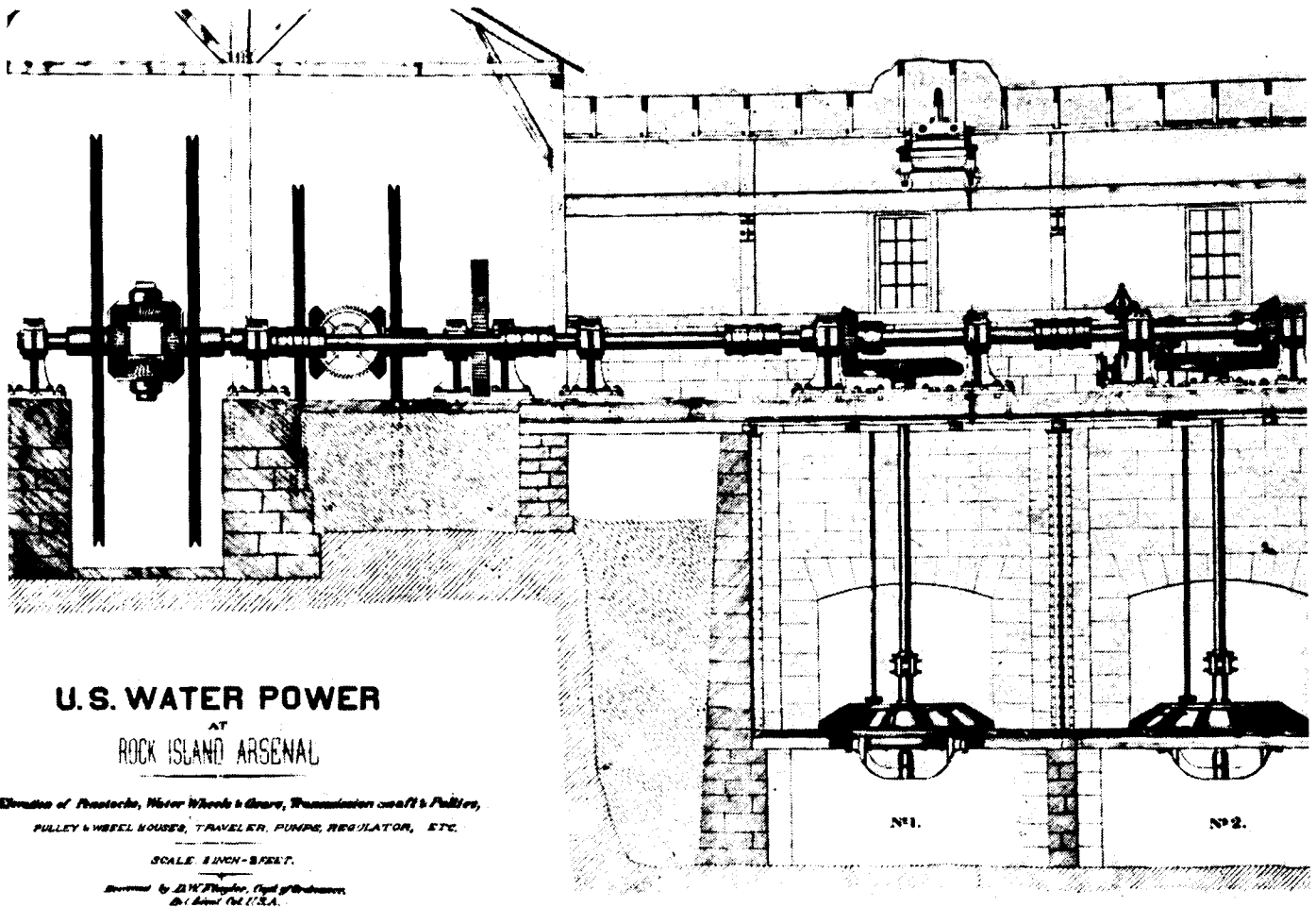
The joint resolution enabled the acting Secretary of War General Ulysses S. Grant to enter into an agreement regarding water power for the arsenal at Rock Island. In accordance with this resolution, the United States and the Moline Water Power Company signed a contract, dated 18 June and 20 August 1867. The contract, which included the recommendations of the commissioners, became the basic agreement between the federal government and the Moline Water Power Company.¹⁰⁹ The Moline Water Power Company later, however, filed several complaints against the United States Government for not fulfilling the terms of this contract. In 1869, the plan for water power development at Rock Island was modified to include the construction of two dams: the Moline (lateral) dam; and the Rock Island Arsenal dam.¹¹⁰

The lateral dam stretched from the Moline shore, at the point where the buildings of the Moline Water Power Company were situated, downstream approximately one mile to a portion of the Moline mainland which jutted out into the slough. Colonel Rodman selected the narrowest point in the slough for construction of the arsenal dam across the south channel.

Before the use of electricity, power had not been transmitted over a great distance very successfully. The crude technology of the 1860s and 1870s precluded the long distance use of electricity. Only those buildings and factories situated in the immediate vicinity received adequate power. For this reason two dams were necessary, the lateral dam at Rock Island was constructed parallel to the Moline shore so that private factories along the shore with river frontage to the slough could directly receive water power.

Likewise, the Rock Island Arsenal needed its dam constructed nearer to the arsenal shops.

Below: A rear sectional view of the complete power assembly with power-house as designed by RIA Commander Lieutenant Colonel D. W. Flagler. Note the two water wheels at the bottom right of photograph. When the gates were opened, water rotated the vertical shaft from the wheel to power-house which, through the use of gears, rotated the horizontal main drive shaft which turned the large 15-foot drive wheel. A series of pulley-like cables operating on towers mechanically transferred the power from the station to the southern row of shops on Rodman Avenue.



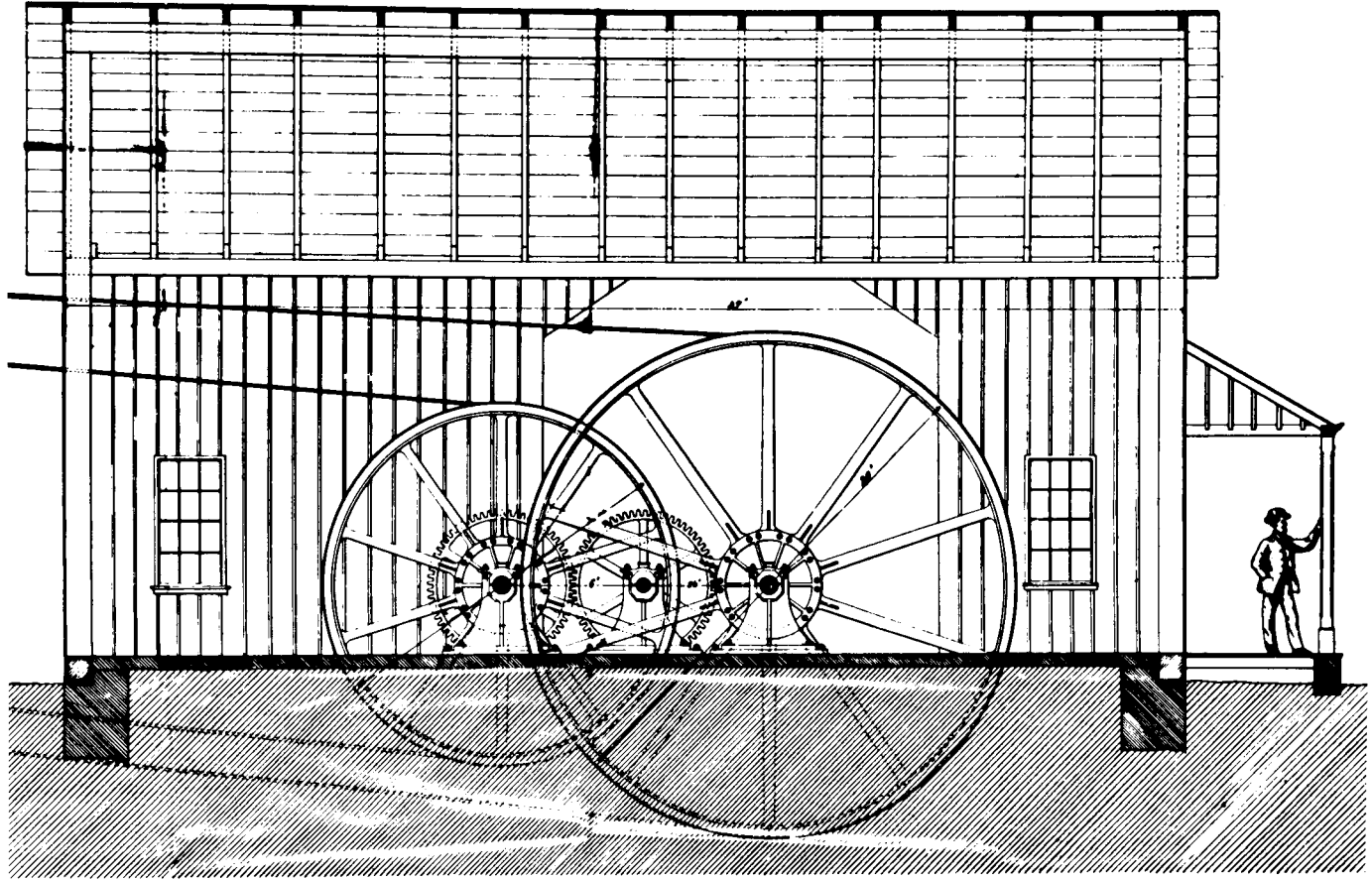
The Moline and Benham's Island dam sites were too far from where the arsenal shops were being built to be considered adequate sources of power for these shops.

John Deere, DeWitt Dimock, John Gould, and Charles Atkinson were among the investors that had an interest in the development of Moline's river front property. The government's drive to regain possession of the entire island of Rock Island included the accesses and water power to the island which forced several private firms operating on Rock Island to relocate. Dimock & Gould, and Company, a woodenware and lumber firm, moved its business from the island and reestablished it along the Moline shore to take advantage of the water power under development.

The Spring flood of 1868 partially washed away the old Moline dam. The Moline Water Power Company urged the Rock Island Arsenal to remove the damaged dam and to construct the proposed lateral dam. The remaining portion of the old Moline dam accumulated dirt, timber, rock, brush, garbage, and silt deposited around the dam.

In addition to developing water power, another objective of the parties involved was to control the flood waters of the Mississippi River. Besides carrying away portions of the old Sears dam, the flood of 1868 also washed away the old wooden bridges which connected Moline to the island, and connected the city of Rock Island to the island.¹¹¹ Moline investors viewed the results of the flood as an opportunity to replace the

Below: Sketch of powerhouse and drive wheels of the power assembly as designed by Brevet Lieutenant Colonel D. W. Flagler.



crudely constructed old Moline dam with a new federally built one, which would increase the value of Moline's river front property.

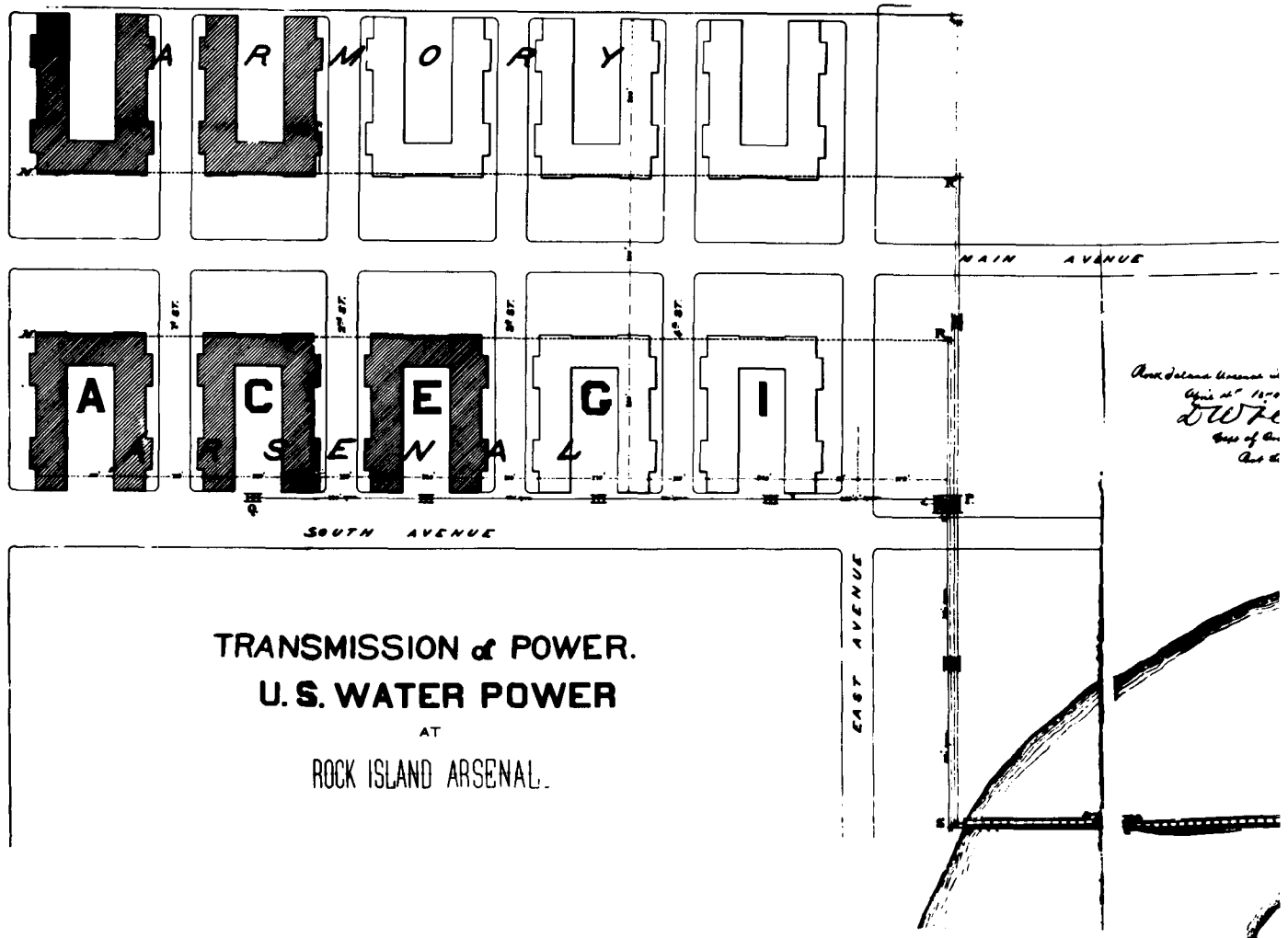
After the Spring flood of 1868, the work of removing the old dam and building the new Moline (lateral) dam was done simultaneously. Unfortunately, flood waters struck again in the fall of 1869 and carried away portions of the coffer dam walls being erected. Moline Water Power Company, anxious to have the water power project advanced to the point where it could begin using the power, offered to share in the repair of the dam. Colonel Rodman, representing the government, reached an agreement with the Moline Water Power Company on 28 October 1869. Under the terms of the agreement Moline Water Power Company replaced the coffer dam walls, and the arsenal agreed to remove the old Moline dam and begin work on the new lateral dam wall. In order for these projects to proceed, portions of the slough were drained of water at the work sites. Cofferdams made this work possible by creating a

temporary watertight enclosure. The enclosed area then was pumped dry exposing the river channel bottom so that the work could proceed at the old and the new dam sites. Mr. S. W. Wheelock, Moline Water Power Company, supervised the Moline firm's part of the project, and Captain Morris Shaff of the Rock Island Arsenal was in charge of the government's work at that time.

The dam wall was completed in December 1869, with the exception of 100 or so feet at the wall's lower end, which was not built until 1871-1872. The cofferdams were removed in the spring of 1870, and Moline Water Power Company began using the water power in August 1870.¹¹²

Moline's lateral dam contained a series of flume openings or chutes, each with its own gate house. Each gate house contained an individual turbine or wheel which transmitted power mechanically by turning a shaft or cable that led directly to the factory. In a sense, each factory had its "own miniature" water power plant.

Below: The 1874 plan of the Telodynamic Power System at Rock Island Arsenal. Lines "MR" in front of each row of shops depict proposed underground shafts whereas lines designated "QPS" represented the reduced system which was eventually installed. Under this plan lines of wire rope were used to transmit 300 horse power to the arsenal shops for immediate use.



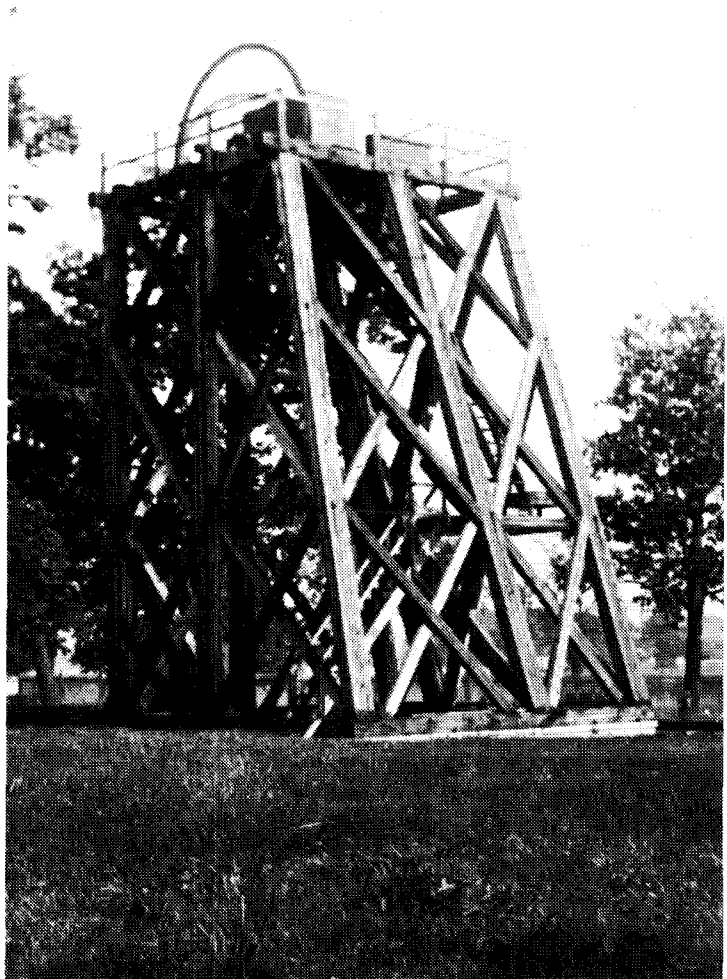
Unfortunately for Moline, the south channel was lower towards the Moline shore than towards the Arsenal Island's side of the channel, and this low water area behind the lateral dam became a stagnant collection point for debris and dead animals which caused sanitation hazards.¹¹³

In 1869, the original plan was revised to include the excavation of a tail race canal constructed by the Rock Island Arsenal to carry-off the stagnant water and debris that had collected behind the dam wall. Under this agreement, the government was required to dig a canal through that portion of Moline which jutted into the slough. In addition to the canal, the government had to construct dikes along the Moline shore to protect against high water. The digging of the canal turned out to be a major undertaking for arsenal commanders, Rodman and Flagler. In June 1871, Colonel Rodman died,

and his successor, Major Daniel W. Flagler, inherited the unfinished water power project. The project included blasting a canal 2,000 feet long and 200 feet wide through solid rock to the depth of the river bed. Once completed, that portion of the land cut off from the canal formed an island known as Sylvan Island. Major Flagler later wrote that: "Rock was found generally two feet under ground, and nearly the whole excavation (of the canal) was through limestone containing flint, and difficult to work."¹¹⁴ Flagler provided the following details pertaining to the work performed in the slough. He recalled that:

... The rock taken from the canal and not used in the dike was deposited in large mounds or "dumps" on the Moline Company's land near the canal, and has been used very considerably

Right: Telodynamic tower and wheels used to transmit power over wire cables to the rear of shops on south side of Rodman Avenue. This tower was situated east of East Avenue and south of Rodman Avenue.



since in building roads, foundations etc., for the arsenal. Large quantities of it have also been used in the same way in (cities of) Moline and Rock Island.

The rock had to be blasted throughout, and was hauled in wagons both to the "dumps" and the dike. A good deal of expense was incurred in maintaining roads for hauling over the rough deposited rock on the dike, movable plank ramps were required to enable the teams to get down off the dike and another road along the foot of the dike was required for returning teams.¹¹⁵

Captains Morris Schaff and A. Mordecai were in charge of the excavation and dike work. They were assisted by Captain M. L. Poland, Lieutenant Charles Shaler, and Lieutenant Wright.

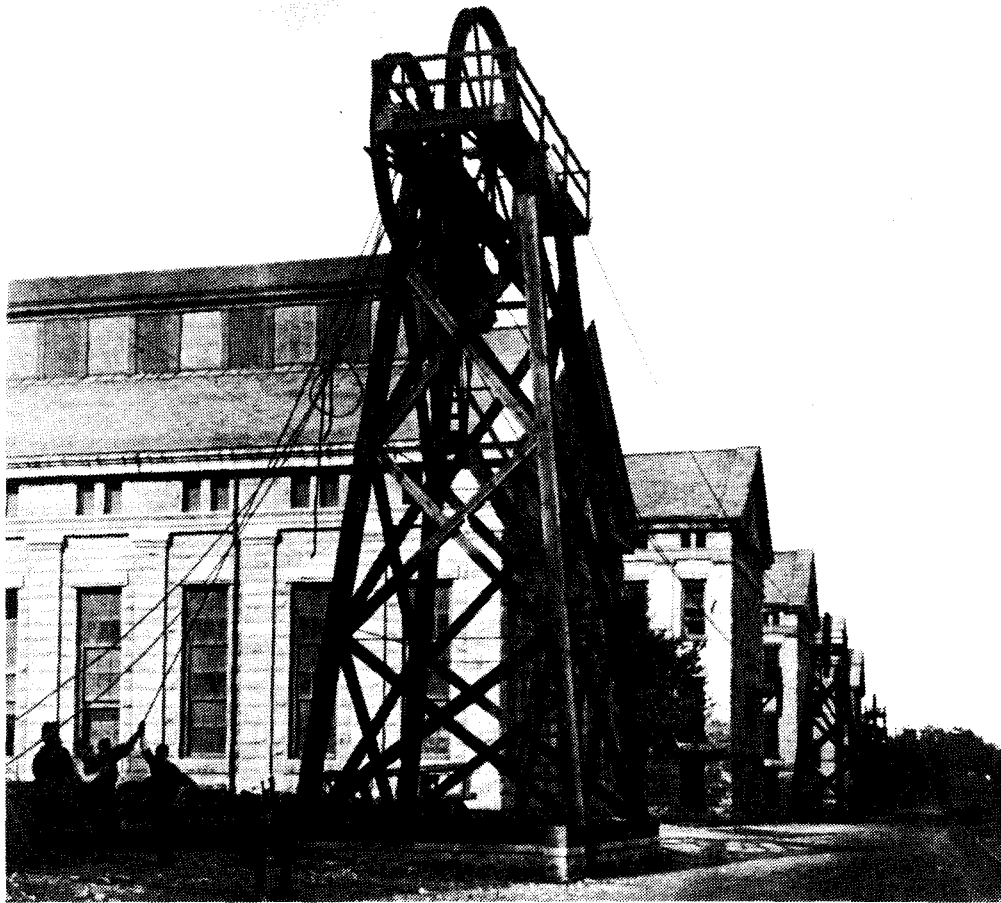
The federal government undertook the expense of excavating a canal and building dikes in such a manner as to meet the terms of its agreement with the Moline Water Power Company. The cost of building the 4,000 feet long dam wall and excavating the 2,000 feet long canal was nearly \$500,000 in 1872. The workforce building the dam and dikes, and excavating the canal increased to 900 workmen and 75 teams during the fiscal year ending 30 June 1872.¹¹⁶

Work on deepening the canal continued into the latter months of 1871. Heavy rains and cold

weather delayed the progress of the arsenal workmen. On 23 December 1871, high water broke the coffer dam, and a few days later the temperature plunged to 16 degrees below zero fahrenheit. The pumps stopped operating due to the cold weather and work was abandoned until the next spring.¹¹⁷

The canal was finally completed in the Fall of 1872, but not without strained relations. Mill owners whose businesses were interrupted by the loss of power caused by the closing of their chute openings during the excavation of the canal challenged the arsenal commander's authority to close the gates. Taking matters in their own hands, several mill owners reopened the gates without the arsenal commander's permission and discharged water through the canal. As incoming water forced Major Flagler's workmen to suspend their work and as the water threatened to collapse the coffer dams, the

Below: Arsenal workmen installing cable to towers which stood behind the south row of shops, known as Arsenal Row. The Rock Island Arsenal initially used this method of cables and towers, known as the telodynamic system, to mechanically transfer power from the powerhouse adjacent to the arsenal dam to these shops, particularly shops C (building 104), and E (building 106).



situation became volatile. Mill owners threatened to shoot anyone who tried to close the gates. In turn, Major Flagler resorted to using soldiers to secure the gates. Considering the expense and difficulties encountered by the arsenal in its efforts to meet the terms of the agreement, it might have been more economical for the government to have purchased the complete rights of the Moline Water Power Company, than to have entered into a joint enterprise with them.¹¹⁸

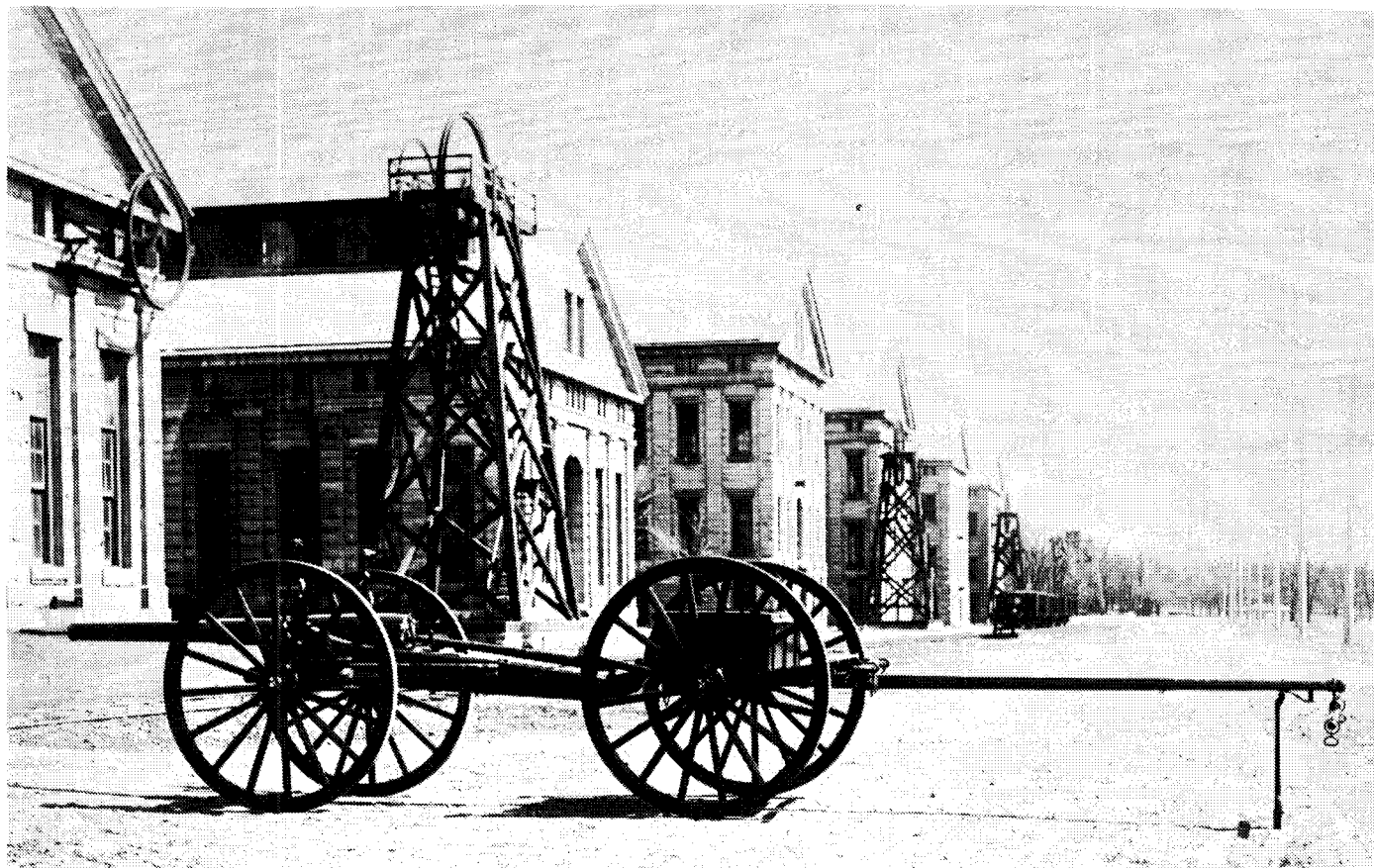
Arsenal Dam and Power Systems

In July 1872, the secretary of war approved construction drawings of an arsenal dam between Rock Island and Sylvan Island. A board consisting of three ordnance officers, appointed by the chief of ordnance, visited the Rock Island Arsenal to examine plans for the arsenal dam and water power system. A major obstacle in

devising a transmission system was the distance between the source of power and the buildings where the power was to be used. Electrical power was not yet feasible and steam was too expensive to use on such a large scale. The arsenal, therefore, devised a system by which power could be transmitted mechanically from the dam to the arsenal shops.

Initially, four methods of transmitting power to the arsenal manufacturing buildings were considered: Compressed or condensed air; a rigid covered shaft system using tunnels to connect to the shops; a telodynamic or wire-rope (cable) system; and a combination wire-cable and shaft arrangement. After four days of review, the board of officers approved combining the telodynamic wire-cable system with the shaft method. By combining the two systems, the Rock Island Arsenal could temporarily set up a wire-rope or telodynamic system that would be

Below: Rear view of Arsenal Row, showing the telodynamic system. Shop E (building 106) had a cable stretched from the tower to a large wheel attached to the rear of the building. Note small RIA produced 3.2-inch gun carriage in foreground.



economical to install and would allow time to further develop the more complicated rigid shaft system.¹¹⁹

Using the telodynamic system to transmit power over a great distance had yet to be tried in America. Major Flagler corresponded with several European firms that had manufactured wire-rope and had built telodynamic systems in Germany and other European countries.

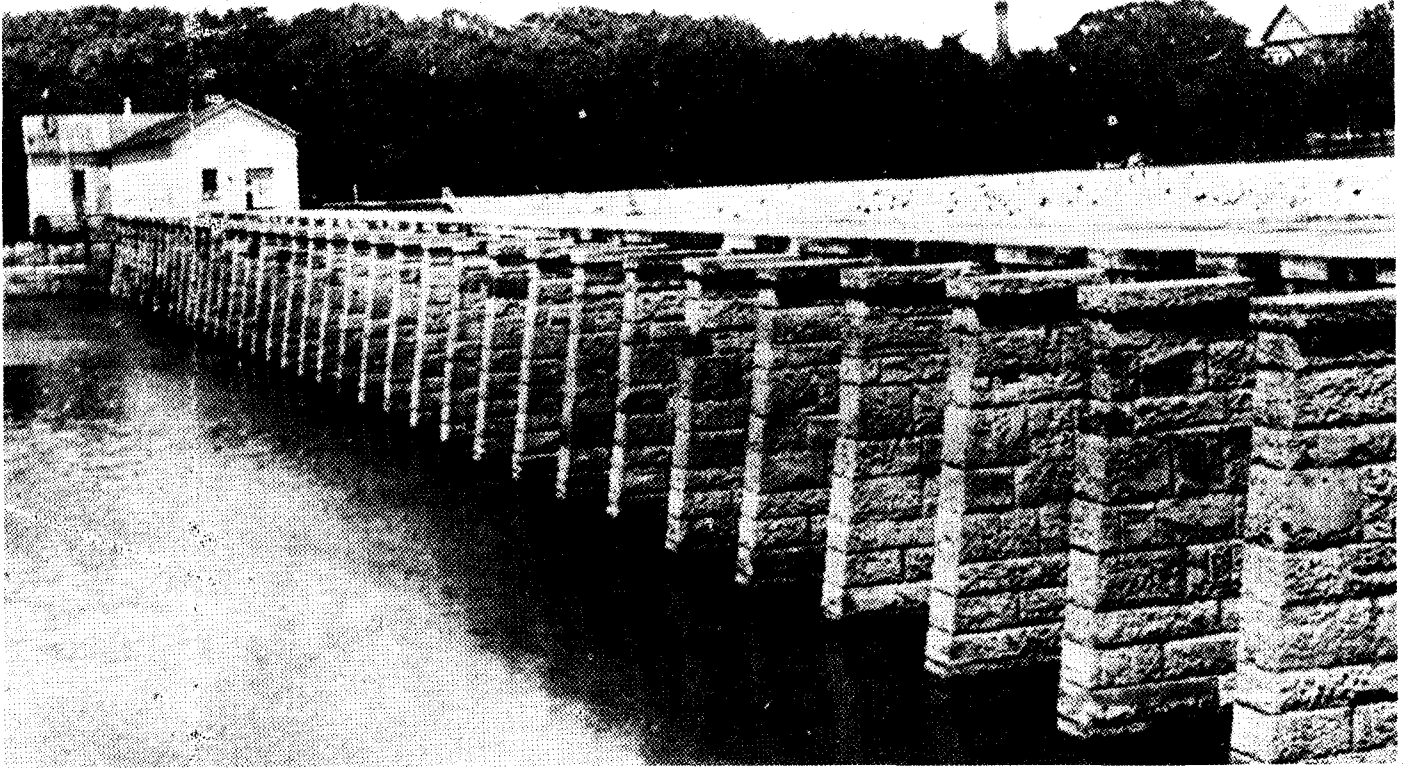
The telodynamic system mechanically transmitted power to the arsenal shops by using water, which passed through openings at the dam, to rotate turbines. The rotation of the turbines was transferred through gears which, in turn, rotated a large drive wheel. This wheel, 15 feet in diameter, functioned as a large drive pulley from its location inside a powerhouse adjacent to the dam. An endless cable loop extended from this ground station northward along First Avenue to a pulley at the top of a tower. From there, wire-cables, one-inch in diameter, formed loops which turned additional elevated wheels at the rear of the shop buildings

situated south of Rodman Avenue. Long main drive shafts ran just below the ceilings of each shop area, constantly rotating when the telodynamic system was activated. Individual machines were powered by engaging a clutch drive belt connected to the overhead shaft.¹²⁰

Beginning in 1874, Major Flagler had all gear work and shafting for the power system manufactured at Rock Island Arsenal's foundry and shops, and in conjunction with the power system, Major Flagler ordered metal to produce the castings needed for the power system.

In the mid 1870s another controversy between the federal government and Moline Water Power Company occurred. Brigadier General Stephen V. Benet, chief of ordnance, visited Rock Island Arsenal in May 1875, and made a complete inspection of the water power projects at Rock Island. The following February, Major Flagler traveled to Washington, DC, to participate in discussions with officials of the Moline Water Power Company, their attorneys, the secretary of war, and the army's chief of ordnance. No

Below: Rock Island Arsenal dam, circa 1879. Note location of shops in background to dam.



solutions to the conflicts between the government and the Moline Water Power Company were arrived at as a result of these discussions. The Moline Water Power Company was anxious about the completion of a variety of water power-related improvement projects.

During Major Flagler's term of command the following water power related projects were completed:

1. A stone dam wall 2,307 feet long, 18½ feet high above the river bed; 8 feet thick at the bottom, 3¾ feet at the top, strengthened by buttresses 3 feet wide and 3 feet thick at the bottom and placed 13 feet apart. The wall had at least 37 openings or chutes for use by the Moline Water Power Company.
2. A tail race canal carved through solid limestone 2,000 feet long and 200 feet wide.
3. A stone dam dike along Sylvan Island which connected the lateral dam wall with the government dam.
4. A masonry dam wall, laid with

dressed stone, extending from the end of the dike to the shore of the island of Rock Island, near the shops. This dam wall had 40 openings for water wheels.

5. A power house and line of towers to transmit the power from the dam to the shops by means of wire-cable.

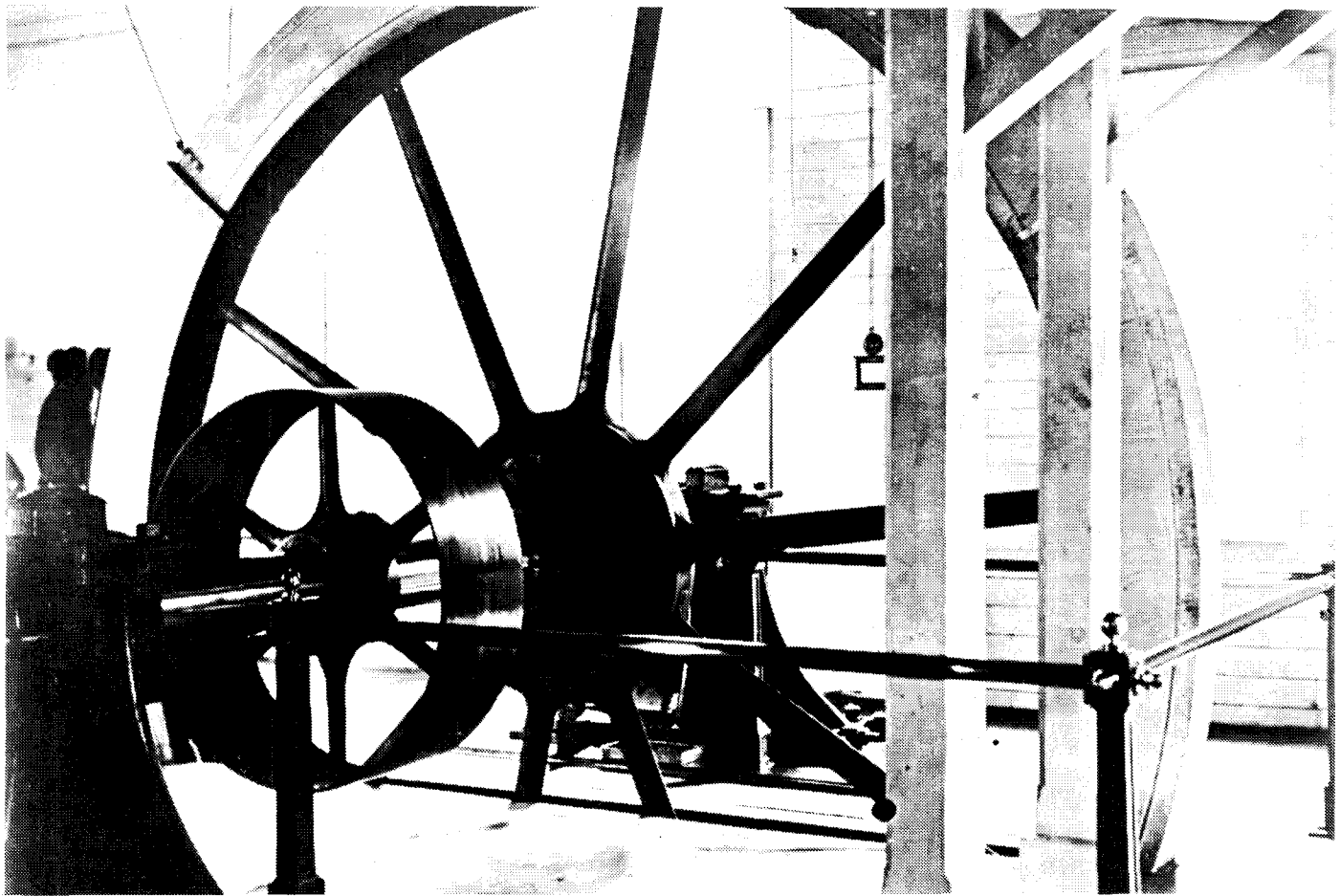
6. A stone dike about one-and-a-half miles long, edging the shore of the island to its head to protect against flooding in low places.

7. A wing dam extending up the Mississippi River approximately 2,000 feet.¹²¹

However, Major Flagler's achievements did not escape criticism from the Moline Water Power Company. Throughout Major Flagler's and his predecessor, Colonel Rodman's terms as commanding officers of the Rock Island Arsenal, the Moline Water Power Company contended that the government had not fulfilled its contractual obligations.

In an effort to resolve these differences, Congress passed a resolution on 3 March 1877

Below: A close-up view of the 15-foot high drive wheel inside the Rock Island Arsenal powerhouse.



that formed yet another commission. This commission reviewed all contracts entered into between the United States Government and the Moline Water Power Company. George W. McCravey, secretary of war, appointed three officers to the commission: Brigadier General A. A. Humphries, chief of engineering, U.S. Army; Lieutenant Colonel H. G. Wright, U.S. Army, Corps of Engineers; and Major Henry L. Abbot, U.S. Army, Corps of Engineers. They were appointed by Special Order No. 72, dated 5 April 1877. After concluding its study, the commission submitted its report to Congress in June 1877. The report essentially stated that the allegation by the Moline Water Power Company that the United States Government had not complied with the terms of its agreement of 1867, could not be supported.¹²² The Moline Water Power Company countered the decision of the commission by filing a lawsuit in the U.S. Court of Claims against the United States Government. The case was eventually dropped by the court due to lack of prosecution on behalf of the

Moline Water Power Company. The telodynamic system was installed in 1878, and the first use of arsenal water power in the shops occurred in February 1879. All the shops that comprised Arsenal Row on the south side of Rodman (Main) Avenue, with the exception of shop A, had access to the power carried by the telodynamic system. However, only shops C and E actually received power from the wire-cable and tower arrangement. Of the two, shop C consumed the greater amount of the power since the arsenal's early manufacturing operations took place in that building. Shop E, being the foundry, did not require as much power. The U.S. Government and the Moline Water Power Company negotiated a new contract which was signed by the president of the water power company and the secretary of war on 28 August 1882. The new agreement listed work yet to be performed by the government and the funds necessary for those projects. The work included improving the water power pool; deepening the canal; placing six new openings or chutes for water wheels in the

Below: A view of the Rock Island Arsenal water power dam under construction, dated 19 October 1889. Note: The crew in the right foreground operated in teams of three while "double jacking" or driving the iron spike into the bed-rock. One workman held the spike and rotated it as the other two drove it in the rock with sledge hammers. Also note the arsenal stone shops and power tower visible among the trees in the background.



wall or dike; and reserving any unused balance of funds for future development and maintenance of the water power system. According to the Moline Water Power Company, once this was accomplished, the company would fully discharge the United States Government of any further obligations to develop water power.¹²³

Water Power Related Projects Provided Jobs for Tri-Cities

Practically on an annual basis, from 1867 to well past the turn-of-the-century, Congress appropriated funds for the construction of water power related projects at Rock Island. The tri-cities communities which then surrounded Arsenal Island benefited economically from the federally-financed projects. For over a 40-year period, Congress had appropriated more than a million dollars for development of water related improvement projects at Rock Island. A large share of that sum went to local tri-cities firms and laborers hired as day workers or contracted for

longer periods of time on these projects. At times, close to a thousand workmen were employed by the Rock Island Arsenal to work on the various improvement projects being completed in the south channel of the Mississippi River and above Benham's Island in the Main Channel.

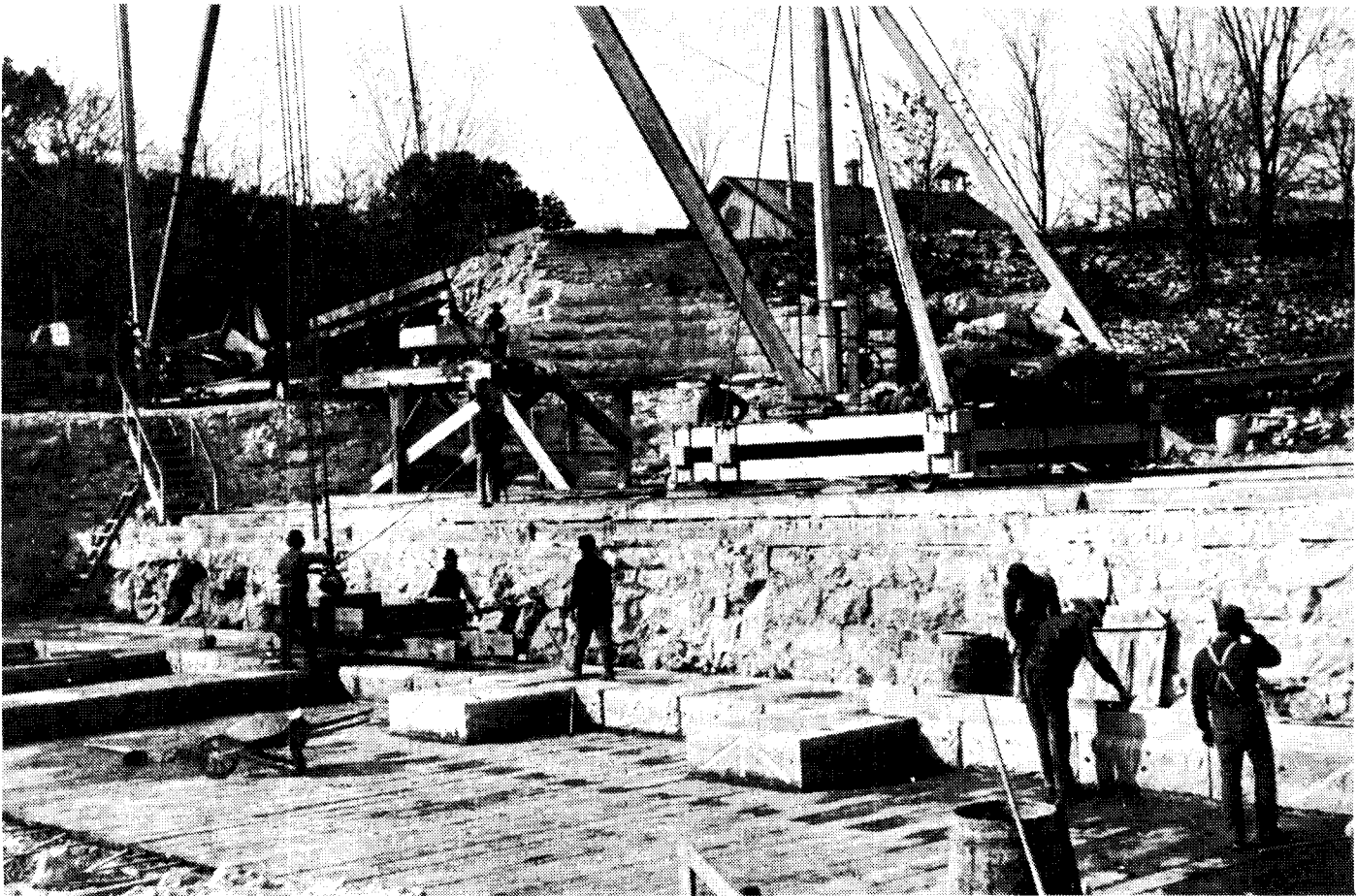
Advertisements soliciting sealed bids for a variety of labor appeared routinely in local newspapers. As an example, the Moline *Review-Dispatch* printed the following announcement inviting bids for blasting and hauling rock from the water power pool at the Rock Island Arsenal.¹²⁴

PROPOSALS FOR BLASTING AND HAULING ROCK

ROCK ISLAND ARSENAL, IL, May 14, 1881

Sealed proposals are invited for blasting and hauling in wagons, about 20,000 cubic yards of rock, from the water power pool at this Arsenal,

Below: Workmen laying first course of stone at the east end of construction for the arsenal dam, dated 28 October 1889. Note the roof of the main pulley house in background.



between August and November 1881.

Plans and drawings can be seen and specifications and forms for bids can be obtained at this office.

The successful bidder will be required to give good and sufficient bonds for a faithful performance of the work.

The United States reserves the right to reject any and all bids. Bids will be opened at 10 A.M., May 31, 1881, and bidders are invited to be present.

D. W. Flagler,
Major of Ordnance
Commanding

By 1890, the combination of wire-cable and rigid shafting to generate power was inefficient and obsolete. The arsenal's makeshift arrangement, at best, provided only limited power to a portion of the arsenal shops. Frequently power failures occurred due to friction which jammed the shafts; and at times,

due to cables which snapped or developed too much slack.

Also by 1890, technology in the transmission of power had advanced to such a degree that it became feasible to update the Rock Island power system. Arsenal Commander Colonel James Whittemore in 1890 recommended to the chief of ordnance that the arsenal's telodynamic and shaft system be abandoned in favor of electricity. His recommendation did not receive immediate action by the chief of ordnance other than ordering additional studies be done of the arsenal's water power system. The arsenal's wire-cable and rigid shaft system had at that time provided enough energy for the relative light arsenal workload being done in shops C and E. Despite improvement to the dam and construction of a frame powerhouse in 1892, it became apparent the arsenal's water power was no longer adequate. In 1899, a fire destroyed the arsenal's wooden frame powerhouse, thereby placing the installation's power plant out of commission. The army, not wishing to expand

Right: A copy of a photograph included in the Annual Report of Chief of Ordnance, 1892, depicting workmen operating electric drills to break up the solid rock portions of the river bed and deepen the water power pool.

Left: Workmen building coffer dam during winter of 1891. Coffers dams were used to hold back the water so that construction of the dam and deepening of the water power pool could be accomplished.



an inadequate, obsolete power system, decided instead to modernize the Rock Island Arsenal's entire power system by switching to hydroelectricity.

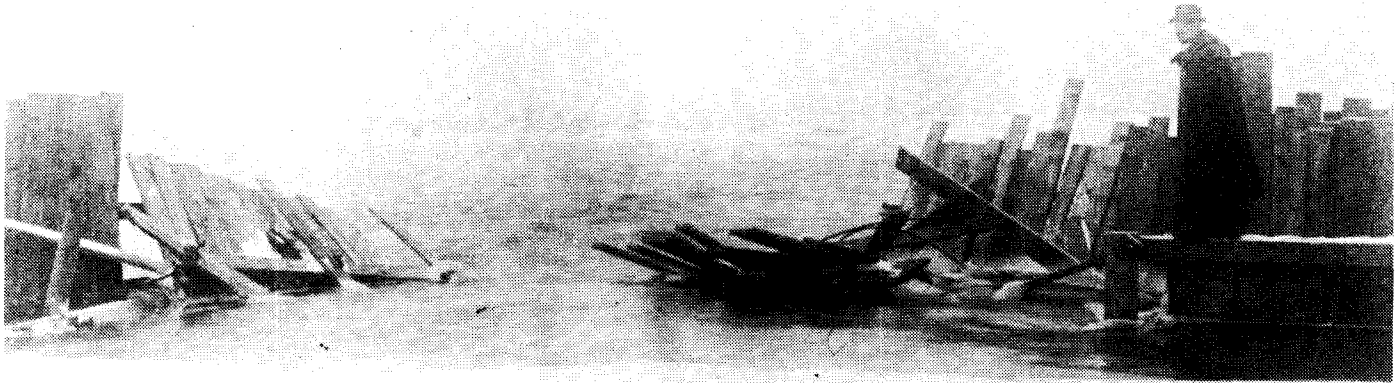
Additional Water Power Related Projects

In 1896, a new concrete dam was constructed for the Moline Water Power Company between Sylvan Island and the Moline mainland. The old Moline dam tail race, no longer needed, was filled in and was used as a railroad bed. All that remains today of the Moline's lateral dam are a couple of gate houses. The extension of the wing dam up river nearly two miles to the Duck Creek chain of rapids in the Mississippi River's main channel was completed in 1899.¹²⁵

At times, the annual appropriation for water power-related projects was greater than that appropriated for the construction of the arsenal itself. Congress passed the following acts for the development of water power at Rock Island Arsenal:¹²⁶

| ACT | APPROPRIATION |
|----------------------|---------------|
| Act of June 27, 1866 | \$100,000 |
| Act of June 8, 1868 | 80,000 |
| Act of March 3, 1869 | 150,000 |
| Act of July 15, 1870 | 20,000 |
| Act of March 3, 1871 | 20,000 |
| Act of June 10, 1872 | 110,000 |
| Act of March 3, 1873 | 18,000 |
| Act of June 23, 1874 | 5,400 |

Below: In 1892, the coffer dam collapsed under the pressure of high water caused by an ice gorge; repairs delayed the completion of the water development project.



CONTINUED:

| ACT | APPROPRIATION |
|------------------------|--------------------|
| Act of March 3, 1881 | 50,000 |
| Act of August 7, 1882 | 100,000 |
| Act of March 3, 1883 | 20,000 |
| Act of July 7, 1884 | 18,500 |
| Act of October 2, 1888 | 275,000 |
| Act of August 30, 1890 | 101,000 |
| Act of July 1, 1898 | 45,000 |
| Act of March 3, 1899 | 21,350 |
| Act of March 3, 1901 | 130,000 |
| Total | <u>\$1,624,750</u> |

Extraordinary repairs to the Rock Island Arsenal water power were provided by the following appropriations:¹²⁷

| ACT | APPROPRIATION |
|------------------------|------------------|
| Act of October 2, 1888 | \$25,000 |
| Act of August 18, 1894 | 30,000 |
| Act of March 2, 1895 | 37,500 |
| Act of June 4, 1897 | 28,150 |
| Act of June 6, 1900 | 97,000 |
| Act of May 27, 1908 | 28,500 |
| Total | <u>\$246,150</u> |

Right: The Rock Island Arsenal provided ordnance stores to troops stationed along the western frontier. From the Battle of the Little Big-Horn in 1876 through the Battle of Wounded Knee in 1891, the RIA manufactured and supplied weapons and equipment used by frontier soldiers, such as those pictured guarding captured hostile Sioux Indians who had participated in the massacre of Custer and a portion of his 7th Cavalry at the Little Big-Horn, in Montana.

Left: A late 19th century view of RIA gun yard, probably taken on a Sunday afternoon outing on Arsenal Island.



CHAPTER SIX

19th Century RIA Operations

During its first decades from 1863 to 1893, Rock Island Arsenal's activities consisted primarily of building construction; water power development; and organization of a storage depot. However, as early as 1869, with barely more than the Clock Tower Building completed, Colonel Rodman had arsenal workmen cleaning, repairing, and packing breech-loading rifles, infantry accouterments, and artillery equipment. In his report to the chief of ordnance for fiscal year 1869, Rodman alluded to the fact that Rock Island Arsenal workmen cleaned and repaired 55,361 pieces of infantry equipment and 503 sets of artillery harnesses. Practically all of this work was completed by hand.¹²⁸

Noteworthy was the fact that Rock Island Arsenal depot operations developed earlier than the arsenal's manufacturing operations. The

Union Army began storing military equipment on Rock Island at the end of the Civil War, and its depot activities expanded into the 1870s. After the Civil War, the army reorganized and closed several storage depots in different states. The Army's Ordnance Department then transferred the holdings of those closed depots to Rock Island. Because of its strategic location, the arsenal served as a repository for ordnance stores which, in turn, could easily be shipped by river or train to western military posts during times of Indian hostilities. After 1875, the Rock Island Arsenal supplied practically all the ordnance stores required by the army in the west.

While depot activities expanded during the 1870s, construction of the Rock Island Arsenal continued. By 1875, manufacturing shops B (building 60), C (building 104), D (building 62), and E (building 106) had been completed. In addition, shop A (building 102) and shop F (building 64) were under construction. In May

Right: A still life of the leather accouterments produced by the RIA Harness and Accouterments Shop. The Rock Island Arsenal manufactured harness and cavalry leather equipment from 1875 to 1921 when the mission was transferred to Jefferson Depot in Indiana.



1875, Brigadier General Stephen V. Benet, chief of ordnance, arrived at Rock Island to inspect the construction at the island and was impressed with the progress. He then instructed Major Flagler, the arsenal commander, to begin manufacturing operations.¹²⁹

At first, items such as waist-belt plates were produced at the arsenal in limited quantities. Eventually, orders for other military equipment increased in volume and in importance. New missions or functions were also awarded to the Rock Island Arsenal and some of the arsenal's current functions were expanded.

In November 1875, General Benet sent the Rock Island Arsenal commander an order for 3,000 sets of infantry equipment and 3,000 saddles.¹³⁰ On 7 December 1875, an article appeared in the Rock Island *Argus* newspaper announcing that:

... Some 50 to 60 men are employed at Rock Island Arsenal manufacturing infantry equipment, covering saddles

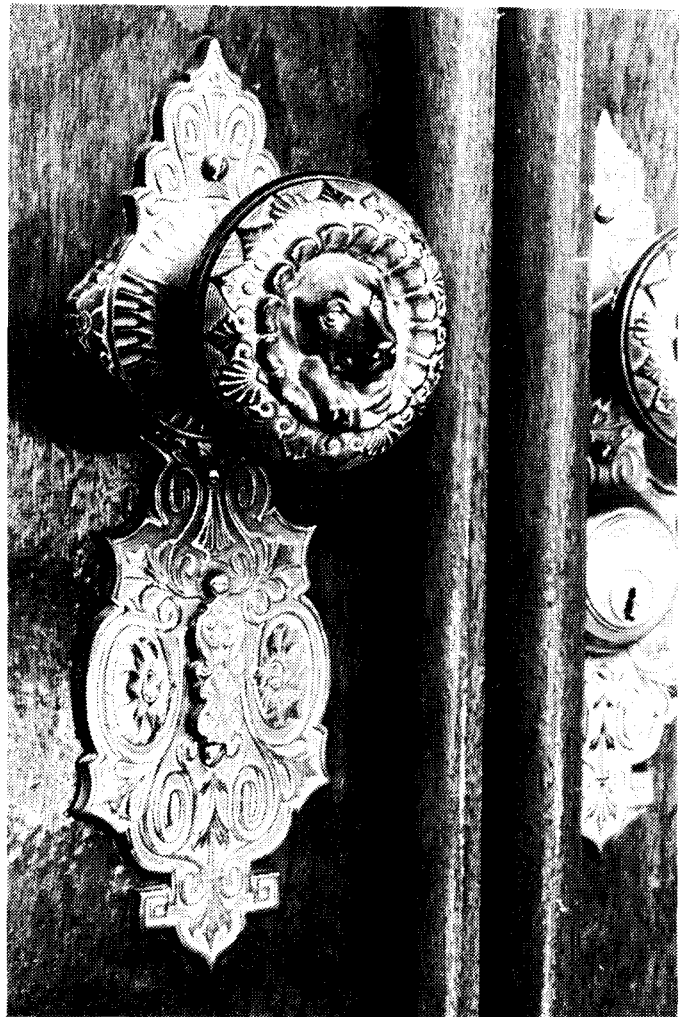
and doing miscellaneous leather work for the cavalry arm of the service. This is the first manufacturing ever done in the way of equipments for the Army at this Arsenal.¹³¹

In 1875, Brigadier General Montgomery Meigs, quartermaster general, directed a board of officers to develop army standards for heating buildings, and at the same time established general specifications for size and construction of army stoves. In November 1875, officers completed their design of army-issue stoves which included cast iron and wrought iron wood and coal heaters and cooking ranges.

On 28 August 1876, the Quartermaster Department solicited bids for the production of 160 heating stoves and 40 cooking ranges. The Ordnance Department submitted the low bid on the cast iron heaters, and received a contract to produce 100 stoves at the Rock Island Arsenal. The arsenal also received production orders for 60 wood and 40 coal heaters. In addition to the

Right: Ornate brass door hinges and knob sets cast by the RIA foundry still accent the Commanding Officer's Quarters. Note the key hole cover below the knob in the photo.

Left: Mr. David C. Thompson was the Rock Island Arsenal's first foundry foreman. He started supervising the shop in 1871, and retired at the age of 81 in 1910. He had a fine reputation as a molder.



Rock Island Arsenal, two private contractors were awarded contracts to manufacture stoves to army specifications.

In 1878, the Rock Island Arsenal produced 201 heating stoves and became the army's primary producer of stoves. Two years later, in 1880, the arsenal delivered 256 stoves for army-issue and subsequently received an additional order for the production of 276 stoves to be completed in 1881. By the mid-1880s, many army barracks were heated by general issue stoves manufactured at the Rock Island Arsenal.¹³²

Earlier, in 1875, the Rock Island Arsenal's manufacturing operations included a harness shop, a carpenter's woodworking shop, a cloth and canvas shop, and an equipment shop. The arsenal also had a machine shop, blacksmith shop, foundry, and polishing and plating departments. Prior to the Spanish-American War, Rock Island Arsenal manufacturing focused primarily on the construction of arsenal buildings. The arsenal's carpenter shop produced doors and window frames for the

buildings under construction. Arsenal carpenters also made furniture for the officers' quarters and desks for the offices.

The Rock Island Arsenal foundry fabricated construction material and shop equipment during the latter part of the 1880s. Castings of brass hardware, such as hinges, roof straps, and pulleys, had been initially produced in the old temporary wooden forge shop during the late 1860s. Once building 106 (shop E) was completed in 1873, the casting of iron trusses, columns, beams, and staircases were also produced at the island. From 1873 to 1988, building 106 was in continuous operation as the Rock Island Arsenal's blacksmith shop and foundry.

Harnesses were produced at the arsenal from 1875 until the harness department was transferred to Jeffersonville, Indiana in 1921.¹³³ In addition to harnesses, Rock Island Arsenal leather workers covered wooden saddle trees and hooded stirrups with leather. Arsenal workmen also manufactured army leather gun

Below: An oldtimer engaged in the die-cutting of leather used in saddle construction. The worker positioned the leather so that the best possible cut could be made. One of two safety handles which the worker must lower to operate the drop press is visible just to the right of machine.



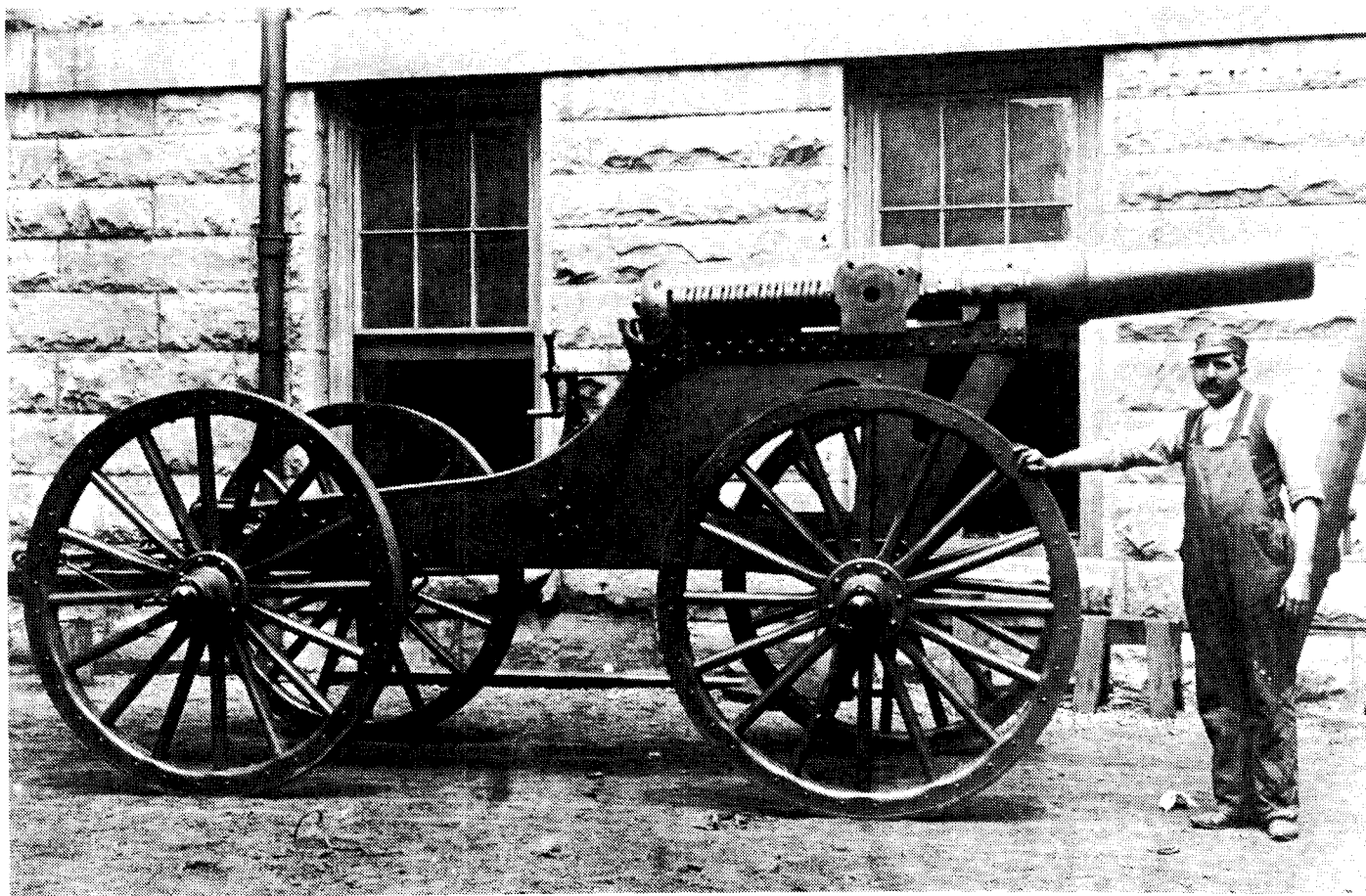
belts, straps, cartridge pouches, saddle bags, gun slings, rifle scabbards, and revolver holsters. The number of harness makers employed at the Rock Island Arsenal prior to the Spanish-American War fluctuated from 12 to 40 with the size of orders received by the arsenal commander. However, the work force of the arsenal harness shop rose to slightly over 1,000 employees during the arsenal's peak manufacturing period of the Spanish-American War.¹³⁴

Because of the demand for harness hardware and repaired rifles, a metal polishing and plating department was established at the Rock Island Arsenal. Workmen in this department polished all sizes of buckles, hooks, buttons, hinges, bites, handles, and scabbards. In addition, rifle barrels, swords, and bayonets were plated and polished by workers in the department. By 1876, arsenal workmen had begun to fabricate and repair haversacks and other canvas cloth-made accouterments for army-issue. During the late 19th century, the woodworking shop

produced wooden saddle trees and arms chests. Besides parts for harness and saddlery repairs, arsenal workmen made buttons for McKeever cartridge boxes, and casts for an order of 1,000 spurs in 1881.¹³⁵ In 1882, a power press for manufacturing metal meat-can handles was installed in the tin shop. As early as 1882, the arsenal was engaged in experimental research and development. The arsenal commander's report to the chief of ordnance for that year included details of an experimental entrenching tool (a spade) manufactured at the Rock Island Arsenal.¹³⁶

In 1885, a jewelry department was added to the equipment shop. Arsenal jewelers produced pins, badges, trophies, and insignias for saddle gear. A total of 5,000 silver marksmen's pins, and 2,000 sharpshooter's badges were manufactured by the jewelry department in 1885.¹³⁷ Also in 1885, the first electroplating at the Rock Island Arsenal was performed in shop C. The shop had a small electroplating machine with a wash tub and pumice stone tray, plus stone jars for

Below: A view of a 7" siege howitzer and metal carriage assembled at the Rock Island Arsenal. The all-metal carriages for this weapon and the extra strength artillery carriage wheels were manufactured at the arsenal.



cleaning and dipping metal. In this shop, officer saber scabbards and metal parts to sabers belts were repaired and replated. Other manufacturing worthy of mentioning during the 1880s included the production of metal skirmish targets and the fabrication of gun carriages. By 1884, steam hammers, heavy punch presses, and shear forging and machine shop equipment for heavier manufacturing were being produced in shop C. In 1886, the arsenal produced harness pack outfits for the Hotchkiss mountain gun carriage.¹³⁸

During 1886, the infantry equipment, cavalry accouterments, horse equipment, material for target practice, artillery harness, field and siege carriages, caissons, battery wagons and forges, and many other articles required by the army, were manufactured at this arsenal.

In the 1890s, the Rock Island Arsenal received additional responsibilities as a result of a reorganization in the army's manufacturing program. The reorganization was spurred by technology developed during the Civil War. In

the 1880s, the Army Ordnance Department designated Watervliet Arsenal near Albany, New York, as the site of the army's new gun tube factory for heavy-caliber seacoast defense cannons. Watertown Arsenal near Boston, Massachusetts, did not have the capacity to produce the heavy carriages for the new seacoast guns and maintain its old production schedules. To expedite work on the heavy carriages, the army selected Rock Island Arsenal to manufacture a portion of the carriages formerly produced at Watertown Arsenal. The RIA began to manufacture field and siege artillery carriages in 1892. In 1893, the RIA completed the last Rodman planned stone shop, shop K, building 68. By 1894, the RIA was producing machine gun carriages; limbers, caissons, battery wagons, and carriages for siege guns. Initially, RIA's machine shop and field gun carriage shop were established in shop C, building 104. However, this peacetime arrangement of equipment and operations were inadequate for the sudden demand caused by

Below: *The Rock Island Arsenal machine shop crew, in 1896. Note the "old world" appearance of several of the workmen. The number of employees in the machine shop totaled only a few hundred prior to 1898. During the Spanish-American War RIA employment reached a pre-WWI peak of nearly 3,000.*



Below: A gathering of Rock Island Arsenal day foremen a few of which, like George Patterson (first on the right, front row) transferred from Springfield Armory and helped establish the RIA's small arms plant after the Spanish-American War.



the Spanish-American War. To accommodate the increased quantity of production orders for leather, tin, cloth accouterments, and gun carriages, the arsenal's machine and field gun carriage shops were moved to shop G, building 108. Mr. George Patterson, master machinist, was credited with organizing the gun carriage operation once it was moved to building 108. Colonel Stanhope Blunt, RIA commander, requested that Mr. Patterson be transferred to RIA from Watervliet Arsenal for precisely that mission. The production of artillery carriages remains one of the RIA's primary areas of specialization to the present time.

The Spanish-American War's Impact on the RIA

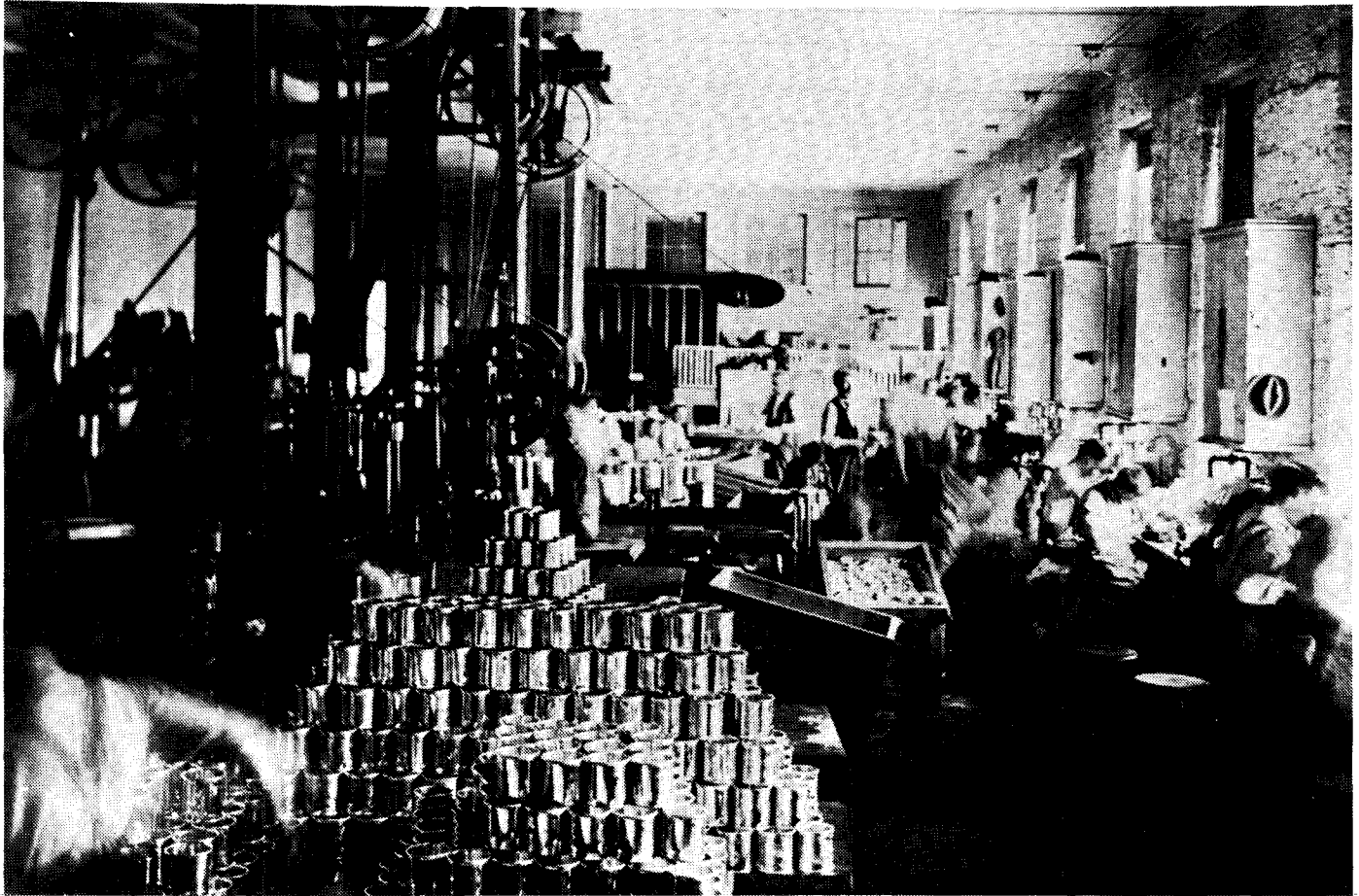
On 15 February 1898, the U.S. battleship *Maine* blew up in the harbor of Havana, Cuba. Many Americans believed that Spain, to whom Cuba belonged, blew up the *Maine*. Congress on 19 April 1898 passed a resolution declaring that the people of Cuba should be free and independent from Spanish rule. It also authorized the

president to use military force to carry out the resolution. On 24 April 1898, Spain retaliated by declaring war on the United States: 24 hours later the United States Congress reciprocated with its declaration of war against Spain.

Demand for War Materials and Supplies

Subsequent to the sinking of the *Maine*, the army discovered it did not have sufficient carriages and harnesses for the field guns it had on hand. Moreover, production of field and siege guns, along with their carriages, needed to be drastically increased. On 9 March 1898, the chief of ordnance sent an urgent message to RIA. The telegram read, "work (should) be pushed (at RIA) on all existing orders as rapidly as possible, and extra shifts of workmen (should) be employed."¹⁴⁰ As the job orders increased, so did the arsenal's employment, and by the end of March 1898 the arsenal's manpower increased to 608 employees. In early Spring of 1898, the RIA commander hosted a conference attended by the commanding officers of Alleghany, Indianapolis,

Below: *The Rock Island Arsenal tin shop, circa 1898. One of the arsenal's earlier missions was the manufacturing of metal accouterments such as tin cups, meat cans, and eating utensils for use by the army.*



and Columbia Arsenals. The purpose of the meeting was to organize the war effort, and as the result of this conference, each arsenal was assigned parts to manufacture. Many of these parts were then shipped to RIA for assembly.

On 26 March 1898, RIA received orders to produce 25,000 complete units of infantry equipment. Within two weeks after receiving this order the RIA commander was sent a directive to "press work on all field gun and siege gun carriages as rapidly as possible, employing extra shifts of men as far as economical."¹⁴¹

On 21 April 1898, four days before the United States declared war against Spain, RIA received instructions to increase its output of infantry equipment to 75,000 units and to begin producing 10,000 sets of horse equipment. The next day, the RIA equipment department began working day and night on two ten-hour shifts. On 5 May 1898, the chief of ordnance ordered an additional 54,000 units of infantry equipment;

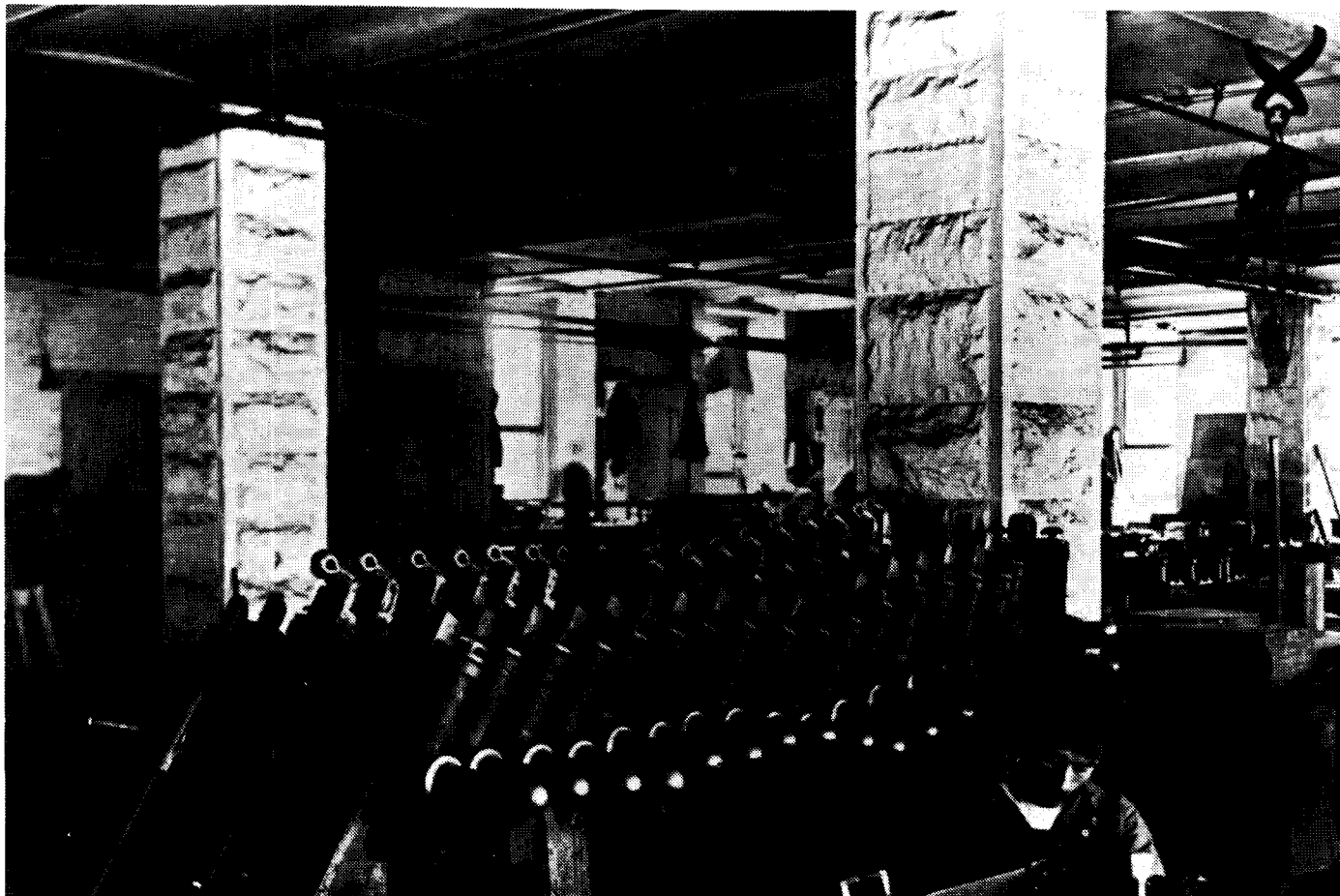
5,000 units of cavalry accouterments; and 5,000 units of horse equipment. Thereafter, the RIA continued to receive orders, practically on a weekly basis. Some were for major items of production such as the 9 May order for the manufacture of 102 field carriages and limbers; 150 caissons and limbers; 17 battery wagons and forges; in addition to the production of 48 carriages for siege guns.¹⁴²

By 16 June 1898, the demand for equipment became so critical that the army had to order RIA to procure from private contractors, an additional 10,000 complete outfits of cavalry and horse equipment. As the demand for orders grew, so did the number of items procured from private firms. By July 1898, 46 private contractors were delivering finished ordnance products to RIA during the Spanish-American War. A total of 131 private contractors delivered the following principal stores to the RIA: 351,400 yards of dyed duck material for covering

Below: Rock Island Arsenal tin shop, showing a workman making metal meat-can handles during the 1898 Spanish-American War period. Accouterments such as meat cans, forks, knives, and canteens were produced by the arsenal during the war with Spain and later during World War I.



Below: *Artillery carriage assembly during the late 19th century in possibly the basement of shop C (building 104) or shop G (108). Note the stone piers, fire-proof brick vaulted ceilings, and hoist to lift and move heavy objects, visible in top right corner, and workers' lockers in background.*



canteens; 1,008,000 yards of cotton webbing for haversacks, blanket bags, etc.; 654,000 pounds of tin plate for meat cans, canteens and tin cups; 79,900 pounds of brass wire for buckles, rings, hooks, etc.; 89,500 pounds of sheet brass for buckles, rings, hooks, etc.; 954,000 feet of linen rope for lariats; 205,300 pounds of harness-leather backs; 1,262,000 square feet of leather for collars, bridles, bars, and straps, saddles, carbine scabbards, saddlebags, etc.; 1,161,900 pounds of steel and iron for gun carriages; 133,000 feet of basswood and ash for saddletrees; and 690,000 feet of additional lumber for ammunition chests, packing boxes, work benches, etc.¹⁴³

Production at RIA during Spanish-American War

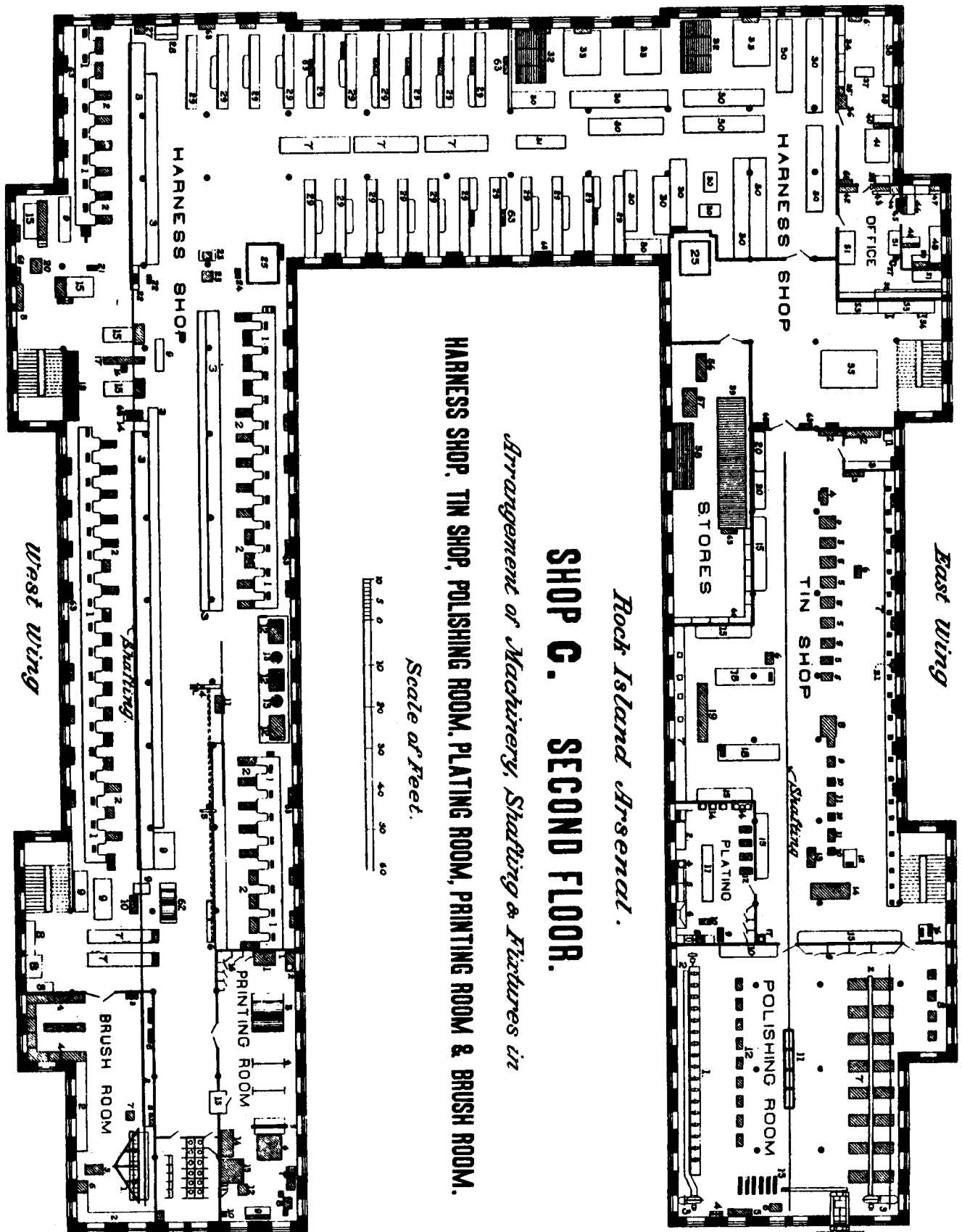
The United States Army was not prepared for war in 1898. It operated primarily with Civil War era technology and supplies, and was undermanned. A small workforce of approximately 500 men and boys were employed

in the Rock Island Arsenal shops at the beginning of the Spanish-American War, many of whom were temporary employees. They were hired only for the period it took to complete a particular order. Nevertheless, by the time the war ended, the arsenal's manpower had increased to six times its prewar figure. At its peak employment of 2,900 in August 1898, the RIA turned out 6,000 complete outfits of infantry equipment every day.¹⁴⁴

The Spanish-American War was the RIA's first major test of its capabilities to meet emergency wartime production. The arsenal performed well, although the production potential was barely tapped. Only the equivalent of one and a half of the ten stone industrial shops contained machines for manufacturing. Practically all of the RIA's production by machine was performed in shops C and E, now designated as buildings 104 and 106.

The RIA used the vast floor space in many of the vacant buildings for a variety of projects

Below: During the Spanish-American War practically all the RIA manufacturing occurred in shop C (building 104). Work that did not require machines and could be performed by hand was conducted in other buildings. Although the 1898 war with Spain was the RIA's first major test, only shop C and E (building 106) were heavily engaged in manufacturing. Not until World War I would all the ten stone shop buildings be used in production of ordnance stores.



Below: Arsenal workmen and boys covered canteens with felt and sewed duck cloth covers over them. When dipped in water, the felt would absorb water and keep the contents inside the canteen cool. The canteens piled on the table in the foreground have already been covered with felt.



which could be performed by hand labor. The first floor of shop A, building 102, became the receiving and issuing center for masses of raw material shipped to the RIA. In the east wing of shop A, carpenters built only the portions of ammunition chests which required no machine operations. Unserviceable stores, items needing repair, were mostly stored and repaired in shop B, building 60. In September 1898, the repair and cleaning of Springfield rifles initially took place in the east wing of shop C, but as the work increased, the operation was transferred to the first floor of shop D, building 62. A 40 horsepower engine and boiler placed in the court of the shop furnished the steam power which operated a line of shafting with 20 polishing wheels and two lathes with wire brushes used to repair or refurbish parts of the rifles. In July 1898, 85 men and boys cleaned and repaired approximately 600 rifles per day. At the conclusion of this project, arsenal workers completed work on nearly 50,000 rifles and

carbines with a cost for this maintenance work of 68 cents per weapon. The rifles received from the field were in bad condition, and most were very rusty with numerous broken parts. At peak output, the crew also completed approximately 7,000 bayonet scabbards per day. Harness makers occupied the second floor of shop G, where nearly 700 men and boys made leather equipment and sewed felt and duck covers over canteens. Shop G was used for these activities because it had water and restroom facilities which the north row or armory row shops did not. In shop H, building 66, workers painted gun carriages, limbers, and caissons. However, not until World War I would all ten of the arsenal 19th century-built stone shops be equipped with machinery and used as industrial buildings.¹⁴⁵

During the Spanish-American War, Rock Island Arsenal Commander Colonel Stanhope Blunt placed his subordinate officers directly in charge of specific operations. Captain O. B. Mitcham was responsible for the repair of

Below: RIA employees loading artillery carriages, 1898, shop A, (building 102) in background, looking northeast. The carriages final destination was Cuba to be used in support of U.S. troops engaged in the Spanish-American War.



unservicable stores, including the Springfield rifles. He also served as the installation's quartermaster and paymaster. Captain W. S. Peirce was in charge of the blacksmith shop and foundry, plus all gun carriage and equipment work performed in the machine shop. Lieutenant O. C. Horney was the officer in charge of tin, polishing, carpentry, and harness shops. He also supervised the expansion of shop operations from shop C to other shops.¹⁴⁶

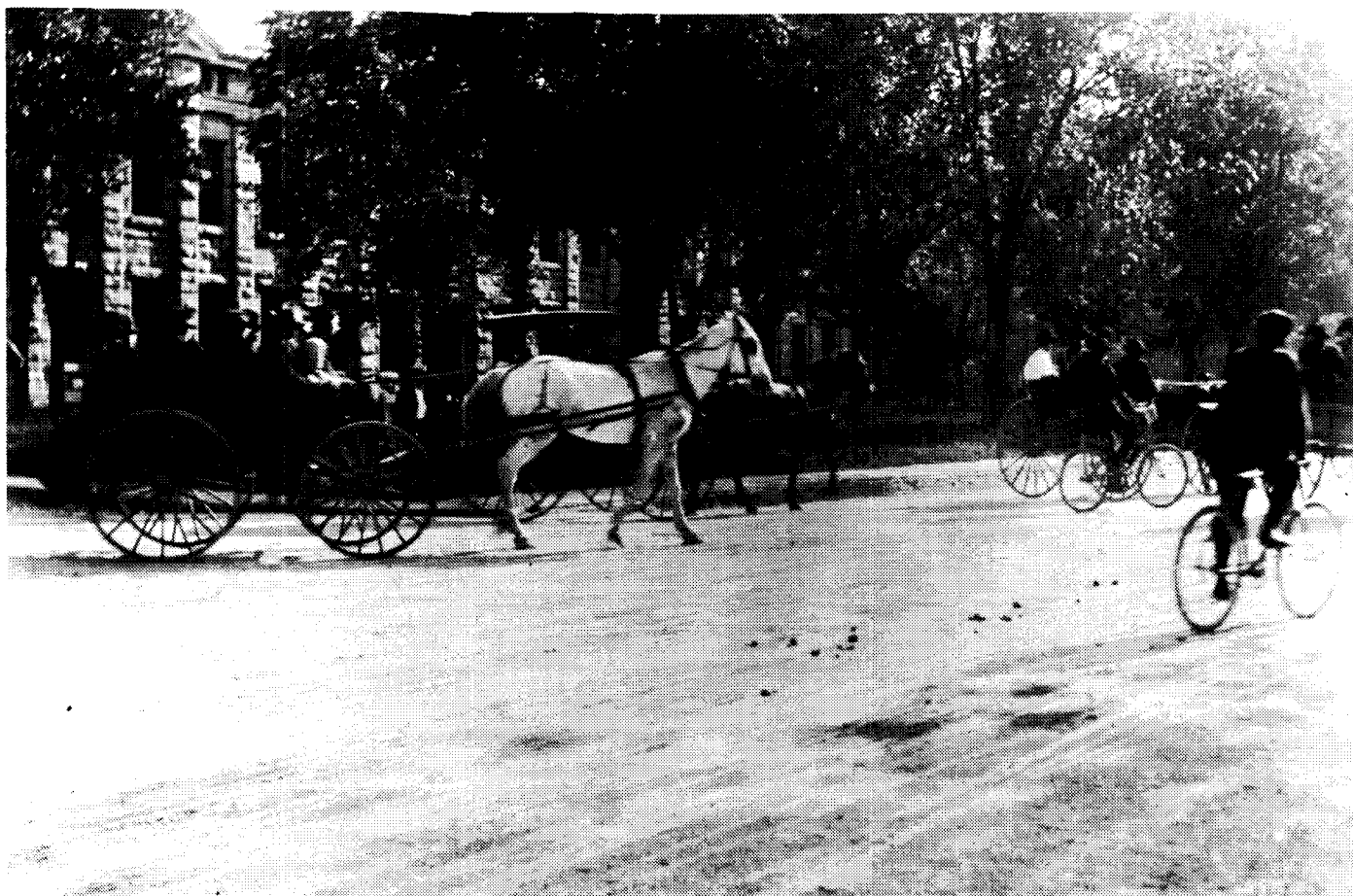
The RIA literally equipped the American soldiers who fought in the Spanish-American War. Blanket bags manufactured by RIA were used by soldiers as a type of duffel bag in which to carry personal belongings. Other items produced at the arsenal for the soldiers' personal use were haversacks for carrying rations; canteens fashioned from sheet tin and covered with felt and a heavy thick duck cover; meat cans used by soldiers as frying pans; and plates, tin cups, eating utensils, and bayonet scabbards.

The arsenal also produced a variety of cavalry

and horse equipment. These included items such as wooden saddle frames or saddle trees, an assortment of rings, hooks, straps, and other paraphernalia used for carrying or holding cavalry articles. Other leather items included carbine scabbards, saddlebags, saddles, surcingles (a girth that binds a saddle, pack, or blanket to the body of the horse), bridles, halters, straps, and artillery harnesses. The RIA produced in large numbers other horse equipment such as picket pins, nose bags, horse brushes, curry combs; and pistol holsters, spurs, and saber belts.

In addition, the arsenal functioned as a depot during the Spanish-American War. Much of the ammunition and small arms made elsewhere, along with articles produced by RIA, were held in reserve on the island before delivery to troops in the field. During the Spanish-American War the arsenal's labor force operated two ten-hour shifts, six-seven days a week. Earlier, during the Indian uprisings of the 1880s and early 1890s, the

Below: *The RIA commander ordered the construction of a special route for bicycles, to reduce the rising number of accidents between horses and bicycles in 1899.*



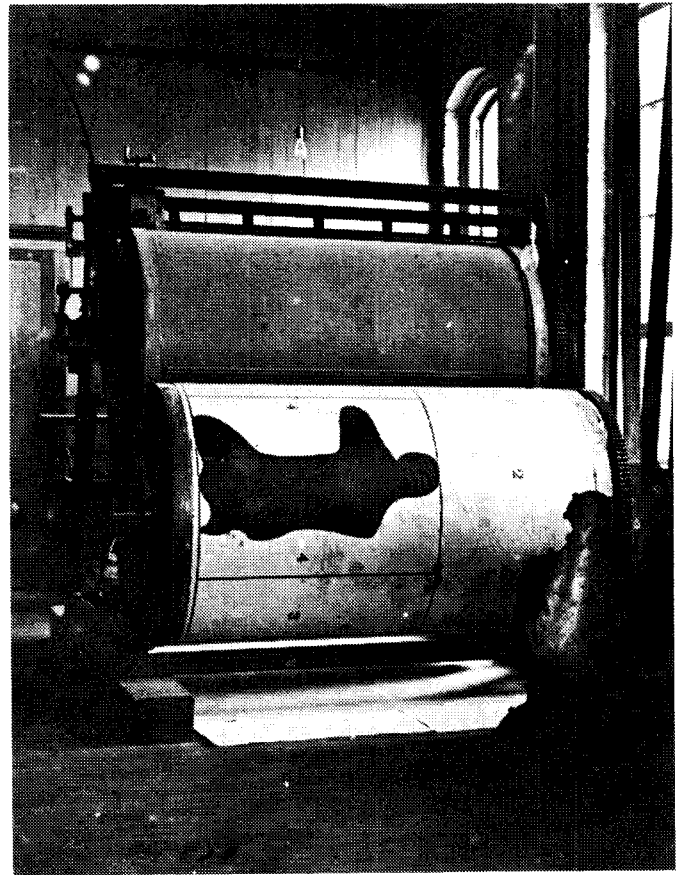
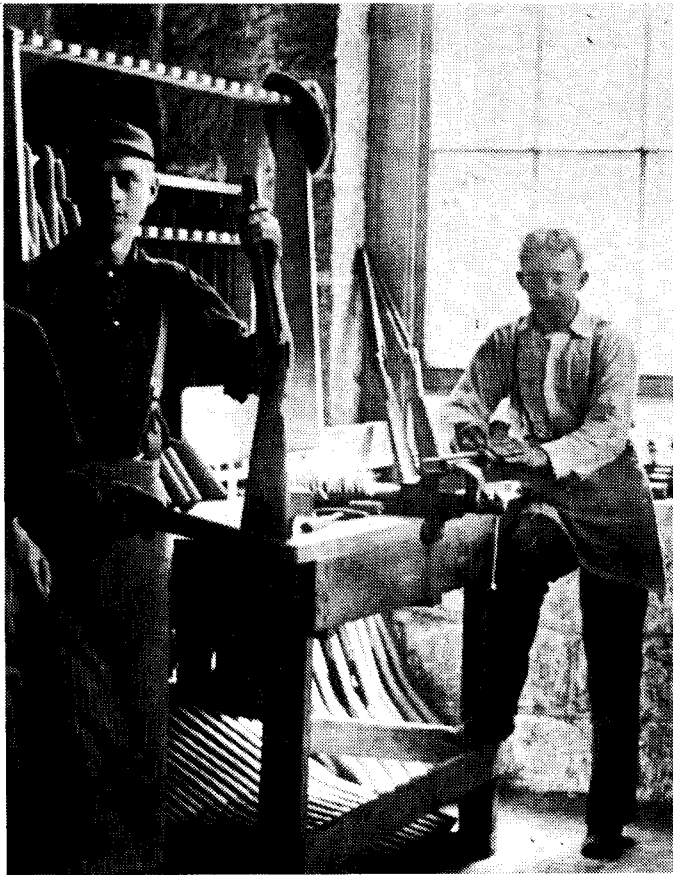
RIA met urgent production demands for ordnance stores by running portions of the shop operations at night. Because the shops were not equipped for night work, arsenal workmen functioned under inadequate, temporary lighting provided by candles and lamps. During the Spanish-American War, the RIA received a small appropriation for extension of the electric lighting beyond the limited lighting already available in one office and a shop. However, this lighting was not sufficient to provide direct lighting for the workers. Candles and lamps were still used as supplementary lighting for most night operations. The arsenal commander stated in his annual reports to the chief of ordnance during the war that it was essential to extend the electric lighting to other shops, some other buildings, and to the principal roads of the arsenal.¹⁴⁷

Although the RIA devoted its energy toward the war effort, the arsenal continued to maintain the island's grounds and roads. In 1898, over 200

young trees were planted along Main Avenue, now designated Rodman Avenue, and along the side of shop K, building 68. Arsenal roads, especially Main Avenue from the manufacturing shops at the flagstaff to the principal western entrance, were damaged during the war due to the heavy increase of vehicular traffic. Bicycles and wagon teams transporting employees to and from the arsenal by way of Main Avenue not only damaged the arsenal's main thoroughfare but also accounted for the increase in accidents on the island. To lessen the traffic on Main Avenue, the RIA commander ordered the construction of a special route for bicycles just south of and parallel to Main Avenue. Arsenal employees signed a petition for an extension of a single track of the Tri-City Railway Company onto the island to a point just south of the RIA shops. Recognizing that the track would alleviate the arsenal's traffic problems, Colonel Blunt sought and received approval from the secretary of war for a revocable license granted to the company

Below: Rock Island Arsenal workmen cleaning and overhauling the standard army issue Krag-Jorgensen rifle used by U.S. troops during the Spanish-American War. In 1899 the RIA received appropriations to establish a small arms plant for the fabrication of rifles.

Right: The RIA built the target printing press pictured below in 1881.



as long as it met specific arsenal conditions. Also because of the heavy traffic, the RIA commander recommended to the chief of ordnance that Fort Armstrong Avenue, located at the west end of the island and connecting the bridges leading from the island to the cities of Rock Island, Illinois and Davenport, Iowa, be covered with granite pavement rather than macadam.¹⁴⁸

Impact of Spanish-American War on RIA

The Spanish-American War led to the permanent expansion of workforce operations and facilities at the RIA. During the war, the arsenal rearranged its machinery and began to install automatic machines to improve production. After the war, the RIA constructed a brick water power plant which replaced the old small powerhouse destroyed by fire. In 1901, the first electrical power generators used at the arsenal were installed. Electric wires replaced the telodynamic system of towers and brought

electrical power to the shops through underground passages.¹⁴⁹

Additional lights were installed in the shops and offices to provide a safer work environment for the arsenal's second work shift. Arsenal grounds and buildings were also improved during the war; and additional roads, bicycle paths, and trollies were added to improve transportation.

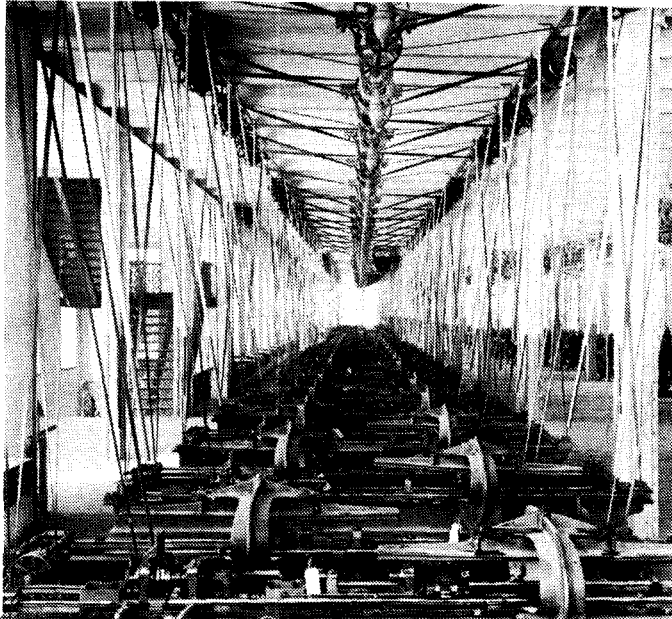
RIA Begins to Make Rifles

As a result of the Spanish-American War, the Rock Island Arsenal performed valuable production work by manufacturing personal soldier accouterments; infantry, cavalry, and horse equipment; and field and siege artillery carriages. This experience provided the basis for technological achievements accomplished at the arsenal in later years.

Largely due to its outstanding production record during the Spanish-American War, the arsenal acquired a new mission which was to

Right: Lieutenant Colonel Stanhope E. Blunt, Rock Island Arsenal commander from 1897-1907. Blunt commanded the arsenal during the Spanish-American War.

Left: In 1899, the United States Congress appropriated \$500,000 for the establishment of a small arms plant at Rock Island Arsenal. A few years later machines such as these Pratt-Whitney lathes were installed in shop B (building 60). These machines were eventually used to produce the U.S. Army standard issue rifle, the Springfield 1903.



manufacture a new rifle. In the Spanish-American War, the U.S. Army became dissatisfied with its standard-issue Krag-Jorgensen Rifle. The weapon was obsolete and slow to reload. The army began a search for a replacement, one which could be clip or magazine loaded. To expedite the production of a new weapon, Congress, in 1899, appropriated funds to equip the nearly empty armory shops at Rock Island with small arms machinery. However, due to the army's delay in selecting a new rifle, it was not until December 1904 that the Rock Island Arsenal's small arms plant began producing the new standard-issue model Springfield 1903 Rifle.¹⁵⁰

In 1897, Brigadier General Daniel W. Flagler, chief of ordnance, himself a former commanding officer of the Rock Island Arsenal, selected Major Stanhope Blunt to command the arsenal at Rock Island and to direct the development of its new armory. General Flagler was well acquainted with the physical plant at Rock Island Arsenal

and was aware of the original plan to combine armory and arsenal facilities at the Rock Island installation. In fact, as the third Rock Island Arsenal commander, General Flagler had earlier supervised the construction of the majority of the arsenal's stone manufacturing buildings that formed the arsenal's industrial core. When the need for an additional armory surfaced, he quickly persuaded Congress to appropriate funds to equip the empty buildings at Rock Island Arsenal's armory row.

The 19th century came to a close with the Rock Island Arsenal finally realizing the plan of Colonel Rodman, the first arsenal commander to propose a combined arsenal and armory at Rock Island. During the early 1900s, the United States Army's transformation from horse to auto drawn artillery occurred at the Rock Island Arsenal. Part three of *An Illustrated History of the Rock Island Arsenal and Arsenal Island*, will chronicle that transformation and other key events.

Below: Saddles made, tin cups formed, and gun carriages assembled; 19th century arsenal employees board horse-drawn taxis during an evening rush hour before the turn-of-the-century.



Below: Main west entrance gate and gate house to Rock Island Arsenal. The gate house, built in 1876, was used as a place of temporary confinement for persons arrested for infractions of government regulations on the bridges. Circa, 1898.



NOTES

¹ Daniel W. Flagler, Major, *A History of the Rock Island Arsenal from its Establishment in 1862 to December 1876 and the Island of Rock Island, the Site of the Arsenal, 1804 to 1863*, (Washington: Government Printing Office, 1877) pp. 97-98. This is also known as Ordnance Memorandum #20. It is hereafter referred to as Flagler.

² The War Department comp., *The War of the Rebellion: A Compilation of the Official Records of the Union and Confederate Armies* (Washington: Government Printing Office, 1880-1901), Series II, Vol. VI, p. 115.

³ Russell F. Weigley, *Quartermaster General of the Union Army: a biography of M. C. Meigs*, (New York: Columbia University Press, 1959), pp. 32-33.

⁴ T. R. Walker, "Rock Island Prison Barracks" in William B. Hesseltine, *Civil War Prisons* (Kent, Ohio: Kent State University Press, 1962), p. 48. It is hereafter referred to as Walker.

⁵ O. Bryan England, *A Short History of the Rock Island Prison Barracks*, (Rock Island: Historical Office, U.S. Army Armament, Munitions and Chemical Command, 1985), pp. 3, 27. It is hereafter referred to as England. See also Walker, pp. 48-49.

⁶ Walker, p. 49.

⁷ *War of Rebellion*, Series II, Vol. VI, p. 196.

⁸ Kate R. Perry-Mosher, "History of Rock Island, Ill., 1863," *Confederate Veterans*, Jan 1906, p. 28; England, p. 5.

⁹ England, p. 42.

¹⁰ Lafayette Rogan, *Diary of Lafayette Rogan*, typescript in Historical Office, U.S. Army Armament, Munitions and Chemical Command (AMCCOM), p. 1. It is hereafter referred to as Rogan.

¹¹ *War of Rebellion*, Series II, Vol. VII, p. 12-14.

¹² *Ibid.*, p. 949.

¹³ *Ibid.*, pp. 23-24.

¹⁴ *Ibid.*, p. 26.

- ¹⁵ Ibid., p. 12.
- ¹⁶ England, p. 42.
- ¹⁷ Ibid.
- ¹⁸ *Rock Island Argus*, 14 Dec 1863, p. 3, Col. 1-3.
- ¹⁹ Ibid.
- ²⁰ J. W. Minnich, "Comment on Rock Island Prison," *Confederate Veteran Magazine*, Aug 1908, pp. 394-395; J. W. Minnich, *Inside of Rock Island Prison* (Nashville, Tennessee: Publishing House of M. E. Church, South, Smith and Lamar, Aug 1908), pp. 30-31.
- ²¹ *War of Rebellion*, Series II, Vol. VII, p. 38; War Department Circular No. 2, 1 Jun 1864.
- ²² Ibid., pp. 17, 39; J. W. Minnich, *Inside of Rock Island Prison*, pp. 5-11; T. R. Walker, pp. 55-57.
- ²³ Rogan, p. 7.
- ²⁴ *War of Rebellion*, Series III, Vol. IV, p. 680; England, pp. 22-23.
- ²⁵ Rogan, p. 50.
- ²⁶ B. M. Hord, "Forty Hours in a Dungeon at Rock Island," *Confederate Veteran*, August 1904, pp. 2-3; England, pp. 22-24.
- ²⁷ *War of Rebellion*, Series II, Vol. VII, p. 415.
- ²⁸ George F. Skock, "The Golden Age Regiment Iowa's Graybeards," *Civil War Times Illustrated*, Vol. XX (No. 2), May 1981, pp. 32-46.
- ²⁹ Ibid.; "The Graybeards," *Alton Telegraph Newspaper*, 3 Feb 1864; Walt Shotwell, "Remembering the Graybeards," *The Des Moines Register*, 26 May 1986, Section T.
- ³⁰ *War of Rebellion*, Series II, Vol. VII, p. 65.
- ³¹ *War of Rebellion*, Series II, Vol. III, p. 1002.

- ³² England, p. 35.
- ³³ Rogan, p. 52.
- ³⁴ *War of Rebellion*, Series II, Vol. VII, p. 1037-1040.
- ³⁵ England, p. 36.
- ³⁶ Cemetery Records of the Rock Island National Cemetery, located in the Historical Office, AMCCOM, Rock Island, Illinois.
- ³⁷ England, Camp Statistics, p. 42.
- ³⁸ Flagler, p. 36.
- ³⁹ Flagler, p. 97; Appendix to Chapter II, copy of an act for the establishment of certain national arsenals, p. 111.
- ⁴⁰ Ira O. Nothstein, "Rock Island Arsenal, Its History and Development," National Archives and the Works Progress Administration Project, 1937, unpublished manuscript, p. 79.
- ⁴¹ Flagler, pp. 97-98.
- ⁴² Flagler, p. 38.
- ⁴³ Nothstein, p. 81.
- ⁴⁴ Flagler, p. 98.
- ⁴⁵ Brevet Major General George W. Cullen, *Biographical Register of the Officers and Graduates of the U.S. Military Academy at West Point, NY* third edition, Vol. II, (Boston and New York: Houghton, Mifflin and Company, the Riverside Press, Cambridge, 1891) pp. 25-26; *Eleventh Annual Reunion of the Association of the Graduates of the U.S. Military Acadaemy, at West Point, New York, June 17, 1880*, (East Saginaw, Michigan: E. W. Lyon, publisher) pp. 80-88.
- ⁴⁶ Ltr., Bvt. LTC D. W. Flagler to Baily Davenport, 13 Oct 1875. This copy is included in the AMCCOM Historical Office's files pertaining to the Clock Tower Building.

⁴⁷ Robert H. Bouilly, "Arsenal Island," *Joined by a River: Quad Cities*, Fredrick I. Anderson, ed., (n. pl. Lee Enterprises Incorporated, 1982) pp. 125-126.

⁴⁸ Flagler, p. 36.

⁴⁹ Ibid., p. 127.

⁵⁰ Ibid., p. 148.

⁵¹ Ibid., the claim of David B. Sears, p. 132-133; the Davenport claim pp. 134-135.

⁵² Flagler, pp. 106-107; Roald Tweet, *The Rock Island Clock Tower, From Ordnance to Engineers*, (n. pl., Rock Island District U. S. Army Corps of Engineers, May 1977), p. 11. Hereafter known as Tweet.

⁵³ Ltr., RIA CO Major Charles P. Kingsbury to R.I. Prison Barracks Commandant Colonel A. J. Johnson, 26 Feb 1864, AMCCOM Historical Office Archives.

⁵⁴ Ltr., RIA CO Major C. P. Kingsbury to the Chief of Army Ordnance BG George D. Ramsey, 17 Mar 1864, AMCCOM Historical Office Archives; *War of Rebellion*, Series II, Vol. VII, p. 23.

⁵⁵ Ltr., RIA CO Major C. P. Kingsbury to R.I. Prison Barracks Commandant Colonel A. J. Johnson, 10 Jun 1864. AMCCOM Historical Office Archives.

⁵⁶ Nothstein, p. 94-104.

⁵⁷ Tweet, pp. 15-17.

⁵⁸ Albert Manucy, *Artillery Through The Ages; A Short Illustrated History of Cannon, Emphasizing Types Used in America*, (Washington: GPO, 1949) p. 17. Hereafter known as Manucy.

⁵⁹ Manucy, pp. 27-28. Interview with Mr. Ralph Krippner, Historian, AMCCOM Historical Office, 7 Apr 1987; Flagler, p. 265.

⁶⁰ Flagler, p. 117.

⁶¹ U.S. Army, Ordnance Department, Letter from BG S. V. Benet, Chief of Army Ordnance to the Honorable William Belk, Secretary of War, dated 9 Oct 1875, *Annual Report of the Chief of Ordnance to the Secretary of War for the Fiscal Year Ended 30 June 1876* (Washington: GPO, 1876), p. 7. This series of reports appeared from 1866 through 1922. Hereafter referred to the *Report of the Chief of Ordnance*.

⁶² U.S. Army Ordnance, "Letter from BG Alexander B. Dyer to Secretary of War," 24 Oct 1871, *Report of the Chief of Ordnance*, for the fiscal year ending 30 Jun 1871, p. 246.

⁶³ Flagler, pp. 106, 256.

⁶⁴ *Report of Chief of Ordnance* for the fiscal year ending 30 Jun 1869, p. 18.

⁶⁵ Flagler, p. 256.

⁶⁶ D. N. Richardson, "Island of Rock Island - What General Rodman Has Accomplished in Four Years," Davenport *Daily Democrat*, 10 Nov 1870, p. 2.

⁶⁷ "The Eight Hour Law - Trouble on the Island," Rock Island *Union*, 4 Aug 1868, p. 4.

⁶⁸ Ibid.

⁶⁹ "Meeting of Stone Cutters," Rock Island *Union*, 6 Aug 1868, p. 2.

⁷⁰ Flagler, p. 256-257.

⁷¹ Ibid., p. 257.

⁷² Ibid.

⁷³ D. N. Richardson, Davenport *Daily Democrat*, 10 Nov 1870, p. 2, cols. 1-6.

⁷⁴ "General Rodman's Funeral," Rock Island *Argus*, 10 Jun 1871, p. 2.

⁷⁵ *Report of the Chief of Ordnance* for the fiscal year ending 30 Jun 1869, p. 259.

⁷⁶ MacDonald and Mack Partnership, *Historic Properties Report, Rock Island Arsenal, Final Report, 1985*, p. 91. This document was prepared by the MacDonald and Mack Partnership, Minneapolis, Minnesota, under contract CX-001-2-0033 between Building Technology Incorporated, Silver Springs, Maryland, and the Historic American Buildings Survey/Historic American Engineering Record, National Park Service, U.S. Department of Interior. Hereafter, it is referred to as MacDonald and Mack.

⁷⁷ Flagler, pp. 290-291.

⁷⁸ *Report of the Chief of Ordnance* for the fiscal year ending 30 Jun 1899, p. 77.

⁷⁹ Ibid., p. 306-307.

⁸⁰ Ibid., p. 336-337.

⁸¹ "The Arsenal," *Moline Review*, 1 Nov 1879, np.

⁸² Flagler, p. 319-320.

⁸³ Ibid.

⁸⁴ *Report of the Chief of Ordnance* for the fiscal year ending 30 Jun 1879, p. 202; Flagler, p. 283.

⁸⁵ Flagler, pp. 326, 358-359.

⁸⁶ *Report of the Chief of Ordnance*, Appendix 10, at Rock Island Arsenal for the FY ending 30 Jun 1880, p. 253.

⁸⁷ *Report of the Chief of Ordnance*, Appendix K, for the FY ending 30 Jun 1879, p. 204.

⁸⁸ *Report of the Chief of Ordnance*, Appendix 10, for the FY ending 30 Jun 1880, p. 256.

⁸⁹ *Report of the Chief of Ordnance*, Appendix K, for the FY ending 30 Jun 1879, p. 204-205.

⁹⁰ *Report of the Chief of Ordnance*, Appendix 10, for the FY ending 30 Jun 1879, p. 255.

⁹¹ Ibid., pp. 256-257.

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⁹³ *Report of the Chief of Ordnance*, Appendix 10, for the FY ending 30 Jun 1880, pp. 256-257.

⁹⁴ *Report of the Chief of Ordnance*, Appendix K, for the FY ending 30 Jun 1879, p. 204.

⁹⁵ *Report of the Chief of Ordnance*, Appendix 10, for the FY ending 30 Jun 1880, p. 253.

- ⁹⁶ *Report of the Chief of Ordnance* for the FY ending 30 Jun 1877, p. xvi.
- ⁹⁷ "Proposals for Wrought Iron "I" Beams," *Moline Review*, 16 Jul 1880, p. 5.
- ⁹⁸ "Proposals for Stone," *Moline Review-Dispatch*, 25 Aug 1879, p. 6.
- ⁹⁹ Nothstein, p. 142.
- ¹⁰⁰ *Report of the Chief of Ordnance*, Appendix 38, for the FY ending 30 Jun 1883, p. 414-415.
- ¹⁰¹ *Ibid.*, p. 415.
- ¹⁰² Nothstein, p. 146.
- ¹⁰³ *Report of the Chief of Ordnance* for the FY ending 30 Jun 1896, np.
- ¹⁰⁴ District Engineer, U.S. Army Corps of Engineers, Rock Island District, *The United States Water Power at Moline, Illinois - Mississippi River*, p. 3. It is hereafter referred to as *History of Water Power*.
- ¹⁰⁵ Flagler, p. 208.
- ¹⁰⁶ *Ibid.*, pp. 162-163, 197.
- ¹⁰⁷ *Ibid.*, pp. 155-156, 196.
- ¹⁰⁸ *Ibid.*, pp. 185-186.
- ¹⁰⁹ *History of Water Power*, pp. 4-5.
- ¹¹⁰ Flagler, pp. 119-120.
- ¹¹¹ *Ibid.*, p. 204.
- ¹¹² *Ibid.*, p. 228.
- ¹¹³ *Ibid.*, pp. 197-198.
- ¹¹⁴ *Ibid.*, p. 240.
- ¹¹⁵ *Ibid.*, pp. 240-241, 465.

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- ¹¹⁷ Flagler, pp. 454-455.
- ¹¹⁸ Nothstein, p. 128; Flagler, pp. 323-324.
- ¹¹⁹ No author, "History of Rock Island Arsenal, 1862-1913," unpublished manuscript called for by O. O., 253010-D-195, AMCCOM Historical Office files, pp. 54-55. Hereafter referred to as History of the RIA 1862-1913.
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- ¹²¹ *Report of the Chief of Ordnance* for the FY ending 1903, p. 38.
- ¹²² Nothstein, p. 148.
- ¹²³ History of the RIA 1862-1913, pp. 54-55.
- ¹²⁴ Nothstein, p. 149.
- ¹²⁵ Flagler, p. 474.
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- ¹²⁷ *War's Greatest Workshop*, pp. 91-92.
- ¹²⁸ *Report to the Chief of Ordnance* for the FY ending 30 Jun 1869, p. 312.
- ¹²⁹ History of the RIA 1862-1913, p. 26.
- ¹³⁰ Ibid.
- ¹³¹ "The Arsenal," *Rock Island Argus*, 7 Dec 1875, np.
- ¹³² David A. Clary, *These Relics of Barbarism: A History of Furniture in Barracks and Guardhouses of the United States Army, 1800-1880*, (U.S. Department of the Interior, National Park Service, Harpers Ferry Center, West Virginia) pp. 583-589.
- ¹³³ "History of RIA, 1919-1939," RIOG, Section I, p. 17.

- ¹³⁴ Nothstein, p. 198.
- ¹³⁵ "History of the RIA, 1862-1913," p. 28. *Report of the Chief of Ordnance*, Appendix 27, for the FY ending 30 Jun 1881, pp. 271-273.
- ¹³⁶ History of the RIA, 1862-1913, p. 8
- ¹³⁷ *Report of the Chief of Ordnance* for the FY ending 30 Jun 1882, p. 365.
- ¹³⁸ History of the RIA, 1861-1913, p. 39.
- ¹³⁹ Ibid., pp. 15-16, 28.
- ¹⁴⁰ Nothstein, p. 150, 161; *Report of the Chief of Ordnance for the FY ending 30 Jun 1898*, p. 69.
- ¹⁴¹ *Report of the Chief of Ordnance* for the FY ending 30 Jun 1898, p. 70.
- ¹⁴² Ibid., p. 69; Nothstein, p. 161.
- ¹⁴³ Nothstein, p. 162; *Report of the Chief of Ordnance* for the FY ending 30 Jun 1898, p. 70.
- ¹⁴⁴ Ibid.
- ¹⁴⁵ War's Greatest Workshop, p. 63; *Report of the Chief of Ordnance* for the FY ending 30 Jun 1898, p. 71; Nothstein, p. 163.
- ¹⁴⁶ Nothstein, p. 163; *Report of the Chief of Ordnance* for the FY ending 30 Jun 1898, p. 29.
- ¹⁴⁷ *Report of the Chief of Ordnance* for the FY ending 30 Jun 1898, p. 28-29.
- ¹⁴⁸ Ibid., p. 76.
- ¹⁴⁹ *Report of the Chief of Ordnance* for the FYs ending 1897, 1898, and pp. 5, 70, and 31, respectively.
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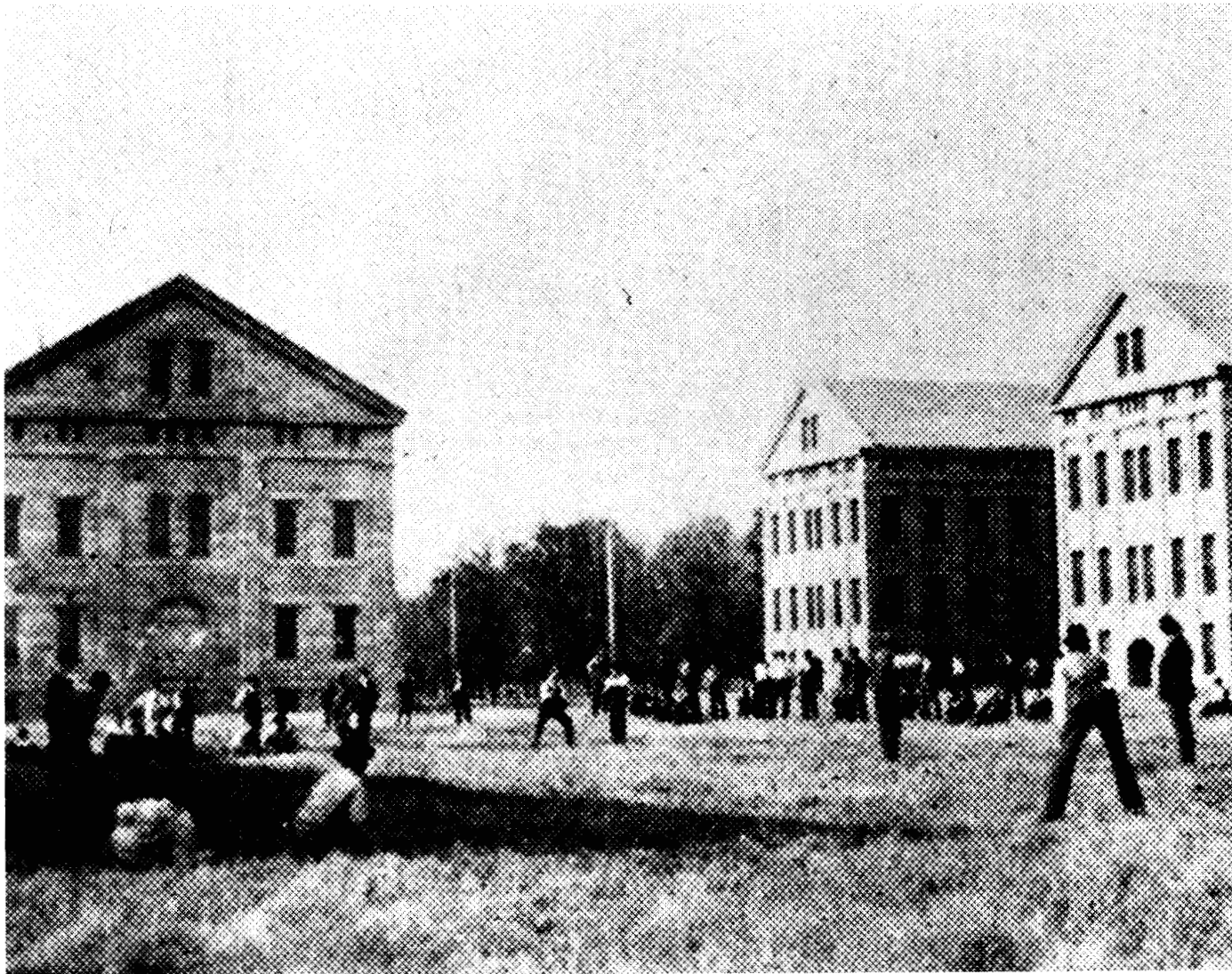
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Below: Arsenal employees enjoying a noon-hour baseball game during the late 1800s. The building in the background to the left is storehouse K (building 56), behind shop K (building 68).



. . . . "The charming island of Rock Island, three miles long and a half a mile wide, belongs to the United States, and the government has turned it into a wonderful park, enhancing its natural attractions by art, and threading its fine forests with many miles of drives. Near the center of the island one catches glimpses, through the trees, of the vast stone four-story buildings, each of which covers an acre of ground. These are the government workshops; for the Rock Island establishment is a national armory and arsenal."

*Mark Twain (Samuel L. Clemens)
Life On The Mississippi River
First Published 1874*



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UNITED STATES OF AMERICA.



— FIRST ALBUM —

OF THE

CITY OF DAVENPORT, IOWA,

WITH A

Review of the Origin, Past ^{AND} Present Development,
and a Descriptive Sketch of the
Rock Island Arsenal.

PUBLISHED BY HUEBINGER'S PHOTOGRAPHIC ART GALLERY.

ADAM HUEBINGER, PHOTOGRAPHER.

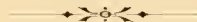
MELCHIOR HUEBINGER, CIVIL ENGINEER AND SURVEYOR.

DAVENPORT, IOWA.

1887.

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THE CITY OF DAVENPORT and VICINITY.



THE CITY OF DAVENPORT.

(Illustrations, Pages I. and VI.)

LOCATION AND CLIMATE.

IN the midst of the amenities and natural beauties of the upper valley of the Mississippi rises the City of Davenport upon the northern shore of the father of rivers, which here, at a width of about 2,500 feet, at a fall of not quite five inches to the mile, and at an elevation of 533⁷/₁₀ feet above the level of the sea, makes its greatest bend from east to west, of over 30 miles, and hastens toward the Gulf of Mexico with a velocity of one to three miles per hour.

Three and one-half miles in length the city extends along the mighty stream, and ascends gradually upon and over the bluffs, 180 to 200 feet high, and trimmed with a fresh wreath of green oaks, from which stately school houses, church-spires to a height of 120 feet, electric-light towers of 125 feet in height, and numerous magnificent and cozy villas like blossoms radiate.

Situate upon 40° 30' northern latitude, and 13° 30' west from the City of Washington, D. C., it is, by river, 332 miles from St. Louis and 397 miles from St.

Paul; by rail, 181 miles west of Chicago, 197 miles from Milwaukee, 1,072 miles from New York, 2,187 miles from San Francisco, and about 1,600 miles from New Orleans; and enjoys a decidedly temperate climate, though often subject to sudden changes—generally experienced in the Mississippi valley, but milder than in Minnesota and cooler than in Missouri. The daily changes in the temperature are often strikingly perceptible, but a happy combination of heat and cold, of sunshine and rain, promotes the growth of corn and all kinds of cereals, and favors the development of a strong, hardy, and healthy race.

According to official observations taken from 1872 to 1886, the mean actual annual barometer is 29.369, and the average annual temperature 49.6 degrees Fahrenheit; the average rain-fall is three inches per month.

During the last seventeen years, the first frost occurred September 9th, 1883; the last, May 29th, 1874 and 1884. The highest stage of the water in the river was 18.4, on June 26th, 1880; the lowest stage, .95, on December 12th, 1862—the difference being not quite 19 feet. The gauge is placed upon the government bridge, and zero is at 533.761 feet elevation above the sea level.

THE CITY GOVERNMENT

is in the hands of a Mayor, whose term of office is one year, and twelve Aldermen, who are elected every two years, and constitute the City Council, which holds its regular meetings twice a month, except in the winter months from November to March, when it convenes only once a month. The Council elects the Street Commissioner, the Chief of the Fire Department, the City Engineer, the City Attorney, the City Collector, and the City Sexton; has full legislative power under the special charter of the city, and has the supervision and control of the city officers and all the city affairs and institutions.

The remaining city officers forming a part of the city government are the City Clerk, the City Treasurer, and the City Assessor, who are elected annually at the city election, the first Saturday in April, and the Police Magistrate, elected bi-annually.

The Police Department, consisting of the Chief of Police, the Night Captain, and thirteen regular patrolmen, who are annually appointed by the incoming Mayor and confirmed by the Council. Their yearly salaries amount to \$10,200. The present force is known for its effectiveness; and in the watchfulness, capability, and reliability of the members and its Chief, stands probably unsurpassed in the state, judging from the decrease of crime and offences and the quick and effective manner in which criminals are brought to justice. The last annual report of the Chief of Police

shows 516 arrests made during the last year — about two per cent of the population — and property stolen to the value of \$1,031, of which property \$1,017 was restored to the owners. The Chief of Police has also to attend to the duties of Marshal and Sidewalk Commissioner.

The Fire Department, organized in the spring of 1882, contains one hook and ladder and three hose wagons, with a force of sixteen experienced firemen, under the command of a Chief, at an annual expense of about \$14,000. The men are on duty day and night. Each wagon is drawn by two horses, which are selected and trained with the greatest care. The effectiveness of the service is considerably increased and hastened by the employment of the fire-alarm telegraph, for which the city paid \$5,000. At the instant the alarm is given, the gongs and bells sound, four double stable doors open themselves, the horses place themselves before the wagons, the harness drops down upon them, the firemen mount their seats, and forward they go to the place of fire. All of this is done in fifteen to seventeen seconds. At extraordinary conflagrations, the paid fire department is assisted by the volunteer companies, who are also under the command of the Chief of the Department. The department has been established at an expense of about \$35,800, exclusive of the buildings and the fire-alarm. During the last year there were sixty-three fire alarms. The total loss was \$9,777.50, of which \$8,000 was lost at one fire. The expenses for the year were \$13,556.21.

THE DAVENPORT WATER COMPANY.

(See Illustration, Page VII., Nos. 19 and 20.)

Before entering into a description of the works of the Davenport Water Company, it is no idle boast to say that, without exception, Davenport has the most complete system of water-works, both for fire protection and sanitary purposes, of any city in the west.

The Davenport Water Company is a private corporation, which was organized through the efforts of the late ex-Mayor Michael Donahue. What a monument to the public spirit and enterprise of the Hon. Michael Donahue are the Davenport Water-Works! He was the originator and founder of them. His capital, and that of his brother, Col. Peter Donahue, whom he enlisted in the cause, built them. Both the brothers are dead, but the good they did in this community will be a memory here to the last generation. Their sons, James P. Donahue, of Davenport, and James M. Donahue, of San Francisco, have inherited their energy and enterprise. The constant improvement of the water-works is evidence of it.

It was on December 4th, 1872, that the City Council chartered the Davenport Water Company, and on February 2d, 1874, the works were tested as to their efficiency with fire streams, and all was done, and more too, than the Company guaranteed.

The plant of this Company comprises a reservoir, low and high-service pumping-stations, known as Pumping-Station No. 1 and Pumping-Station No. 2.

The reservoir is located at the highest elevation in the city, and has a capacity of 5,000,000 gallons. No money was spared in its construction; the best of material and labor that could be had was used. It was built in 1883, and cost \$100,000.

Pumping-Station No. 1.—Pumping capacity, 11,000,000 gallons every twenty-four hours. This pumping-station comprises the original works, and is situated on the Mississippi river, about a mile above the Government bridge. The pumping-house is a large, two-story building, 68x93 feet, including the boiler-room. There are two sets of pumps and engines in this station. Pumping-engine No. 1 is a condensing set of duplex engines of 5,000,000

gallons capacity per twenty-four hours, built by the Clapp & Jones Manufacturing Company. Pumping-engine No. 2, which has been recently placed upon foundations, is a high-duty Worthington duplex compound condensing engine, and capable of delivering 6,000,000 gallons per twenty-four hours against a head of 345 feet.

Pumping-Station No. 2.—Pumping capacity, 5,000,000 gallons per twenty-four hours. The bluff, or high service, or all that portion lying above Sixth street, is supplied by reservoir water delivered by the pumps at this station, which are situated at the reservoir. These engines are vertical, of the duplex compound condensing type. In precisely thirty seconds, the pumps of station No. 2, which are continually running for the high service, can be changed so as to pump into the gravity service, and pump down hill in case the reservoir pressure is not sufficient for fire purposes. Then, too, there is another resource in case of fire, and that is pumping-station No. 1 can be set in motion and give all the additional pressure necessary. This means that the piping system is so designed that the pumps at station No. 1 and station No. 2 can pump at the same time at their respective ends of the distribution mains, thereby insuring increased pressure—an almost unlimited supply of water and pressure in time of fire.

For the fire and sanitary supply of the city, there are 253 public and 9 private, or a total of 262, fire hydrants. There are 27 miles of main pipe, from four to sixteen inches in diameter, and about 1,200 water consumers.

The Water Company, aside from its enormous expenditure in establishing the works, is at a heavy constant outlay to sustain them. The operating expenses of the two pumping-stations being no small expenditure. Still, the rates charged for water furnished consumers, in many instances, are lower than those charged in other western cities, and is in but few cases more, and the citizens in other places are by no means so perfectly served.

The Davenport Water Company is entitled to the thanks, not only of the citizens generally, but particularly of every owner of a home or business block. It guarantees them against loss by fire, as has been shown by the records of the fire losses. It is doubted

if any single individual has done more to make Davenport known abroad, or contributed more to its enduring prosperity, than the enterprising late lamented Hon Michael Donahue.

The present officers of the Company are: Nicholas Kuhn, President; James P. Donahue, Vice-President and Secretary; Thos. N. Hooper, Inspector and Chief Engineer.

The above named officers, with: Col. James M. Donahue, San Francisco, California, and J. H. Murphy and F. H. Griggs, Davenport, constitute the Board of Directors.

THE DAVENPORT GAS COMPANY.

(See Illustration, Page 8, No. 58.)

Furnishes gas at a price of \$2.50 per 1,000 cubic feet to private consumers, through their main pipe of 26 miles in extent.

The lighting of the city by electricity was accomplished on February 1st, 1886, by the Ft. Wayne Jenney Electric Light Company, and contains 94 lights of 2,000 candle-power each, of which 40 are placed on 8 towers 125 feet high, 52 upon mast-arms 30 feet high, 5 over the intersection of streets, and 2 upon poles 40 and 50 feet high. The wires have a length of over 26 miles, and the light is perfect. Each light is kept up to the agreed strength of 2,000 candle-power.

The city pays therefor about \$16,000 per annum, in monthly payments, and the contract runs five years from November 6th, 1885.

THE PUBLIC BUILDINGS AND GROUNDS.

The City Hall (page III., No. 6), built in 1859, at an expense of \$12,000, contains the offices of the City Clerk, City Assessor, City Collector, City Engineer, and Street Commissioner, and in the upper story the council chamber.

The Police Station, established at a cost of about \$18,000, contains the offices of the police officers and

the Police Magistrate, the city prison, and the armory of Company "B," of the state militia.

The Fire Department.—Of the four buildings occupied by the fire department, three are on ground owned by the city and one on leased premises, and cost the city about \$20,000.

Central Park, bought by the city, for about \$13,000, in 1885.

Washington Square (page V., No. 16), with a fountain erected at a cost of about \$1,500

Lafayette Square, laid out by Antoine LeClaire in the original plat of the city.

The City Cemetery, also the public levee or landing, established in 1859, at an expense of \$12,000, and at that time estimated at a value of \$150,000.

THE PUBLIC STREETS.

The whole city is divided into blocks—most of them 320 feet square—by 126 streets, 60 to 80 feet wide and of over 80 miles in length. Their annual repairs and improvements amount to about \$50,000. Since the year 1858, about 20 miles thereof have been macadamized, at an expense of nearly \$1,000,000. These streets are in a good deal better condition than is generally found in the state, or in the west.

THE SEWERS

have been constructed since 1858, but the greater part of them were built since 1877. They drain the principal part of the city, run from the bluff down into the

river, and cost from 4½ cents to \$1.25 per running foot.

THE CITY REVENUE

amounts annually to about \$140,000, of which about \$20,000 is paid for licenses, and the balance of \$120,000 levied upon an assessment at about \$7,100,000.

THE CITY DEBTS,

originating from the loans made in 1856 and 1857, which in 1869 were converted into twenty years bonds, amount to about \$280,000, with six and seven per cent interest, payable semi-annually, and are due in 1889.

THE BOARD OF HEALTH,

consisting of the Mayor, acting Chairman, and four members, a majority of whom are members of the Council, appointed by the Mayor and confirmed by the City Council, is clothed by state law and city ordinances with full power to keep the city in a good and sanitary condition. The city has been free from epidemic diseases, and the death rate is low in comparison with other cities similarly situated.

EDUCATIONAL INSTITUTIONS.

(See Illustrations, Page V., No. 14, and Page VIII., No. 22.)

The Public Schools.—The Independent School District of the City of Davenport embraces the whole city and some territory outside the city limits, of which the western part has been provided with school house No. 7. The tuition is free. The management is in the hands of a Board of Education, of six members, who

are elected every two years. The Board elects every year the Treasurer and Secretary. There are eleven common school buildings and one high school building, which was erected in 1874, at a cost, including the ground and furniture, of about \$50,000. All the buildings, with the grounds and school furniture, represent a total value of about \$400,000. The yearly expenses amount to \$80,000 or \$90,000. The staff of teachers is composed of one Superintendent, eleven principals (one in each school building), seven male teachers, of whom one instructs in music and one in gymnastics, and about one hundred female teachers, of whom ten teach the German language. The attendance is increasing every year so that at present an additional building, estimated at \$3,500, is required. The last census gave a school population of 9,295, of which 4,468 were boys and 4,827 were girls. The average number enrolled was 4,466, and the average daily attendance was 3,236¹⁰. The school term is ten months. During the winter months there is also a free evening school maintained.

PRIVATE SCHOOLS AND COLLEGES.

IMMACULATE CONCEPTION ACADEMY.

(See Illustration, Page IX., No. 27.)

This institution, situated on the corner of Eighth and Main streets, is devoted to educational interest, and is conducted by the Sisters of Charity of the B. V. M. The photograph represents the present Academy, which was first ready for occupancy in September, 1885. Previous to the erection of this imposing structure, the

Sisters and pupils occupied the edifice adjoining, better known as the Hill Estate.

The Sisters Academy is one of long standing. On July 16th, 1857, the Sisters took possession of the old Immaculate Conception Academy, which is now known as the Mercy Hospital. Their saintly founder, the Very Reverend T. J. Donaghoe, premeditated the erection of a noble structure, but financial difficulties prevented his accomplishing his design, and but one wing of the main building was completed. The ground, ten acres in extent, was the gift of Judge Mitchell and Mr. L. Davenport. The site, though excellently well adapted for the purpose, was deemed too far removed from the city proper at that period, and after a stay of some time, during which many improvements were made, the Sisters disposed of the property to Reverend Pelam, from whom it passed to Right Reverend John Hennessy, Bishop of Dubuque. The latter conveyed it to the Sisters of Mercy for hospital purposes, and they not only carried out the intention of Very Reverend T. J. Donaghoe, but have added largely to the grounds, and have erected several additional buildings. It is a pleasure to those who experienced the discouraging trials attendant upon pioneer life in that spot to note that the seed they planted under so many difficulties has ripened to so abundant a harvest, even though it be gathered by other hands.

Removing to the city, the Sisters rented the Sargent property on Brady street. Here the school flourished, and so rapidly did the number of pupils increase that it was soon necessary to procure a more commodious dwelling. After some deliberations, the elegant mansion of Mr. Hill was chosen as best suited to the purpose in question, and the Eve of All Saints, November 1st, 1864, found the Sisters domiciled in their new home.

The Academy has a past of which it may well be proud, a present which the community delights to honor, and a future which the most sanguine cannot over-estimate. Year after year young ladies are leaving its sacred recesses to enter into the busy world, their intellects having been stimulated, their powers fully cultured, their morals founded on the "rock of ages," thus preparing them to adorn the world they enter, and to give happiness to all around them.

For many, many years this noble institution of learning, under the care and guidance of the good and accomplished Sisters of Charity of the B. V. M., has been surrounded with the earnest sympathies of a host of friends — Protestant as well as Catholic — who have testified their confidence in its management by bestowing upon it their approval, as well as by giving it a liberal support.

ST. AMBROSE SEMINARY.

(See Illustration, Page IX., No. 28.)

The present Bishop of Davenport, Right Reverend Henry Cosgrove, D. D., knowing the advantages of a higher school for young men, sought for years an opportunity to establish one. When Vicar-General of the Diocese, he made known his project to his Right Reverend Ordinary, John McMullen, D. D., and he being favorably impressed, steps were immediately taken to open the institution. A few rooms in St. Margaret's parochial school building were accordingly fitted up, and the school was formally opened September 4th, 1882. The school received the name "St. Ambrose Seminary." The Reverend A. J. Schulte and Professor Joseph E. Halligan were appointed its first teachers and faculty.

The first scholastic year had scarcely closed when death robbed the school of its benefactor and patron, the Right Reverend John McMullen, D. D. His death, on July 4th, 1883, was a severe blow to the institution, as his plans could not be carried out. Its permanent establishment was left to the future, and fell to the lot of his successor.

During the following year, Mr. T. J. Mullen was appointed assistant teacher, which position he held until near the close of the year. Having been promoted to the Priesthood, he assumed his duties as Professor the ensuing year.

With the appointment of the Right Reverend Henry Cosgrove, D. D., the institution's first projector and friend, came new life and hope. The temporary location being inadequate to its wants, steps were taken to secure new grounds. A suitable location was found, within the city limits, yet well removed from the

noise of traffic — a magnificent oak grove embracing ten acres, formerly known as Noel's grove.

On May 24th, 1885, work began at the new Seminary on Locust street, and on November 3d of the same year enough had been completed to permit the transferring from the old to the new quarters. The new building is large and commodious, and fitted up in the best manner known for the purpose intended. Its rooms are large and airy, and finished in oak and yellow pine. The grounds surrounding the building are of diversified surface, adapted to walks and other outdoor exercise. Its location is in a healthy vicinity, and whatever can be done to promote the health and progress of the student is attended to.

As the number of students increased, more aid was necessary, and Reverend John T. A. Flanagan was appointed Assistant Professor, November 3d, 1885. On October 6th, 1885, the institution was incorporated under the laws of the State of Iowa, empowering it to confer the usual academic honors.

There are three departments — preparatory, commercial, and classical. The preparatory is designed for those whose acquirements are not sufficient to enable them to enter the two higher grades. The commercial affords its students the benefit of a business education. The classical not only gives a complete course of reading in the best ancient authors, but also furnishes a thorough training in modern science and literature.

A well selected library, of 2,960 volumes, affords the students the means of perusing the best literary works. Among the various works, we may mention those of reference, biography, science, art, history, etc. Some of these works are of great value.

Cabinets of geological and entomological specimens, and cases of rare coins and other articles of *vertu* are provided for the entertainment and instruction of the students.

Various societies have been organized. Among these may be mentioned the debating and the dramatic associations, which are maintained for intellectual exercise and development. These societies afford the students an opportunity of practically applying their acquired knowledge in argumentative discourses and elocu-

tionary efforts. Other societies of a religious character exist and have a full membership.

Though existing but a few years, the Seminary has done good work, and will, without doubt, prosper in the future. The first faculty is still at the head of the institution. Every year has marked its progress, and ere long may it rank among the first educational institutions of the land.

THE GRISWOLD EDUCATIONAL INSTITUTIONS.

(See Illustrations, Pages VIII., No. 21, and X., Nos. 29 and 30.)

Stepping from the incoming train from the east, at the Chicago, Rock Island & Pacific Railway station, the eye is attracted by the beautiful "old Trinity," covered with woodbine, and with its graceful outlines making good its claims to be one of Upjohn's designs. Its seating capacity was between three and four hundred — *was* we say; for this picturesque building — the mother church of the city, and one of the oldest in the state — is dismantled and disused, and is rapidly falling into ruin. Would that God might put it into the heart of some one or more of His servants to redeem this deserted temple of the Most High, by placing it in the Bishop's hands as a mission church for the dense population of railroad men and other artisans who will ever abound in this locality. Surely a spot where the apostolic Kemper ministered again and again, and which, though unconsecrated, was for years the shrine of those who laid the foundations of the church in eastern Iowa, should not be lost, when a few thousand dollars would purchase and refit it for use, and make its stones a memorial of the past.

Passing westward from "old Trinity," for a couple of blocks, Brady street, the most fashionable avenue in the city, is reached, and, as you ascend the hill, the eye is at once attracted by the massive buildings of new Trinity, a memorial of the late Hon. Ebenezer Cook, erected by his widow, Clarissa C. Cook, at a cost of over \$50,000. Here is a fine stone church, with upwards of four hundred sittings, and, connected with it, a chapel and guild-rooms, used for Sunday-school and week-day services, and for various parochial activities. This church lacks something of the graceful

outlines of "old Trinity," but it is a noble structure, with a chime of bells, and stands out against the sky with a prominence that will not be overlooked. An intelligent and cultivated congregation frequent this beautiful sanctuary, and enjoy their possession of a completely equipped and attractive church, which is the center of abundant charities and helpful work.

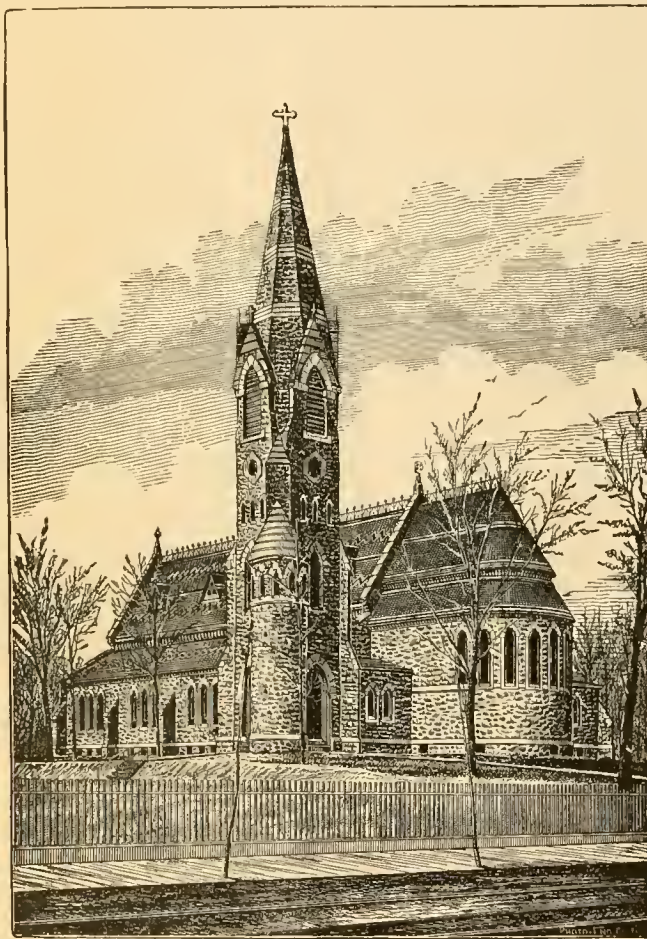
On the broad table-land at the summit of the bluff, occupying nearly ten acres, in the heart of the city, and surrounded by beautiful residences, are the Cathedral-close and the college grounds, separated by Main street, with the fine soldier's monument in a circular enclosure opposite the west front of the Cathedral.

Fronting on Brady street, but removed from the thoroughfare, stands the Bishop's house, one of the finest Episcopal residences in the country. This noble structure, in which is enshrined Bishop Perry's valuable library of "Americana," liturgics, and cannon laws, with belles-lettres and general literature, numbering over thirteen thousand volumes, occupies the southeast corner of the Cathedral-close, and was built out of the avails of the investments in land made by the first Bishop of Iowa on his entrance on his see.

Lee Hall, the former residence of Bishop Lee, and now occupied by the theological department of Griswold college, is a substantial brick structure, occupying the entire southwest corner of the close. Here the divinity students,

to the number of eight or ten, are accommodated with pleasant rooms, well furnished, and with a pleasant outlook from the windows, and here the "head of the house," a theological professor who has charge of the students, gathers them as a Christian family to prayers, and gives to them the comforts and culture of a home. In the spacious rooms of Lee hall is a well selected theological library; and in a suit of apartments specially fitted for the purpose, the Dean of Davenport, the Reverend *Charles R. Hale, S. T. D.*, who has charge of the department of liturgics in the school, has his home.

The Bishop's house and Lee Hall occupy the southern portion of the close, in the center of which is the Cathedral, which, although its tower and spire are unfinished, is confessedly the most beautiful church building in the west. Built by the first Bishop of Iowa, to whose wise master-building the Episcopate fund, the Bishop's residence, the college building, and the larger portion of its endowments, as well as the Cathedral, are due; its erection was chiefly accomplished by the gifts of the late David J. Ely, Esq., of Chicago and New York, who gave \$15,000 to make a memorial to a beloved daughter, Mrs. Sarah Ely Parsons, and the late John David Wolfe, Esq., who, with his daughter, Miss Catharine Lorillard Wolfe, of New York City, contributed upwards of \$25,000 to make more complete and beautiful the Cathedral of the Diocese



GRACE CATHEDRAL — COMPLETED.

of Iowa. The building is one of the happiest of the many admirable designs of Mr. Edward T. Potter, and in its erection neither pains nor expense were spared. The churchmen of Davenport and the Diocese gave but little — in all not a tenth of the \$75,000 expended in its erection. It was a gift to the Bishop and Diocese of Iowa, and it will ever attest the taste, the far-seeing wisdom, the churchliness, and zeal of Henry Washington Lee, to whom the conception and execution of the plan of this Cathedral-church are wholly due. The beauty of the exterior is surpassed by the tasteful effects of the interior. The adornments are lavish, and the chancel is well filled with beautiful memorials of the departed or gifts to God from the living. The noble organ, made by Johnson, of Westfield, Massachusetts, is tastefully built around the great wheel-window of the west front, itself a memorial of the apostolic Kemper. An exquisite faldstool, placed "between the porch and the altar," is the gift of the Reverend C. T. Olmstead, of Utica, New York, the memorial of a beloved brother, who entered into the rest of paradise while preparing for holy orders. The baptistery and the chancel have their memorials of departed connections of the present Bishop and Dean. Part of the beautiful brass furniture of the altar was a gift of the late Reverend Doctor John Cotton Smith, of New York. The windows, of the best American stained glass, bear each a name for a memorial, and the whole interior, as revealed by the "dim, religious light" streaming in through the painted windows, or as made glorious by the flood of gas-light for the night services, is most attractive. The deep recess of the chancel will accommodate more than a score of clergy. The Cathedral is one hundred and forty-two feet in length, and has sittings for upwards of seven hundred worshippers.

On the north side of the west front of the Cathedral stands Ely House, built by Mrs. Caroline D. Ely, of New York, as a residence for the incumbent of the theological chair founded and endowed by her late husband. It is a convenient and attractive building of brick, and was erected at a cost of between \$6,000 and \$7,000.

Directly opposite the west front of the Cathedral, and separated from the Cathedral-close by Main street, stands Wolfe Hall,

a stone building, three stories high, with a basement, named in memory of the late John David Wolfe, Esq., of New York City, who advised the purchase of the Iowa College property by Bishop Lee, and whose liberal gifts made this step possible. Wolfe Hall is a lasting memorial of a good and generous man. Even on his death-bed, this excellent churchman was not forgetful of this charity, and with his last words he made provision for a gift to Bishop Lee for the maintenance of the college, which largely owed its inception and continued existence to his charity. In this substantial structure of stone are contained the college chapel, the library, with upwards of seven thousand volumes, the cabinets, the study-hall and recitation-rooms, with apartments for professors and a limited number of students — all under the broad overhanging roof, from the cupola of which is a view of wonderful beauty, embracing the city, the river, the islands, the bluffs, and the neighboring cities of Rock Island, Moline, and Milan, the homes and haunts of a population of fifty thousand and more.

On the southeast corner of the college grounds stands Kemper Hall, the preparatory and grammar school of Griswold College, with accommodations for a head-master, three assistants, and forty boys. This noble structure, just completed, perfect in its plan, and fitted preeminently for its purpose, is one of the most attractive and best equipped school buildings in the country. It was erected at a cost of \$25,000, by the trustees of the college, and has, since its opening in September, 1885, offered to its patrons all the advantages proffered by the great schools of Concord, Southboro', Faribault, and Racine, adding to the attraction of a new and spacious hall, nobly planned and completely furnished, a sound, churchly training, coupled with the careful oversight and home restraints that can only be had in a school of limited numbers. For good learning, for culturing and improving surroundings, accompanied with the advantages of a military drill, for the personal labor of an enthusiast in education and a devoted minister of Christ, for the loving care and constant supervision of the Bishop of the Diocese, Kemper Hall well deserves the fullest support. The *curriculum* of study is that of our best eastern schools. The teachers are all tried

men. The location combines healthfulness and the advantages of easy access from north and south, east and west. Heated by steam, lighted by gas, with every provision for the comfort and care of the boys, the school could not be improved. The home attractions and the highest and holiest influences are maintained by the constant intercourse of the boys with cultivated men and earnest christian instructors. The churchly character of the school gives to its religious training a distinctiveness and point. The Cathedral services on Sundays and the daily prayers at other times, the presence of the Bishop and city clergy at the hall from day to day, the receptions and other means of imparting a refinement of manner and a familiarity with the requirements of a social life, will all unite to give to Kemper Hall the foremost place among our Iowa schools and make it rank with those eastern institutions which cannot be surpassed.

It is proposed, should the means be secured, to add to Kemper Hall a gymnasium and college hall, to front on Eleventh street, and to form part of the quadrangle contemplated as the final development of the schools. \$5,000 will put up and equip this indispensable addition to our work, and give us a structure seventy-one feet in front by thirty-one feet in width, in which all the apparatus for the physical development of the students will be provided, and there will be also a commodious hall for exhibitions, lectures, and other purposes of the school.

On the northeast corner of the college grounds is Sheldon Hall, formerly the residence of Professor David S. Sheldon, LL. D., whose connection with the college dated back to its very birth, and whose fame as a scientist and educator was not surpassed by that of any *savant* in the west. Sheldon Hall is one of the most beautiful of the creations of the architect of Kemper Hall and (new) St. Katharine's Hall, Mr. E. S. Hammatt, and is a great addition to the grounds.

Griswold College, which comprises the various institutions known as "Bishop Perry's Schools," has a noble landed domain in the heart of the city of Davenport, valued, with the buildings, at not less than \$150,000. Its endowments are nearly or quite \$80,000.

This is exclusive of the property of St. Katharine's Hall, to which Miss Sarah Burr, of New York, bequeathed \$30,000 (not yet received), and of which the ground, buildings, and furnishing represent an outlay of nearly another \$100,000. The endowed chairs and special trusts of the college are as follows:

| | CAPITAL. |
|---|----------|
| Ely Professorship | \$21,325 |
| Crocker Professorship | 21,250 |
| Anthon Professorship | 11,300 |
| Catherine Lorillard Wolfe Professorship | 20,000 |
| Mary Buttles Scholarship Fund | 5,000 |
| George B. Boal Scholarship Fund | 500 |
| | <hr/> |
| Sarah Burr bequest to the college, with accrued interest (not yet received) | \$79,375 |
| Sarah Burr bequest to the girls' school | \$11,200 |
| | <hr/> |
| | \$33,600 |
| | <hr/> |
| | \$44,800 |

Descending the hill as far as Third street, a walk of nearly two miles brings one to Christ church, a very pretty timber church with one hundred and fifty sittings, filled Sunday after Sunday with a congregation drawn from the neighborhood, while the largest church Sunday-school in the city attends the zeal and success of the rector and his fellow-laborers. Beside the church is a pretty brick rectory, erected at a cost of nearly \$3,000. Christ church has an endowment fund of \$2,000, bequeathed to the parish by the late Mrs. C. C. Cook.

Near by is the Clarissa C. Cook Home for the Friendless, a noble charity founded by the devoted and liberal churchwoman whose name it bears, and endowed with a capital of nearly \$100,000. The home was erected at a cost of \$20,000.

On one of the loftiest bluffs in the eastern part of the city, with its outlook across the river upon the cities of Rock Island, Moline, and Milan, stands preeminent St. Katharine's Hall, the Diocesan school for girls, founded by Bishop Perry and opened in September, 1884.

St. Katharine's grounds comprise six acres, and on the highest point stands the Hall, which, as originally erected, was designed to

be the most palatial private residence in Iowa. Seventy-five thousand dollars were spent on the house and grounds; and when the bequest of the late Miss Sarah Burr, of New York City, of \$30,000 for the establishment of a girls' school, to be under the control of the Bishop of Iowa, was announced, the first thought of Bishop Perry was to secure this most desirable property. Negotiations were at once entered upon, and in the summer of 1884 the purchase was made, possession being given but a month before the building, refitted and completely furnished for its new use, was formally opened with an office of benediction, and devoted to its Christian and churchly purpose. The school, placed by the Bishop in the charge of Miss Emma A. Rice, for some years the accomplished and successful head of St. Mary's, Faribault, was filled within a few weeks of its opening, and ere the close of the first term the necessity for enlargement was evident.

Plans for an "annex," more than doubling the size and capacity of the original structure, were adopted, and at the beginning of the second year the entire building, with every convenience, and even luxury, was opened to applicants, and was again filled to its utmost capacity ere the first half of the school year had passed. Such success, gained without resort to advertising or to any attempt to underbid schools of a similar grade, is sufficient evidence that Bishop Perry undertook this work not a moment too soon.

The further enlargement required was made in the summer of 1886, and although it was intended never to exceed the limit of fifty-eight house-pupils, it was evident that provision for even this number would not supply the demand for accommodations in this popular school. The secret of this success is the combination here offered of thorough culture united with personal oversight and care, and accompanied by every possible attention to the comfort and happiness of the pupils. The school is a Christian family. The surroundings, the influences, the general tone and temper of the school, are refining, culturing, home-like. Through the spacious halls, corridors, library, reception and school rooms the pupils move freely, and, while decorum and good order are maintained and constant personal oversight exercised, there is the fullest

liberty consistent with study and the necessary restraint of a loving, Christian home. The furnishings of the school and recitation rooms, the parlors, the dormitories, are all in exquisite taste, and neither care nor pains nor lavish outlay have been spared to make St. Katharine's, in everything save expense, the "Ogontz" of the west.

There are fourteen teachers on the staff, and a limited number of day-pupils are received, making the whole number under instruction at the hall in its second year between seventy and eighty, and in its third year reaching one hundred. Every care has been taken to ensure safety from fire and to obtain perfect ventilation and the most complete sewerage. The immense boiler for the steam-heating apparatus, with the various appliances for laundrying, are all out of the hall in a building by themselves. Every device that ingenuity can offer for the saving of labor and the quick and efficient accomplishment of work is at hand. The numerous bathrooms afford capacity for a hundred or more baths each day. The arrangements for cooking are sufficient for many more than the school family can ever number. Ample provision is made for acquiring the best table manners, and the monthly receptions, to which special invitations are sent out from the ladies of the Hall, and which have proved most enjoyable as well as most popular, afford the opportunity to the girls to familiarize themselves with the requirements of society; while full care is taken of each individual pupil in all matters of health and habits.

The children of the Hall attend morning prayer on Sundays at the Cathedral. Evening prayer is said in the school-room until the school chapel is built. During Advent and Lent the Bishop conducts special services each week.

Such are the foundations for church work in Davenport: Realty (land and buildings) valued at \$350,000; furnishing (libraries, cabinets, apparatus, bells, organs, etc.), \$25,000; endowments in hand or in prospect (the \$40,000, with interest, of the Burr bequest not being paid over), \$125,000; in brief, upwards of half a million of dollars worth of property, of which a little more than one-third of the whole sum was contributed outside of the Dio-

cese. The excess represents the appreciation of our property, the gifts made from our own people, and the results of a wise and careful husbandry.

There also exist two colleges for the education of business men—the *Davenport Business College*, since 1865, and the *Iowa Commercial College*, of a more recent date.

Private Schools are only nine in number, of which two are kindergardens, one a free German school, and the other six are parochial schools.

CHARITIES.



COOK'S HOME FOR THE FRIENDLESS.

HOME FOR THE FRIENDLESS.

Clarissa C. Cook's home for destitute and indigent females was opened in the year 1882. After the building (the home of the friendless) had been completed upon the fifteen-acre tract donated by Mrs. Cook, in the western part of the city, at a cost of \$20,000.

Women who are residents of Scott county, and over sixty years of age, are here admitted as permanent inmates, upon paying an admission fee of \$100. The building has a capacity for twenty-five inmates. The foundress has provided the institution with an endowment of over \$90,000, the interest of which is to be used annually by the trustees for the support of the home and its inmates.

THE PUBLIC LIBRARY.

(See Illustration, Page VIII., No. 23.)

Through the benevolence of Mrs. Clarissa C. Cook, a suitable building for a library, centrally located, on Brady and Sixth streets, has been erected at a cost of \$13,000, upon a lot purchased with the proceeds from individual donations. It contains over 10,000 volumes of standard works. Upon the reading-tables are found twelve leading magazines and eight newspapers. The number of volumes annually drawn is about 13,400, and the number of visitors 34,000.

IOWA SOLDIERS' ORPHANS' HOME.

(See Illustration, Page IX., No. 26.)

The State of Iowa can point with pride to what her loyal citizens have done, and are doing, for the orphans of her heroic dead, and to what is being done for equally unfortunate indigent children.

The soldiers' orphans' home was organized in 1863, and opened for children in 1864, at Farmington; was removed to Davenport in 1865, and occupied the barracks in what had been a soldiers' camp during the war, the general government having given them to the State of Iowa for this purpose. These temporary and unsuitable buildings gradually gave way to substantial and permanent ones, which consist of one central building, 50x90 feet, three stories high, to which is attached a dining-hall and kitchen, 66x92 feet, two stories high; a school building, 35x68 feet; sixteen cottages, 31x51; laundry, with boiler-room, and a spacious barn; all built of brick, except the barn, which is of wood, with stone foundation. Since its organization upwards of fifteen hundred

soldiers' orphans have been cared for, of whom but forty-five now remain. In 1876 the home was opened to indigent children, since which time about five hundred have been received, of which number two hundred and sixty-four remain, making three hundred and nine in all now at the home.

The support and maintenance of the indigent children is paid for by the several counties from which they are sent at the rate of \$100 per year for each child. The state provides \$10 per month for the support of soldiers' orphans. All salaries and running expenses are paid out of these amounts.

That the home is accomplishing the object for which it was established is attested by the fact that of the large number who have already left the home, very many are known to be prosperous and happy, and proud to say they were brought up at the home.

Mr. and Mrs. S. W. Pierce, as Superintendent and Matron, with a body of efficient helpers, very successfully conducted the affairs of the home for nineteen years. The present Superintendent and Matron are Gen. and Mrs. A. C. Litchfield.

MERCY HOSPITAL.

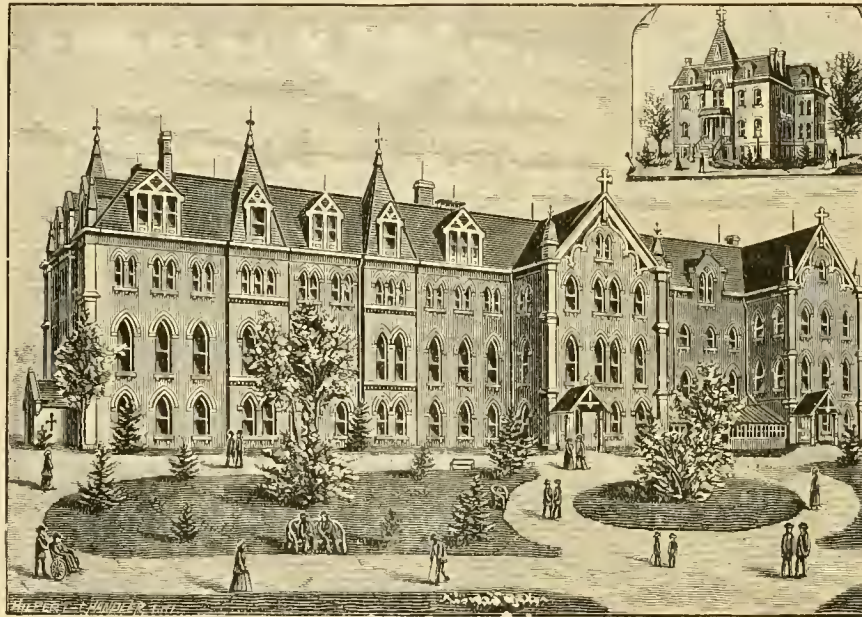
(See Illustration, Page IX., No. 25.)

Mercy Hospital, in all of its departments, is one of the best institutions of the kind in the country—one with which there is not another in Iowa for comparison. The grounds cover about

thirty acres, located just outside of the city limits on the north. The main building is a massive brick structure, four stories high, and 60x150 feet in size. The institution was opened in December, 1868, and has grown to magnificent proportions. The entire control and discipline is in the hands of the Sisters of Mercy. The hospital is subject to constant visitations by county officials, who

point to it with a feeling of pride.

The institution has the entire confidence of the official board and of the city physicians and surgeons, who regularly visit the place. The upper building, as shown in the cut, represents the St. John's Asylum, which was built for the comfort of the male insane patients. The asylum has just been built at a cost of \$23,000. It has a frontage of 45 feet, with a depth of 91 feet, and the east and west wings are 12x20 feet each.



MERCY HOSPITAL.

BUSINESS AFFAIRS.

Of the extensiveness of the various business dealings of the citizens of Davenport, we give the following institutions, industries, manufactories, and other business branches as an approximate representation:



BANKING HOUSES.

The First National Bank, organized June 27th, 1863—the first in the United States under the national banking law—with a capital of \$100,000, a surplus of \$50,000, a deposit of \$549,133, and undivided profits of \$60,000.

The Davenport National Bank, organized in 1865, with a capital of \$200,000, a surplus of \$40,000, a deposit of \$350,505, and undivided profits of \$18,000.

The Citizens National Bank, organized in 1868, with a capital of \$100,000, a surplus of \$100,000, a deposit of \$873,116, and undivided profits of \$34,000.

The German Savings Bank, organized in March, 1869, with a capital of \$300,000, a surplus of \$60,000, a deposit of \$2,584,938, and undivided profits of \$92,375.

The Davenport Savings Bank, organized in March, 1870, with a capital of \$120,000, a deposit of \$1,084,182, and undivided profits of \$53,812.

The Scott County Savings Bank, organized in December, 1883, with a cash capital of \$50,000. There has since been added by stock dividends \$20,000; accordingly, the capital is now \$70,000, deposits \$660,000, and undivided profits \$90,000.

These savings banks pay depositors five per cent per annum interest, and loan their money upon good security. The savings in these three banks amount to \$4,329,120.

THE WHOLESALE TRADE,

the volume of which was estimated in 1881 at \$8,000,000, in 1883 at \$10,000,000, and may now amount to

over \$12,000,000, is represented by thirty-six wholesale houses, of which seven deal in wines and liquors; four in groceries and provisions; three in dry goods; two in tobacco and cigars; two in cloths and clothing; two in crockery and glassware; two in fruits; two in hardware; one in boots and shoes; two in paper stock; one in coal oil; one in hides, pelts, and tallow; one in iron and wagon stock; one in paints, varnishes, and oils; one in leather and saddlery; two in candy, nuts, etc.; one in carriages and buggies, and one in sash, doors, and blinds.

THE RETAIL TRADE

is carried on by about seven hundred business firms, including sixteen druggists.

MANUFACTORIES.

As taken from the statistical tables of the year 1882, the capital invested in manufacturing industries amounted to \$4,610,280, the value of products to \$9,874,006, and the number of hands employed to 2,290. During the last four years these establishments have considerably increased, and to-day all of them are in a flourishing condition.

There are now in operation, two awning factories; twenty bakeries; twenty four blacksmithing establishments; one blank-book manufactory; one boat-yard; one boiler factory; three book binderies; forty-four boot and shoe factories; three box factories; three brass foundries; five breweries; six brick-yards; one brush factory; one bustle factory, employing thirty-eight

hands; four candy factories; one canning factory; thirty-nine carpenter shops; seven carriage factories; seven carpet weavers; one cheese factory; two churn factories; thirty-nine cigar factories, with a product of 13,743,425 cigars during the year ending December 31st, 1886; two cigar-box factories; two coffee and spice mills; twenty confectioneries; four cooperies, employing eighty-five coopers; two cracker factories; one creamery; forty dress makers; two dying works; three flour mills; eight foundries and machine shops; three furniture factories; one glucose factory, the first in Iowa, employing ninety-five hands, and produced last year 32,200,000 pounds of grape-sugar; three grist and corn mills; two gunsmiths; six hair works; nine harness makers; eight hatters; one hay press; one horse-collar factory; seven job-printing houses; one ladder manufactory; nine laundries; four malt houses; four marble works; twenty-seven meat markets; twenty-three merchant tailors; two mineral water manufactories; four mustard factories; one oat meal mill; four packing-houses; twenty-six paint shops; one paint factory; one pants, shirt, and overall factory; one piano factory; two plow factories; one pottery; two pump factories; three sash, door, and blind factories; four shirt factories; one show-case factory; two soap factories; two soda water factories; seventy-nine stone masons; one stove-polish factory; two tanneries; one tent factory; one threshing machine factory; one trunk factory; three vinegar works; sixteen wagon shops; three washing-machine factories; one wheel factory;

sixteen watchmakers; one wood engraver, and one woolen mill.

OTHER BUSINESS BRANCHES AND OCCUPATIONS.

Six agricultural stores; six architects; fifty attorneys; one auctioneer; twenty-two barbers; one bill-poster; ten book stores; twenty-nine brakemen; six carpet stores; two cane chair repairers; eleven conductors; nine civil engineers; fourteen cigar stores; twelve clothing stores; ten coal dealers; seven commission houses; three cutters and grinders; four crockery stores; nine dentists; sixteen druggists; fourteen dry goods merchants; two employment agencies; seven fish dealers; nine florists; fifteen flour and feed stores; three fruit stores; ten furniture dealers; three furriers; thirty grain dealers; one hundred and five groceries; eight hardware dealers; two harness dealers; six hay and straw dealers; two hospitals; one house-mover; five ice dealers; twenty-five insurance agents; sixteen jewelers; twelve hundred and forty-eight laborers; four lime and cement dealers; fourteen livery stables; two mercantile agencies; five midwives; eleven milliners; three music stores; sixteen music teachers; nine newspapers; five news stands; eight notion dealers; three ocean steamship agencies; two oil dealers; three thousand operatives; six paint, oil, and glass dealers; four dealers in paper bags and boxes; three paper hangers; two pattern-makers; six photographic galleries; forty-nine physicians; seven dealers in pictures and picture-frames; seven plumbers and gas-fitters; fifteen public

weighers; one dealer in rags and iron; eighteen real estate agents; four repair shops and stencil cutters; twenty-four restaurants; one rubber-stamp factory; one hundred and sixty-two saloon keepers; one sand dealer; six second-hand stores; ten seed stores; eight sewing-machine agents; twelve stock dealers; one stock-yard; six hundred students; one hundred and forty-three teachers; one hundred and eighty-four teamsters; two telegraph offices; two telephone companies; six toy stores; ninety-seven traveling agents; two trunk dealers; five undertakers; four veterinary surgeons, and twelve wood dealers.

TRANSPORTATION FACILITIES.

THE RAILROADS.

Forty-four railroad trains sound their bells daily through the city.

The *Chicago, Rock Island & Pacific Railway*, with its main line in Iowa, and the southwestern branch, and the Albert Lea and its Illinois divisions, extends over 1,700 miles of track. Just now a subscription of liberal citizens to the amount of \$10,600 has secured the city the erection of new work-shops, with a capacity of three hundred operatives.

The *Chicago, Milwaukee & St. Paul Railway*, with a total length of over 4,450 miles, more than any other single corporation in the world, is loading freight cars in either of the three cities — Davenport, Rock Island, and Moline — for any point upon its line or connections.

Besides these, the city has, through the roads entering the City of Rock Island, railroad connections with *Indianapolis* and *Cincinnati*, with the inexhaustible *coal fields* of Coal Valley, and *Rock Island* and *Mercer Counties*, in the state of Illinois, and with all points on the line of the *Chicago, Burlington & Quincy Railroad*, extending 3,714 miles.

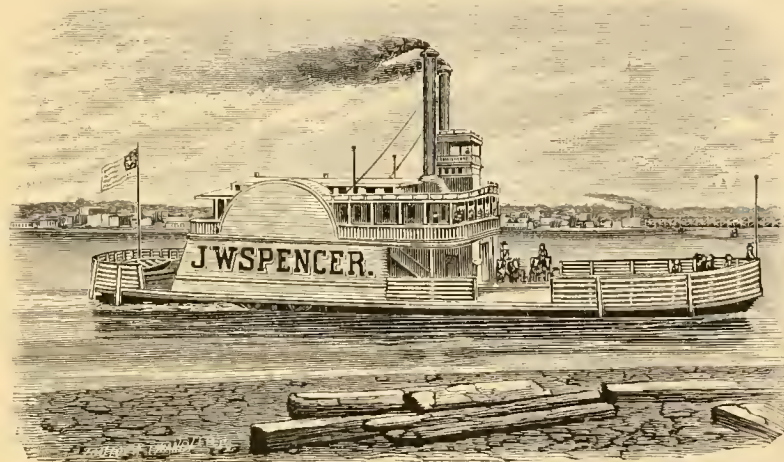
The City Council has granted several side-tracks in the most liberal manner.

In the year 1882 the *Chicago, Rock Island & Pacific Railway* received for this place 10,922 car loads, and forwarded from here

10,486 car loads. In the same year 13,443 engines, with trains attached containing 21,023 passenger coaches and 209,438 freight cars, passed the government bridge.

RIVER NAVIGATION.

Two steamboat lines and several independent boats, besides the ferry boat, are engaged in carrying pass-



DAVENPORT AND ROCK ISLAND FERRY.

engers and freight on the Mississippi to and from this port. Probably one thousand passengers are carried from this point during the year. Hardly an hour passes without a steamboat in sight; and the electric

and 988 rafts passed through the government draw; in 1886, 2,393 boats, 139 barges, and 784 rafts. The traffic and communication with the City of Rock Island is carried on by way of the government bridge



THE CITY OF ROCK ISLAND.

lamps attached to many boats during the last year illuminate at night the picturesque shores in the most gorgeous manner. In 1882, 2,614 boats, 394 barges,

and by the ferry-boat. What number of passengers or what quantity of freight is carried by the ferry has probably never been reported. In 1882, 332,481 teams,

and 534,058 foot passengers passed the bridge. The Davenport and Rock Island Street-Railway Company are in possession of the charter for a street-railway over the bridge and the Island, granted by congress, and also have a charter granted by the City of Davenport October 7th, 1885,,but have not yet succeeded in making the connection of the tri-cities.

The Davenport street-cars run both ways every fifteen minutes.

THE BUSY POST-OFFICE.

The solid progress of Davenport is pretty well illustrated in the annual report of Postmaster De Armond. The statements will interest the people all the more because they show a substantial increase of business in Davenport. The financial statement for the year 1886 shows the following receipts and disbursements, exclusive of money-order business :

RECEIPTS.

| | |
|---|--------------------|
| Stamps, envelopes, wrappers, and postal-cards | \$37,164.90 |
| Newspaper and periodical stamps | 838.24 |
| Postage-due stamps | 139.58 |
| Waste paper and twine | 11.32 |
| Box rents | 550.75 |
| TOTAL | \$38,704.79 |

DISBURSEMENTS.

| | |
|--|--------------------|
| Railway mail service | \$11,387.51 |
| Carriers | 6,460.12 |
| Clerks | 8,001.64 |
| Rent and expense bills | 2,576.14 |
| Mail messenger | 444.00 |
| Deposited with Assistant Treasurer of U. S | 9,835.38 |
| TOTAL | \$38,704.79 |

MONEY-ORDER BUSINESS.

| | ISSUED. | AMOUNT. |
|---|---------|-----------------------|
| Number domestic money-orders | 6,013 | \$ 61,615.40 |
| Fees on domestic money-orders | | 562.98 |
| Number postal-notes | 4,612 | 9,018.75 |
| Fees on postal-notes | | 137.28 |
| Number foreign money-orders | 446 | 5,640.58 |
| Fees on foreign money-orders | | 74.10 |
| Surplus deposits from other offices | | 665,905.00 |
| | PAID. | |
| Number domestic money-orders | 12,942 | 189,288.74 |
| Number postal-notes | 7,487 | 16,780.50 |
| Number foreign money-orders | 1,203 | 6,643.09 |
| | UNPAID. | |
| Number money-orders | 54 | 562.47 |
| Number postal-notes | 41 | 79.27 |
| Surplus funds remitted to postmaster at Chicago | | 529,600.00 |
| Grand total of money-order transactions | | \$1,485,908.18 |

LETTER CARRIER BUSINESS.

| | 1885. | 1886. |
|--|-----------|------------|
| Registered letters delivered | | 5,939 |
| Mail letters delivered | 1,398,312 | 1,716,946 |
| Mail postal-cards delivered | 234,753 | 273,052 |
| Local letters delivered | 76,952 | 136,727 |
| Local postal-cards delivered | 78,567 | 125,761 |
| Newspapers delivered | 604,838 | 788,868 |
| Letters collected | 630,830 | 838,753 |
| Postal-cards collected | 169,948 | 250,120 |
| Newspapers collected | 54,320 | 104,559 |
| Postage on local matter | | \$4,377.59 |
| Carrier expenses | | 6,581.78 |

SPECIAL DELIVERY BUSINESS.

| | |
|---|-------|
| Number mail special letters delivered | 922 |
| Number local special letters delivered | 499 |
| Whole number special letters delivered | 1,421 |
| Number special letters failed of delivery | 21 |
| Number special letters for Sunday delivery | 33 |
| Number special letters arriving on 11 P. M. train | 98 |
| Number special letters mailed to other places | 1,013 |

| | |
|--|-------------|
| Number special stamps sold | 1,150 |
| Amount paid messengers | \$113.60 |
| Average time of delivering special letters | 23 minutes. |

It will be seen from the foregoing that the money-order transactions amount to nearly \$1,500,000. The important position of the Davenport post-office is apparent. It is the depository for the surplus money-order funds for about one hundred and fifty post-offices in Iowa and Illinois.

The sum of nearly \$10,000 deposited with the assistant treasurer of the United States at Chicago is the cash postal surplus after paying employes' salaries, rent, and all other office expenses. In other words, Uncle Sam has that amount of profit in the Davenport post-office.

The figures show the greatly increased work of the letter-carriers, who handled 998,857 more pieces of mail in 1886 than in 1885. The amount of work performed by these faithful servants may be imagined from the statement that during the past year each of the nine carriers handle an average of 1,561 pieces per day.

With a laudable pride in our city, it may be confidently asserted that the Davenport post-office is earnestly striving to give the people the very best and most efficient postal-service.

SOCIETIES.

The societies the citizens have formed and sustain for benevolent, gymnastical, literary, musical, religious, scientific, or other social purposes, are particularly the following :

THE DAVENPORT ACADEMY OF NATURAL SCIENCES.

Sketch by W. H. PRATT, Curator.

The Davenport Academy of Natural Sciences was organized December 14th, 1867, by a few individuals who had long desired by

co-operation to increase their facilities for the pursuit of studies in natural science, and especially to endeavor thus to encourage an interest in this direction throughout the community. They accordingly began by the adoption of a constitution setting forth as the object of the association "the increase and diffusion of a knowledge of the natural sciences by the establishment of a museum, the reading and publication of original papers, and other suitable means," and the late Professor D. S. Sheldon was elected president. Several of the organizers transferred their own private collections to the Academy as a nucleus of the "museum" which it was hoped to establish.

The society commenced its existence without any funds whatever, and the first initiation fees were applied to the purchase of one plain case to contain the specimens contributed. This was located and the meetings held in the real estate agency office of one of the original members, in the present post-office block, corner of Third and Perry streets.

A considerable number of persons were immediately elected as corresponding members, thus soliciting their interest, influence, and co-operation; and several of them responded very promptly and kindly, and additions to the collections soon began to come in from associations and individuals.

Monthly meetings were held, to which the public were invited; and as the new organization began to attract the attention of citizens, new members were received and their fees were appropriated to procuring additional cabinet-cases as they were required, and ere long more space was needed than the small quarters where the Academy was born could afford.

In 1868 a proposition received from the Library Association offering the privilege of a joint occupancy of their rooms on the third floor, northeast corner of Brady and Second streets, was accepted, and the cabinets and books were placed there and meetings held there for over four years.

Next the Academy rented a small back room on the second floor, first door east of the Davenport National Bank, which was its home for one year, during which time several of the natural

history specimens and books were destroyed by a fire which occurred in the building; fortunately, however, the loss sustained by the Academy was very small. From this place the institution was moved, in 1874, into rooms on the second floor of the Odd Fellows' building, on Brady street above Fifth, where it remained until January, 1878.

In 1873 the Academy turned its attention to the exploration of the ancient mounds which were found to be very numerous, though hitherto quite neglected, and it was discovered that the Davenport Academy was situated in the midst of one of the richest fields for such researches in the whole country. The first explorations were made in the mounds at Albany, Illinois, thirty-five miles up the river on the Illinois side, with results which gave encouragement to pursue the work, and from this time forward the Academy continued the investigations chiefly under the direction and by the active efforts of Reverend J. Cass. Thus the search has been extended, and hundreds of mounds explored throughout Scott, Muscatine, and Louisa counties, Iowa, and Rock Island and Mercer counties, Illinois, and with what may certainly be considered quite remarkable success, having resulted in bringing together by far the largest collection ever made of the stemless "curved-base" mound pipes, a type totally unknown to any existing tribe on the continent; a large number of primitive implements of hammered copper, many of them still showing their ancient cloth wrappings, impregnated with and preserved by the carbonate of copper; and very numerous beads, charms, and other ornaments, made of shell, bone, horn, and teeth. Aside from this, and in addition to the numerous scattering contributions from other parties, Captain W. P. Hall, by his persistent labors, chiefly in the lower Mississippi valley, has added to the collections several thousand ancient stone and flint implements from almost every part of the country, and many hundreds of specimens—some very remarkable ones, too—of the ancient pottery of the southern mound-builders. A valuable collection has also been secured of human crania from the mounds both north and south; all together constituting one of the finest museums of archaeological relics in the United States. An especial value

attaches to these collections from the fact that almost all of the specimens have been obtained by the direct researches of members of the Academy, and thus all the circumstances of their discovery are perfectly known, instead of having been received at second or third hands, and of uncertain history.

Although the especial work above referred to has commanded particular attention, the general objects of the institution have not been lost sight of, and original observation and investigation have been carried on in other branches of natural science, as the means and opportunity of the several members would permit.

In the fall of 1875 it was decided to undertake the publication of the proceedings and work of the Academy; and in the next year, mainly through the active exertions of a number of enthusiastic and public-spirited ladies, Volume I. of the "Proceedings" was brought out. This was quite extensively distributed, and exchanges solicited, and the verdict of the scientific world upon the work thus far of this little western institution was awaited with considerable anxiety. On the whole, this verdict proved decidedly favorable, more so than those engaged in the work had dared to expect. Since that time the publication has been continued more or less irregularly, as circumstances would permit, and four well-illustrated volumes of over 300 pages each have been published, and the fifth is now (1887) in progress. From the entire want of a publication fund, the successful prosecution of this work has been one of great difficulty, but the means have been procured and the work constantly pushed on, chiefly by the unremitting efforts and able management of Mrs. M. L. D. Putnam, Chairman of the Publication Committee. These volumes contain full descriptions of the archaeological investigations made, and of the remarkable collection thus secured, with numerous papers on original researches in geology and paleontology, botany, conchology, and various other subjects, by members and other contributors, and an especially important and thorough monograph on the Solpugidae, with other entomological studies, by the late J. Duncan Putnam, and have been widely distributed, not only throughout the United States, but also in foreign lands, and have made the institution, though a

young, small, and pecuniarily feeble one, well and favorably known in every civilized country.

In 1877, by the munificence of a wealthy lady of our city, Mrs. Patience V. Newcomb, the Academy became the owner of a favorably situated building-lot. This was presented unconditionally, but the Academy immediately proceeded, largely through the influence and direct efforts of the ladies above mentioned, to procure means by contributions, entertainments, and life-memberships, to erect a building for the museum, library, meetings, and all the purposes of such an institution. A plan was adopted providing such a building as seemed desirable, and the rear portion, which was as much as the means at hand would allow, was built at a cost of \$4,500, and the institution was moved into it in January, 1878. Since that time the work of the several departments has gone steadily on, though often slowly, and though the workers are few and some of the best already gone forever, additional ones are gained from time to time, and among those who cannot take an active part the friends and well-wishers are many, and large and important collections have often been added in each department. The museum now contains something interesting and instructive in almost every department of natural science, including many very beautiful specimens, and one of the most important and valuable collections in archaeology in the country, in some respects quite unequaled.

As the direct result of the publication and distribution of the Proceedings, a valuable scientific library has been built up, containing over 6,000 volumes of scientific books, including government and state surveys, proceedings of great numbers of scientific societies, scientific, historical, and archaeological works, and many agricultural, mechanical, and technical journals, etc.

For several years past a curator has been employed, whose whole time is given to the care of the building and the work required in connection with the library and museum. The rooms are open for a number of hours every day, without charge for admission, and the visitors number several thousand in the course of each year.

It is worthy of note that while this institution has become widely and favorably known, many similar attempts in different parts of the country during the same period—indeed a large proportion of them—have failed from want of interest and support. Some of the circumstances which have made this survival and measurable degree of success possible are: *First*. The fact that in its inception the Davenport Academy was based upon *work*, and did not wait for “endowments,” “state aid,” or other outside support. *Second*. It was situated in a rich field for researches, such as could be successfully conducted without much money. *Third*. It had enlisted in its support a few determined, unselfish workers who were willing and eager to devote their available time and means to the interests of science and this institution, to make it instrumental in the great object of promoting “the increase and diffusion of knowledge.” *Fourth*. It wisely adopted and persistently held to the plan of publishing its Proceedings; and finally, though by no means of least importance, women have from the start joined earnestly in the work, and been welcomed to the councils and offices of the institution.

THE CHURCHES.

(See Illustration, Page VIII., No. 21.)

Thirty-two churches and one synagogue represent the religious societies of the city. Of the nine Christian denominations, there are four Baptist, four Catholic, one Christian, three Congregational, five Episcopal, four Lutheran, six Methodist, four Presbyterian, and one Unitarian.

Davenport is also the *see city* of the Bishop of the *Roman Catholic* Diocese of Davenport, containing the southern half of the state, and the *see city* of the *Protestant Episcopal Church* for the Diocese of Iowa.

LODGES, ETC.

(See Illustration, Page X., No. 33.)

About fifty-five lodges and eighteen other secret societies are organized and divided as follows:

Five lodges of Ancient Free and Accepted Masons — now engaged in building their Masonic Temple, at the northeast corner of Third and Main streets, at a cost of over \$60,000; seven lodges of the Ancient Order of United Workmen; one Ancient Order of Hibernians; one of the Catholic Knights of America; one Danish Brotherhood of America; one Danish Ladies' Society of America; five lodges of Druids; one Free Brotherhood; two lodges of Harugari; five Independent Order of Odd Fellows; one Iowa Legion of Honor; one Irish National League; one of the Knights and Ladies of Honor; four of Knights of Pythias; two orders of the Knights of Labor, and five other labor organizations; one Modern Woodmen of America; one National Union; one Royal Arcanum; one V. A. S. Fraternity; seven lodges of the United Brotherhood of Iowa one Independent Order of B'nai Brith. Besides these there are: One Grand Army of the Republic; one of the Sons of Veterans; one of the Army of the White Cross, and fifteen relief and sick societies:

FORTY-SIX OTHER ASSOCIATIONS.

About twenty societies are formed and maintained for social, literary, and musical purposes. Three societies belong to Grace Cathedral; three to St. Marguerite's Cathedral; three to Trinity Church; three Temperance Societies; one Young Men's Christian Association, and one Military Association — Company "B," Second Regiment, First Brigade, I. N. G.; two Boat Clubs; two Shooting Associations; one Cremation Society; two Charitable Societies. Particular to mention are the Davenport Loan and Building Association; the Old Settlers' Association; the Scott County Medical Society, and the *Davenport Board of Trade*, organized in 1855 by a few enterprising and public-spirited business men for the purpose: "To collect and record such local and general statistical information relating to commerce and manufactures as may promote the interests of Davenport, and to protect and advance the welfare of the commercial and manufacturing, and all other classes of citizens; to promote just and equitable principles in trade; to establish uniformity in the commercial usages of the city." It has done valuable services in promoting business interests, railroad

connections, in making efforts for the building of the Hennepin Canal and the Davenport, Iowa & Dakota Railroad. It is the parent association of the *Produce Exchange*, which was organized in the spring of 1882 by a number of dealers in grain and produce, including millers and pork-packers. It now has about thirty-five members. It receives daily market reports from all commercial centers in the United States, and opens its rooms to strangers.

The two Davenport Turner Societies, of which the Davenport Turn-Gemeinde, the first society of the kind in Iowa, embraces about four hundred members. It is now engaged in building a new hall at the southwest corner of Scott and Third streets, at a cost of \$70,000. (See Illustration, Page VIII., No. 24).

THE ADVANCE CLUB.

An *extract* from the annual report to the Advance Club by its President, Robert Krause:

Allow me to congratulate you upon the encouraging outlook and new manufacturing and building enterprises already secured since our organization fifteen months ago, and the confident feeling existing among all of our citizens as to the future prosperity of our lovely city; and allow me to briefly mention what projects were either in part or in whole brought to a point of realization by the joint efforts of your Board of Directors and members of the Club. The first and most important was the petition for a railroad tax, the victory for progress at the polls, and again in the district court. At present we are patiently waiting the decision of the supreme court, which I trust will not fail to approve the efforts of those of our citizens who have no other desire than to build up our city, extend our commerce, and erect factories and work-shops for the people. Should the supreme court unfortunately decide against us, it will nevertheless be admitted by all of our fair-minded citizens that this Davenport, Iowa & Dakota Railroad project has been principally instrumental in waking up our people, and if the tax now fails in consequence of technical errors committed, and could be again submitted to the people, it would be carried by an overwhelming majority.

NEW ENTERPRISES FOUNDED.

The second enterprise, already fully established, and promising to double its capacity very soon, is the Bettendorf Metal Wheel Company, in the old Donahue machine-shops, which began operations late last fall, is now giving steady employment to sixty mechanics.

The third is the incorporation of the Canning Works, for which enterprise the buildings and machinery will be erected immediately, and which, during the coming season, will give employment to about two hundred hands, and next year probably three hundred.

The fourth is the enlargement of the Chicago, Rock Island & Pacific Railway shops to more than double their present capacity, which now we can no longer doubt; and before another winter, will give employment to probably two hundred and fifty mechanics, while in the meantime the Railroad Company employ more builders and laborers than our present population can furnish.

Besides those projects above mentioned, several new minor enterprises have been established during the past six months in our city, and others have been increased in capacity, all of which employ fully one hundred hands in addition to the regular force

heretofore employed, which includes the Moeller & Aschermann Manufacturing Company, the Globe Plow Works, the Artificial Stone Company, and the Robert Krause Overall Factory. Besides all of these, I know of important projects now under consideration, which, however, I cannot mention here.

To add to all of the above, there is, in consequence of our citizens' confidence in the future growth and prosperity of our city, already a building boom inaugurated that promises to exceed a half-million dollars within the next twelve months. As a part of the new buildings may be mentioned the Masonic Temple, the Turner Hall and Opera House, the Court House, the new Baptist Church, the new addition to the St. James Hotel, and four new brick business blocks, also many new elegant residences, which aggregate fully \$100,000. It is safe to add that the enterprises and buildings mentioned will necessitate the drawing to this city of a large force of mechanics and laborers, who will find ready employment at remunerative wages.

Davenport, Iowa, March 15, '87.



THE PROPOSED HENNEPIN CANAL.

HISTORICAL REVIEW.

A history of Davenport, tracing back the events to Adam, or to the discovery of America, or even to the

time of the declaration of independence, would be an impossibility. History, however, informs us that the Mississippi river was discovered in the year 1519; that the French built the City of New Orleans in 1717, and ceded the large territory of Louisiana in 1763 to Spain, who returned it in 1800 to the French Republic, which controlled it until 1803, when it was sold by Napoleon to the United States for \$11,250,000; but the aborigines of Davenport never owed any allegiance to either France



BLACK HAWK.

or Spain, nor had they any official connection with these governments; only in the year 1804 we learn that they came in contact with civilization, when the Saes, Saukees, and Musquakes or Foxes ceded to the United States, through General Harrison, all the lands lying on Rock river and elsewhere, but this treaty was not signed by the celebrated Black Hawk until the year 1816, being the same year that Fort Armstrong (page I., Views of Rock Island Arsenal) was built by the United States upon the western point of the Island of Rock Island, nearly opposite the City of Davenport, and right above the cave wherein the great and good Indian spirit lived. Black Hawk is reported to have spoken at that time the following words: "We did not, however, object to their building a fort on the island, but we were very sorry, as this was the best island on the Mississippi, and had long been the resort of our young people during the sun-

mer. It was our garden which supplied us with strawberries, blackberries, plums, apples, and nuts of various kinds; and its waters supplied us with pure fish, being situated in the rapids of the river. In my early life I spent many happy days on this island. A good spirit had care of it, who lived in a cave in the rocks immediately under the place where the fort now stands, and has often been seen by our people. He was white, with large wings like a swan's, but ten times larger. We were particular not to make much noise in that part of the island which he inhabited for fear of disturbing him; but the noise of the fort has since driven him away, and no doubt a bad spirit has taken his place."

In 1823 the larger portion of the Foxes and Saes removed across the Mississippi, headed by the Chief Keokuk, but Black Hawk refused to vacate the Sac Village on Rock river.

In 1827 difficulties commenced between the white settlers and the Indians, and while the Indians were absent on their periodical hunt some reckless frontiersmen applied the torch to some forty lodges, which were consumed.

In 1829 the lands upon the Rock river were thrown into the market, against the terms of the treaty of 1804; and in 1830 and 1831 Black Hawk and his followers were notified by the government agent at the island to move, or troops would be sent to drive them off. During this time, in the spring of 1831, the squaws had commenced planting corn, which the whites had plowed up, whereupon Black Hawk became

so enraged that he threatened to drive the whites away by force, but the Governor of Illinois ordered out the militia, and General Gaines, with 1,600 men, took possession of the Sac Village, and Black Hawk retreated across the river.

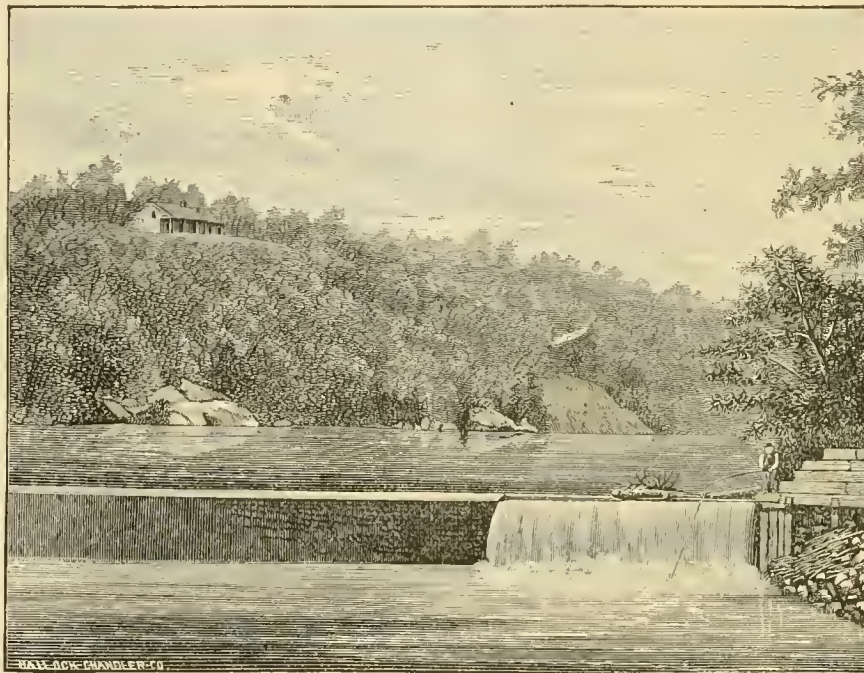
In the spring of 1832 Black Hawk again tried to recover his lands; but after failing to receive assistance from other tribes, he sent his women, children, and baggage up Rock river in canoes, and ventured an attempt to capture Fort Armstrong; but not succeeding therein, he followed his people up the river. The troops under General Atkinson, Lieutenant-Colonel Zachary Taylor with

Lieutenant Jefferson Davis under him, and 2,000 Illinois volunteers under command of General Whiteside — Abraham Lincoln was Captain under him — followed the Indians up Rock river, and after much fighting, from the battle at Stillman's Run, May 15th, where 50 braves routed 300 troops, until the battle at Bad Axe, on the Missis-

sippi, August 2d, where Black Hawk's whole band was nearly destroyed, the Black Hawk War came to an end. General Scott, with troops from the east, arrived at Prairie Du Chien a few days after the battle, and went

from there down the Mississippi to conclude a new treaty with the Indians, on September 21st, 1832, at the old depot grounds of the Chicago, Rock Island & Pacific Railway, within the present City of Davenport, by which six million acres were ceded to the United States for an annual payment of \$20,000 for thirty years, the payment of the debts of the tribe, and the support of a blacksmith and gunsmith among them. In

the treaty the Chief Keokuk had a section of land reserved to the wife of Antoine LeClaire, under condition that she should build a house on the spot which General Scott's *marquee* had occupied during the treaty. This section was surveyed as the "LeClaire Reserve," and in its southwest corner the original



BLACK HAWK'S WATCH-TOWER.

town of Davenport was laid out by Major Gordon into forty-two blocks, three of which were public squares. "The necessity of a town between the upper



COLONEL GEORGE DAVENPORT.

and lower rapids, the unexampled fertility of the adjacent country, the magnificent beauty of the location, its freedom from malarial marshes and facilities for drainage, and the propinquity of immense opportunity for water-power," were reasons advanced for the choice of the location. The town was named after

Colonel George Davenport, a native of England, who, after ten years' service in the United States Army, was employed in the commissary department at the time Fort Armstrong was built on Rock Island, where he settled with his family (page 1, Views of Rock Island Arsenal), and where he was murdered by robbers, July 4th, 1845. He was generally known and much beloved for his great humanity.

So the town had been surveyed and received its name, but it was not legally organized until it received its charter by the legislature of the Territory of Iowa, on January 25th, 1839. February 11th, 1842, it received a new charter, which the citizens adopted by

a vote of seventy-two against ten. This act was repealed by an act to incorporate the *City* of Davenport, passed and approved February 5th, 1851, by the legislature of the State of Iowa — organized since 1846 — and adopted by a vote of ninety-seven against seventy-one, which, with the amendments thereto, passed January 24th, 1853 (extending limits), January 22d, 1855, and January 23d, 1857, constitutes the present organic law of the city, and guarantees to its citizens self-government under the laws of the land.

The original seal of the town was an American eagle of the twenty-five cent piece — adopted May 4th, 1839 — but November 30th, the same year, changed to an American eagle of a ten cent piece, for which the present seal — the half-dollar American coin, having on it the Goddess of Liberty — was substituted June 29th, 1844.

In May, 1836, the first lots were sold at public auction, mostly to speculators who had arrived from St. Louis on a boat; but only fifty or sixty lots were disposed of, at from \$300 to \$600 apiece. In 1838 single lots brought only from \$50 to \$200; and in 1850-51 some of the poorest situated lots were sold at only \$15, while in the years 1855-56 the prices went up to \$4,000 and \$5,000; depreciated again in the beginning of the rebellion to \$1,000, but since that time gradually advanced to \$16,000 apiece.

In the same year, 1836, the first hotel — the "Davenport Hotel" — was erected, which still stands in a dilapidated condition on the northwest corner of Front and

Ripley streets. Two blocks below the hotel, in the same year, James MacIntosh opened the first grocery, at the corner of Third and Ripley streets, and D. C. Eldridge opened another shortly afterward; A. McGregor opened the first law office; A. LeClaire became the first United States Postmaster. Postage amounted to twenty-five cents. The mail arrived once a week from the east via Chicago, and once in two weeks from Dubuque via Davenport to Fort Des Moines (now Moutrose). In the same year, A. LeClaire established the ferry—a mud boat, which was substituted by a horse-ferry, and this was superseded by a steam-ferry in 1852.

In 1837 D. C. Eldridge erected the first patent flour mill, operated by horse-power; Doctor A. G. Donalson became the first physician; Harvey Leonard operated the first brick-yard, at Sixth and Harrison streets; A. Logan started the first printing-office, and published the first newspaper, "The Iowa Sun," and "Davenport and Rock Island News."

May 25th, 1839, St. Anthony's church was dedicated—the first house of worship in the town. The same year the first fire company was organized; the Misses O'Hara opened the first seminary for young ladies, and a Mr. Blood taught the first school; Riddle & Morton opened the first paint-shop; S. P. Whitney the first wagon factory; C. Lesslie the first drug-store; L. B. Collamer the first shoe-store; Jacob Lailor the first harness-shop; a Mr. Armitage the first butcher-shop, and R. L. Linbaugh the first watch and jewelry store.

In 1840 Antoine LeClaire had completed the erection of the "LeClaire House," at a cost of \$35,000; it was for a long period favorably known as the best hotel on the upper Mississippi. It contained a reading-room, with forty newspapers, a barber-shop, and the post-office. The Davenport Lyceum was organized, where once a week social, political, moral, and other questions were discussed. The same year, on August 24th, the contest about the county seat, which had raged between Rockingham and Davenport, was decided in favor of the latter place. Davenport received three hundred and eighteen votes against two hundred and twenty-one for a ninety-acre tract of land at the mouth of Duck Creek.

In 1841 the first brick buildings were erected, among them the court-house and the county jail, without cost to the county. The court-house was taken down in 1886 to make room for a new one (see page X., No. 32) now in course of erection at a cost of \$150,000. The old court-house was sold at auction and removed. In August of the same year Alfred Sanders established the "Davenport Gazette."

In 1846 John Bechtel erected the first plow factory, and A. C. Fulton the first steam flour mill.

In 1847 appeared the newspaper, "Democratic Banner." Cook & Sargent organized the first banking house, which failed in 1859. The first large German emigration, consisting of twenty persons, arrived directly from Schleswig Holstein, Germany. In 1848 M. Frahm erected the first beer brewery, at the same place

now occupied by the large brewery of Frahm & Son; his products were from two and one-half to five barrels per week.

In spite of the hard times following the financial crisis of the year 1857, when most all money had disappeared, and the "Sun" complained that in Davenport "even counterfeit paper and bogus money have almost totally disappeared," the town had grown gradually, and even so progressed in business that in 1849 there was reported as imports: Merchandise, \$148,500; pine and oak lumber, 790,000 feet; shingles, 1,120,000; square timber, 6,000 feet; lath, 310,000, and reaping machines, 42. There was reported as exports: Flour, 30,200 barrels; pork, 1,425 barrels; lard, 720 barrels; wheat, 16,700 bushels; barley, 5,020 bushels; beans, 200 bushels; potatoes, 800 bushels; onions, 11,160 bushels; flax-seed, 120 bushels; bran and shorts, 3,200 barrels; hides, 20,400, and bacon, 212 hogsheads.

In the year 1850 the citizens commenced talking about the necessity of railroad connection with the east. The project of a road from the eastern shore of the Mississippi to LaSalle, there to connect with the canal from Chicago, was so much favored that the Davenport people had already subscribed their share of \$75,000 before the Rock Islanders had discovered the importance of the undertaking. About the same time there was much talk about the bridging of the river and the building of a road from Davenport west, through the state to the Missouri river. In November the

Rock Island & LaSalle Railroad Company was organized, and \$85,000 in stock taken by Scott county.

In April, 1851, the subscription books of the Chicago & Rock Island Railroad were closed, after \$300,000 had been subscribed. Judge Grant, of Davenport, was elected president of both of said companies.

On May 22d, 1852, the city loaned \$40,000 for the construction of the Chicago & Rock Island Railroad. February 22d, 1854, the road was completed to Rock Island, and the connection made between the Atlantic and the Mississippi. On September 1st, the same year, the corner-stone of the bridge was laid, and under a charter from the State of Illinois, dated January 17th, 1853, the erection commenced in spite of an order from Jefferson Davis, then Secretary of War, issued to the United States Marshal for the District of Illinois, to clear the island of all intruders. This order was not made applicable to the bridge contractors and their operatives. The cost of the structure was estimated at \$250,000. Over the main channel of the river, on the Davenport side, the length was 1,582 feet; on the Illinois side, 474 feet. The elevation was 21 feet above high water mark, and it was to be completed by December 1st, 1855.

On April 21st, 1856, the first locomotive—"Des Moines"—passed over the bridge. The first bridge (page I., Views of Rock Island Arsenal) over the Mississippi was now a *fait accompli*, in spite of the vehement opposition of all steamboat companies and all steamboat men; but the opposition was not yet at

an end, because, when on May 6th, 1856, the steam-boat Effie Afton, while passing through the draw, had driven against a pier, taken fire, communicated the same to the bridge so that a portion thereof was destroyed, and the boat had become a total wreck, the owners of the boat brought suit against the bridge company, and the enemies of the same made their last effort to induce the United States Supreme Court to declare it an obstruction to navigation and a nuisance erected contrary to the Constitution of the United States, but without result.

The first bridge was removed after the National Government had completed the present bridge, which was turned over to the war department in February, 1873. This monumental structure (page VII., Nos. 17 and 18, and page IX., No. 34) is $13\frac{1}{2}$ feet above natural high water, $1,550\frac{1}{2}$ feet long, containing five spans and one draw. The wagon-road and foot-walks are on the lower deck, which is $12\frac{1}{2}$ feet high; the railroad track is on the upper deck, which is 17 feet high; total width, $16\frac{1}{3}$ feet. The cost, as estimated June 27th, 1886, is about \$1,296,292.11.

In January, 1853, the Mississippi & Missouri Railroad Company was organized by Ebenezer Cook, James Grant, John P. Cook, Hiram Price, and others, with a capital stock of \$6,000,000, in shares of \$100 each, to extend the expected Chicago & Rock Island Railroad to Council Bluffs, on the Missouri river. July 9th, 1853, the city took \$75,000, for which bonds were issued; the county took \$50,000, and \$125,000 were

taken by individual subscription. September 1st, the first ground was broken under great festivities, and December 1st, 1854, 57 miles of the road was completed—to Iowa City, then the State Capitol. This road was thereafter extended to Council Bluffs and Oskaloosa, Iowa. On September 25th, 1866, the entire road, including the land grant allowed by congress and the state legislature in 1856, was sold by order of the United States Court for the District of Iowa at public auction to the Chicago, Rock Island & Pacific Railway Company for \$2,100,000. This land grant contained, according to the last report of the Iowa Railroad Commissioner, 550,193 acres, for which, in the course of time, over \$4,000,000 was realized. This road has now 920 miles in operation in the state.

The Davenport & St. Paul Railroad, now in possession of the Chicago, Milwaukee & St. Paul Railway Company, a corporation operating over 3,400 miles of road in the state, received its right-of-way and depot-grounds on Front street, between Harrison and Ripley, May 11th, 1870. The road was completed in 1872, and the citizens took about \$125,000 in its stock.

The Davenport, Iowa & Dakota Railroad Company received its right-of-way from the city September 12th, 1882, and September 25th, 1886, the citizens voted a railroad tax of about \$125,000—one-half payable in 1887 and one-half in 1888—which tax has just been decided legal by the supreme court.

The city has two street-railways in operation: The City Railway, running from east to west along Front

and Third streets, received its charter in 1867, and the Central Railway, running from Second street north on Brady to Central Park, and branching off on Fifteenth street, running toward East Davenport, received its grant November 2d, 1870.

To show what effect the construction of railroads and an increased immigration had upon business and trade, the reports of 1854 enumerate: One hundred and twenty-five stores; three banking-houses; six steam mills; one foundry; seven blacksmith shops; nine churches; seven hotels; two public school-houses, one built at a cost of \$6,000; four saddle, harness, and other leather manufacturing establishments; the Iowa College; one Masonic Lodge; two Odd Fellow Lodges; one Maine Law Club; one Division Sons of Temperance; ten land agents; fourteen doctors; twenty-two lawyers; four weekly newspapers; one bi-weekly newspaper, and a good county poor-house, with farm attached.

The value of all taxable property in Davenport Township in 1855 amounted to \$4,408,433, and in May, 1856, the manufacturing interests of the city were compiled as follows: Hands employed, 526; capital invested, \$586,000; value of manufactures for the year past, \$1,522,516; the sale of lumber, etc., amounted to 17,420,187 feet, 6,496,000 shingles, and 8,000,000 laths, and of this amount 10,000,000 feet was manufactured here, 3,500,000 came from Chicago, and the remainder was rafted down the river; 20,800 hogs were packed, and 454,000 bushels of wheat brought in. The same

year the citizens voted a loan of \$59,000, by a vote of 628 against 216, which was approved by the council August 11, 1856, and ordered to be applied as follows: \$20,000 for water-works, \$10,000 for the fire department, \$4,000 for shares in the Gas Company, and \$25,000 for the improvement of the streets. The next year the citizens, by a vote of 674 against 153, authorized a loan of \$200,000, to-wit: \$15,000 for a hospital, \$35,000 for a city hall, \$50,000 for water-works, and \$100,000 for street improvement. This loan was approved by the council May 16th, 1857. These loans were consolidated in 1869 by virtue of a state law, and new bonds issued, payable in twenty years.

The failure of the crops in 1857 and 1858, and the collapse of a number of private banks, which had overflowed the country with wild-cat notes, caused a number of bank suspensions and a general stagnation of business, the effects of which increased with the beginning of the rebellion, and were still felt at the close of it. After the war better times set in, and the United States census of 1880 reports the city of Davenport with 189 industrial establishments, with a capital stock of \$2,861,222, employing 1,498 males, 82 females, and 150 children, expending \$689,571 in wages per year; value of material amounting to \$2,979,698, and the value of products, \$4,494,790.

The Population of the City amounted, at the close of 1836, to 100 inhabitants and 7 dwellings; 1837, 150 with 15 dwellings; 1838, 50, and 1840, 100 dwellings; 1840, 700 inhabitants; 1842, 817; 1845, 1,000 (?); 1847,

918; 1850, 1,848; 1854, 5,203; 1857, 18,000 (?); 1860, 11,267; 1863, 12,113; 1865, 14,068; 1867, 17,550; 1869, 20,065; 1870, 20,038; 1873, 21,250; 1875, 21,234; 1880, 21,831; and 1885, 23,830 inhabitants, with 4,732 houses. Among this last number the state census specifies 6,139 inhabitants as native Germans, or more than one-fourth part of the whole number.

THE ISLAND OF ROCK ISLAND.

(See Illustration, Page 1, Views of Rock Island Arsenal.)

The Island of Rock Island is about two and three-quarter miles long from east to west, and from one-quarter to three-quarters of a mile wide; has an elevation of from seventeen to twenty-three feet above the highest high water, and contains an area of nine hundred and seventy acres. The ground rests upon a foundation of gray magnesian lime-stone, which in a few places crops out to the surface, but is generally covered with from one to eight

feet of earth, upon which the most luxuriant forest of ash, elm, linden, hickory, and walnut grew seventy years ago. It was the most beautiful island in the upper Mississippi, and the Sac and Fox Indians elected it their garden place of resort and principal fishing ground. The forest was filled with game and birds, of



THE LATE GENERAL RODMAN.

which fifty species had survived some three years ago; it furnished them with berries, plums, apples, and nuts in abundance; the by-rushing stream supplied them with pure fish, and the great spirit living in the cave of rocks took care of it.

In September, 1815, the Eighth regiment of United States infantry was ordered from St. Louis here to build Fort Armstrong, which was completed in 1817. It was occupied by a garrison until 1836, when it was evacuated, but remained in charge of government Indian agents until 1840, when an ordnance depot was established, and continued until 1845, when the stores were removed to St. Louis Arsenal. Thereafter a civil agent employed by the war department had it in charge until the National Arsenal was established.

The subject of a western armory was much talked of in 1840 by the inhabitants of Davenport. The island was prominent as affording the best position for its establishment; fuel in abundance, immense water-power, facilities for shipment of material, the healthfulness of the location, its connection by the Mississippi with important places and the seaboard, were reasons justly urged for the selection of this point. Meetings were held and the usual resolutions passed all over the west, and petitions sent to congress. In September, 1841, a



COLONEL D. W. FLAGLER.

committee appointed by congress gave the island a thorough examination, but reported in 1842 in favor of Fort Massac, on the Ohio river, in Illinois. In the year 1849 strong efforts were made to improve the navigation of the upper rapids. Two conventions were held; the latter one in October, representing four states and one territory by one hundred and fifty delegates, declared the improvement to be a work concerning the whole universe, and endorsed the plan of Major Lee and recommended him to prosecute the work.

One report of 1864 says that the survey of the channel had been made, the contracts let, the contractors ready to proceed when the water would permit, and \$250,000 would be spent within the next two years; but the real damming and blasting of the rapids commenced in 1867, and up to 1887 the National Government had expended the sum of \$1,169,829 for that purpose.

On September 4th, 1861, the City Council of Davenport appointed a committee to proceed, with the proper committees appointed by the cities of Rock Island and Moline, to Washington to urge the establishment of an arsenal on the island, and appropriated for that purpose

\$100; November 6th, \$500; February 5th, 1862, \$250, and on July 11th, 1862, congress located the National Arsenal on Rock Island and appropriated \$100,000 for the purpose.

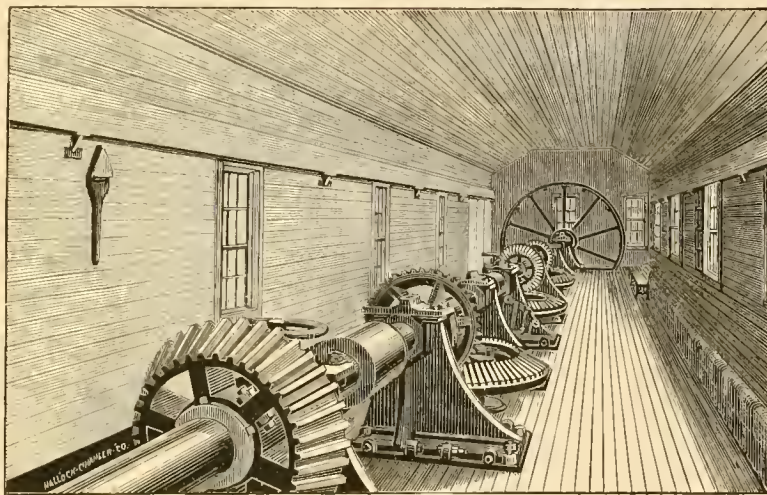
Ground was broken September 1st, 1863, and the corner-stone of the first building laid April 20th, 1864. This building stands upon the western point of the island, and contains in its projecting tower one of the best clocks in the United States. Its four dials are twelve feet in diameter, and its striking bell weighs three thousand eight hundred pounds.

General Thomas J. Rodman assumed the command on August 3d, 1865, and held it until his death, June 7th, 1871. According to his plans the great improvements are made and the great buildings erected, for which the National Govern-

ment has expended \$5,403,520.47 from 1863 to 1876.

Colonel D. W. Flagler assumed the command after General Rodman, until he was superseded by Colonel Baylor in the summer of 1886.

The principal buildings are the ten great shops, in two rows of five shops each, named after the letters designating the companies of a regiment in the army,



ARSENAL WATER-POWER MACHINERY.

viz: Shops A, C, E, G, and I on the south side of the main avenue, designed for the arsenal, and B, D, F, H, and K on the north side of the main avenue, for the armory. Each building consists of two parallel wings 60x300 feet, 90 feet apart, leaving an interior court of 90x238 feet, and covering an area of a little more than one acre.

A Water-power of nearly 4,000 horse-power has also been constructed by the government. Here it is intended to manufacture small arms and equipments for the infantry, cavalry, and artillery; all ammunition of every kind for cannon, rifle, carbine, and pistol, and also rockets; all cannon and gun carriages for field, siege, garrison, mountain, and prairie service, and all equipments for the coast, consisting of harness, tools, implements, battery-wagons, and forges. More than one-half of the equipments for the western army are now manufactured here, such as the scores of articles that enter into horse equipments, infantry equipments, and cavalry equipments. This work gives employment to about ninety hands the year around. During the last year \$130,000 was expended here for the above purpose. This arsenal, when completed as planned, will be sufficient in time of war to arm, equip, and supply an army of 750,000 men.

CONCLUSION.

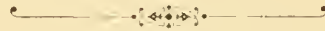
The historical review of the city demonstrates a gradual, steady, and healthy development; its location, its climate, its healthiness, and its municipal government are not excelled by any other; the wealth of the citizens is on a solid foundation; their enterprising and liberal spirit stands forth unsurpassed; its business and social life, in connection with the transportation facilities by rail and by boat, have made the city a meeting-center for political conventions, soldiers' reunions, and all kinds of festivals celebrated by lodges, singing societies, shooting societies, turner societies, and various other organizations, have induced thousands of visitors to come and enjoy the hospitality of its citizens; to come and see the rich collections of the Academy of Sciences, the monumental national buildings on the island, and see and enjoy the best operas and dramas at the Burtis Opera House and German Theatre; and thousands of people, again, to deal and transact business with our manufacturing and mercantile establishments, and to consult our prominent attorneys, physicians, bankers, and church dignitaries.



APPENDIX.



Album of the City of Davenport.



Historical Description, Advertisements, and Business
Directory of Leading Business Houses
and Industrial Establishments.

THE CITY OF DAVENPORT AND VICINITY.

E. S. BALLORD, PRESIDENT.
S. F. SMITH, VICE-PRESIDENT.

GEO. E. MAXWELL, CASHIER.
S. D. BAWDEN, ASST. CASHIER.

..... CAPITAL, \$200,000.

Davenport National Bank,

DAVENPORT, IOWA.

..... DIRECTORS.

E. S. BALLORD.
GEORGE H. FRENCH.
JOHN L. MILES.

JOHN B. PHELPS.
WM. RENWICK.
D. T. ROBINSON.

S. F. SMITH.
I. H. SEARS.
ROBT. SICKELS.

A GENERAL BANKING BUSINESS TRANSACTED.

[See Illustration, page 11, No. 20.]

I. H. SEARS, PRESIDENT.
H. F. PETERSEN, VICE-PRESIDENT.

J. H. HASS, CASHIER.
C. A. FICKE, ATTORNEY.

..... CAPITAL, \$70,000.00.

Scott County Savings Bank,

OF DAVENPORT, IOWA.

[OFFICE IN DAVENPORT NATIONAL BANK BUILDING, CORNER THIRD AND BRADY STREETS.]

FIVE PER CENT INTEREST PAID ON DEPOSITS. MONEY LOANED ON REAL ESTATE AND PERSONAL SECURITY.

..... DIRECTORS.

I. H. SEARS.
J. H. HAAS.

C. A. FICKE.
H. F. PETERSEN.

A. P. DOE.
J. L. MILES.

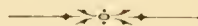
G. M. SCHMIDT.
OTTO KLUG.

J. B. PHELPS.

Office open from 9 A. M. to 3 P. M., and on Saturdays to 8 P. M.

[See Illustration, page 11, No. 20.]

APPENDIX.



M. ARNOLD.

(See Illustration, Page 10, No. 67.)

M. Arnold, 129 West Second street, and 125 and 127 Main street, established in 1872, the resort which has been so long and favorably known to the purchasing public as Arnold's Bazaar. This place has been a by-word with the ladies of the three cities for the last fifteen years, and now owns a deserved reputation for reliability.

In 1872 Mr. Arnold occupied but a small store and employed but two clerks. His business, however, constantly increased, and after one and one-half years he removed to Brady, between Second and Third streets, which at that time were quite commodious quarters. But the ever-growing patronage with which he was favored soon compelled him to seek still larger rooms, and he removed (about ten years ago) to his present store, where he employs from fifteen to twenty hands the year around. This house does a constantly increasing business every year, and now its annual sales aggregate as much as any other house of its kind in the state. The principal specialty is ladies' and children's cloaks, in which Mr. Arnold controls the market for a hundred miles around. He certainly deserves credit for the way in which he has built up, by his own unaided exertions, such a good and paying business.

Arnold's Bazaar has a frontage of 24 feet on Second street and 40 feet on Main street, and has a depth of 80 feet. An "L" 40 feet square extends to the Main street entrance. It has the same space on the second floor devoted to the cloak trade.

BEIDERBECKE & MILLER.

(See Illustration, Page 4, No. 43.)

The firm of Beiderbecke & Miller comprises as members Chas. Beiderbecke and F. H. Miller. They started in the retail business

in 1856, gradually added jobbing, and after they had built their present commodious and large building, went into the exclusive jobbing business. Two years ago they added an addition 36x75, of five floors, which, with the main building 33x150, of five floors, gives them ample room. The buildings are as fire-proof as possible, and contain three elevators and a gas engine to facilitate work. The help consists of twenty-one persons, including five traveling agents. The volume of business of the firm is constantly increasing.

JOHN BERWALD.

(See Illustration, Page 3, No. 39.)

The above firm occupies 214 West Second street (three stories and basement) with the largest assortment of stationery, toys, and fancy goods in the tri-cities, and does an importing, jobbing, and retail trade. The business was established in 1860. The European steam-ship business is a specialty with this firm, being the agency for the best transportation lines. Newspapers and magazines are also furnished regularly.

H. F. BRAMMER & COMPANY.

(See Illustration, Page 6, No. 52.)

The above establishment was started on an exceedingly small scale by the senior partner, Mr. Brammer, in 1876, who, by close attention to business and excellence of workmanship, soon pushed to the front. In 1882 the business had become too extensive to be handled to advantage by any one man. In the above year Mr. E. H. Schmidt was admitted to partnership. Since then the business has nearly doubled each succeeding year. In 1884 the box department was added. To-day the establishment employs forty-two persons the entire year. Their lumber-yards occupy a lot 150x150, containing all grades of seasoned lumber. The manufactures constitute by far the greater part of the business. The reputation of

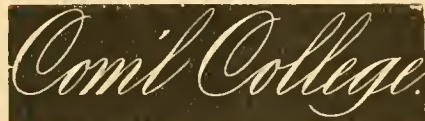
• • J. C. McHART, • •
Real Estate and Loan Agent.

City and Farm Property Bought, Sold, and Exchanged on favorable Terms. Special attention given to all kinds of Investments on Commission. Loans Negotiated and General Collections attended to. Houses, Stores, and Rooms for Rent.

We take full charge of property for sale or rent when so placed in our hands. All business entrusted to us will be promptly attended to at reasonable charges.

Correspondence Solicited. OFFICE, 112 WEST SECOND ST., *Viele's Block,*
Between Brady and Main Streets, Davenport, Iowa.

I O W A



COMPLETE
IN ALL ITS DEPARTMENTS.

THE MAIN BRANCHES ARE

Book-Keeping, Actual Business Practice, Banking, Commercial Arithmetic,

Commercial Law, Civil Government, Spelling, Penmanship, Correspondence, Telegraphy, Short Hand and Type-writing. Send two-cent stamp for a trial lesson in Rapid Calculation, sample of Penmanship, and many other valuable points. Three hundred and seventy-eight students in attendance during 1886. Circulars free. Address,

WOOD & VAN PATTEN, S. W. Cor. Second and Brady Sts.,

[See Illustration, page 10, No. 65.]

DAVENPORT, IOWA.

VIENNA BAKERY AND TOAST FACTORY,
(ZWIEBUCK FABRIK.)
H. KORN, Proprietor,
317 and 319 Harrison Street, Davenport, Iowa.

H. NISSEN,
UNDERTAKER
And Dealer in all kinds of
FURNITURE,
420 W. Second St., Davenport, Iowa.

A. HOMBRECHT,
BOOTS AND SHOES,
UTICA SHOE STORE,
214 Brady St., Davenport, Iowa.

W. H. MARTIN,
ATTORNEY AT LAW,
N E. Cor. Second and Brady Sts.,
Davenport, Iowa.

CARL BRAUN,
DENTIST,
Deutscher Zahnarzt,
N E. Cor. Second and Ripley Sts.,
Davenport, Iowa.

* M. CARROLL, *
Dry Goods, Notions and Fancy Goods,

Ryan's Block, 105 West Second Street,

DAVENPORT, IOWA.

[See Illustration, page 10, No. 65.]

J. S. WATSON & CO.,
Manufacturers of Fire Proof Roof Paint

Roofs Painted and general Roofing done. Iron, Gravel, Asbestos, and Warren's three or four ply Felt Roofing. Roof Paint for sale by the Barrel.

We also carry a large stock of Copper Lightning Rods, Weather-vanes, Balls, Arrows, and other Rod Ornaments. Old Rods Repaired.

Office with C. G. HIPWELL,

430 Brady St., Davenport, Iowa.

T. J. O'MEARA & CO.,
Dealers in Boots and Shoes,

126 W. Second Street,

DAVENPORT, IOWA.

G. H. KOCH,
ATTORNEY AT LAW,
Justice of the Peace.
Third and Main Sts., Davenport, Iowa.

J. B. FRAHM,
Commission Merchant
And dealer in all kinds of Produce.
Specialties: Barley, Wheat, Potatoes, and Onions. Refers to Citizens National Bank, and Davenport National Bank,
Davenport, Iowa.

LEOPOLD MILLER,
Manufacturer and Dealer in
FINE CIGARS.
Miller's Best, 10 cents.
Leading 5-cent Brands.
130 E. Third St., Davenport, Iowa.

PETER EYER,
PLUMBER,
Gas and Steam Pipe Fitter
No. 416 West Second Street,
Davenport, Iowa.

the washer extends all over the northern part of the United States, sales being made to regular established agents in every state north of Mason and Dixon's line. They have also shipped several orders to Australia and Europe—hope to establish a regular trade there soon. New buildings have been erected as needed. Their shops now consist of one 2½-story building 40x80, one 2½-story building 40x60, and one 1-story building 40x80, arranged in the form of a double "L," with engine, boiler-room, blacking-room, and machine-shop in the court. If the rate of increase is maintained, it will be but a short time before more commodious quarters will have to be secured.

BROWNSON, THE HATTER AND GENTS' FURNISHER.

(See Illustration, Page 10, No. 67.)

The old reliable hat-store on the corner of Second and Main streets, Davenport, Iowa, established over twenty-seven years, always had, and has at present, the reputation of carrying in stock the finest and most reliable goods; buying strictly for cash and of manufacturers, thereby saving the jobbers' profit, which enables us to sell a better quality of goods for less money than many are asking for inferior goods. He handles strictly first-class goods—goods that speak for themselves. Sole agent for the celebrated *Dunlap Hat*, which has no equal either in *quality, style, or finish*—one price to all. All other leading makes in stock, from the cheapest to the best. The furnishing goods are complete in every department, handling in that, as well, the finest and most reliable goods. Agents for the celebrated Wilson Bros' shirt, of which he carries a large stock, and made to order, if desired. Also novelties in neck-wear, suspenders, hosiery, gloves, and underwear. In fact, everything that comprises a first-class furnishing-stock.

Mr. Brownson succeeded Mr. E. H. Ryan, September 1st, 1885, since which time trade has constantly increased, even beyond his expectations, for which he extends thanks to his many friends and patrons.

CABLE LUMBER COMPANY.

(See Illustration, Page 7, No. 54.)

The Cable Lumber Company, a company incorporated under the laws of the State of Iowa, with an authorized capital of \$200,000, manufactures and deals in lumber, etc. The mill of this company is located in East Davenport, and gives employment to about one hundred and ten men and boys. The mill is a gang and rotary mill, and has a capacity of 18,000,000 to 20,000,000 feet of lumber per annum, besides laths and shingles. During the last season their cut was 19,100,000 feet of lumber, 4,000,000 laths, and 3,500,000 shingles.

DOW, GILMAN, HANCOCK COMPANY.

(See Illustration, Page 7, No. 55.)

The original *Crescent Mills* were built by Dow, Gilman & Hancock in 1868, and contained ten run of buhr-stone, with a daily capacity of about 300 barrels. At the time it was built it was the most complete and best equipped mill of its size west of Albany, N. Y., and turned out flour far superior to any of the local mills at that date. But time brings changes, and the art of milling, in which there had been no radical change in the last hundred years, has been so thoroughly and completely changed that Oliver Evans himself, could he be brought to view a modern mill, would not be able to tell what it was. The advent of the roller system has entirely revolutionized the old way of milling, and to keep up with the times, in 1882 the corporation of Dow, Gilman, Hancock Company was formed, and a new 500-barrel roller mill was built, complete in every detail. Golden Crescent and Snow White, two of their favorite brands of flour, are known in every family within a radius of two hundred miles. The motive power is furnished by a three hundred horse-power Corliss engine, built by the Lane & Bodley Company, of Cincinnati, Ohio, and while being very useful is quite ornamental—a credit to the builders. Steam is furnished from a battery of four boilers. Employment is given to about forty people.

JOHN HOYT,

Wholesale and Retail Musical Merchandise,
STEINWAY AND OTHER PIANOS.

No. 303 Brady Street, Davenport, Iowa.

[See Illustration, page 1, No. 35.]

THOMPSON & BAHL,

. **MERCHANT TAILORS,**

And Dealers in Foreign and Domestic Cloths, Cassimeres, and Vestings.

118 East Third Street, Davenport, Iowa.

DAN B. HORNE, [Successor to John Hill.]

Livery, Sale, and Boarding Stable,

Horses and Carriages of all kinds, at all Hours, at Reasonable Rates.

Telephone 379. 215 West Third Street, Davenport, Iowa.

T. W. McCLELLAND & CO., T. W. McClelland—G. P. McClelland.

Sash, Doors, Blinds, Etc.

Factory, 304 to 312 Main Street,
 Lumber Yard, Corner Fourth and Harrison Sts. } Davenport, Iowa.

E. S. HAMMATT,

✻ **ARCHITECT.** ✻

REFERENCE TO WORK: St. Katharine's, Kemper, and Sheldon Halls. [See page X, Nos. 29 and 31.] Roddewig Block. [See page 10, No. 68.]

Office, S. W. Cor. Third and Brady Sts., Davenport, Iowa.

REYNOLDS & GIFFORD, . . .

IRA L. GIFFORD.
 S. M. REYNOLDS.

Dealers in Hardware, Paints, and Oils,

223 Brady Street, Davenport, Iowa.

[See Illustration, page 11, No. 20.]

TECHENTIN & HOYER, HENRY TECHENTIN. HENRY HOYER.

Established 1857.

Manufacturers of Harness, Saddles and Collars.

Also, Agents for the Household and Domestic Sewing Machines.

308 West Second Street, Davenport, Iowa.

OTTO ALBRECHT & CO., ESTABLISHED 1854.

Manufacturers of the Celebrated Rob Roy and Modoc Cigars,

And Dealers in Tobaccos, Pipes, and Smokers' Utensils,

306 West Second Street, Davenport, Iowa.

STARK & RUSER, *Watches, Jewelry, French and American Clocks,*

Solid Silver and Silver-Plated Ware, Etc. Repairing, Adjusting, and Rating of Watches a Specialty. Strangers are cordially invited to examine our goods and prices, and compare with other dealers.

No. 128 West Second Street, Davenport, Iowa.

M. E. NABSTEDT,

. **AMERICAN WATCHES,**
 —Waltham. — Elgin. — Hampden. — Howards.—

—♦♦♦♦♦ **DIAMONDS** ♦♦♦♦♦—

And a full line of Jewelry, Clocks, Silver and Silver-Plated Ware.

Only Agent for the noted Columbus Watch.

A SPECIALTY.—Repairing and Engraving Promptly Done.

406 West Second Street, Davenport, Iowa.

[See Illustration, page 11, No. 4.]

The present officers are: Josiah Dow, President; S. F. Gilman, Vice-President; John L. Dow, Secretary; F. H. Hancock, Treasurer and General Manager; H. F. Johnston, Head Miller.

DAVENPORT STEAM HEATING COMPANY.

(See Illustration, Page 8, No. 60.)

The Davenport Steam Heating Company, which was organized but some five or six years ago, is a fair illustration of what energy and perseverance can do in Davenport, the most beautiful of Mississippi river cities. Its managers, although confronted by long-established competition at the commencement of business, have, by their thorough knowledge of the same, fair dealing, and doing only the best quality of work, at moderate prices, placed their company in the lead of all competitors, and gained for themselves a high reputation throughout the state, extending as well into Illinois, Kansas, and Nebraska. Two years ago they erected their present building, occupying a space with a frontage of 40 feet and a depth of 160 feet, being the most complete and best equipped shop in their line of trade in the west. Besides furnishing and constructing steam heating and ventilating apparatus, they do a general plumbing and gas-fitting business, and carry at all times the largest stock of any like concern in the state of brass and iron goods for water, steam, and gas, gas-fixtures, hose-packing, well and cistern pumps, iron, lead, and sewer-pipe, etc.

The officers of the company are: D. H. Hartwell, President; J. C. Emeis, Vice-President and Superintendent; G. T. Ahrens, Secretary; A. F. Cutter, Treasurer.

DAVENPORT GLUCOSE MANUFACTURING COMPANY.

(See Illustration, Page 7, No. 53.)

The Davenport Glucose Manufacturing Company was incorporated in 1873, and has grown up from a small factory to its present gigantic proportions, with a capacity of working 3,500 bushels of corn per day. The buildings and yards cover about six acres of ground. There are employed in the factory one hundred to one hundred and twenty hands. Three side-tracks run

to the different buildings to facilitate the receiving of corn, coal, and sundry supplies, and in shipping their products. The capital is now \$300,000. The company owns elevators and corn-cribs at Casey, Adair, and Marne, Iowa, with a capacity to store about 300,000 bushels of corn. The products of this company are favorably known all over the country, from Portland, Oregon, and San Francisco, California, to New York and Boston. During the year 1886 about \$70,000 worth of cooperage was used to ship their products, the most of which was manufactured in Davenport.

The officers are: H. H. Andresen, President; Robt. Krause, Secretary; Louis P. Best, Superintendent.

DAVENPORT WOOLEN MILLS COMPANY.

(See Illustration, Page 6, No. 51.)

The Davenport Woolen Mills Company was organized February 17th, 1881. The original woolen mills were built and operated by Joseph Shields, in 1863, and gained a reputation for making the very best flannels for the trade of any offered in the western market. The present management have enlarged and increased the capacity of the mills to about double the original capacity and employ about one hundred hands. The new looms, being the best made, are fully up to the times, and can turn out 1,000 yards per day of those superior western flannels, besides blankets from the finest to heavy Mackinac, and for the past five years they have made a specialty of those extra heavy government cavalry blankets, and hope to continue, as in the past, making the most desirable goods offered in their line.

The present officers are: Wm. Renwick, President; W. D. Petersen, Vice-President; S. A. Jennings, General Manager; H. F. Drebing, Superintendent; J. B. Phelps, Secretary and Treasurer.

DER DEMOKRAT.

(See Illustration, Page 6, No. 50.)

"Der Demokrat" is the oldest German newspaper in Iowa, and with the exception of the "Anzeiger des Westens," in

STANDARD WORKS FOR EVERY LIBRARY.

* * *P. F. COLLIER, Publisher.* * *

Complete editions of the *BEST STANDARD WORKS* in elegant bound volumes. Encyclopædias, Family Bibles, and Fine Albums, *all sold on Easy Payments.* Just issued — the latest edition of

CHAMBERS' ENCYCLOPÆDIA,

Revised up to 1887. Complete in eight massive volumes, 40 colored maps, 6,300 pages, including a very elaborate *American Supplement.* Compiled by an able corps of American editors. This magnificent work delivered (complete) on payments of \$2.00 per month.

P. F. COLLIER, Publisher,

100 to 110 Attorney St., New York.

Branches in all the principal cities in America.

Davenport House, 125 and 127 Main Street.

G. F. PEPPER, Manager.

[See Illustration, page 10, No. 65.]



J. C. SCHRICKER.

F. G. RODLER.

SCHRICKER & RODLER,

PROPRIETORS OF

City Marble Works,

DEALERS IN

FOREIGN AND DOMESTIC MARBLE,

Monuments, Headstones,

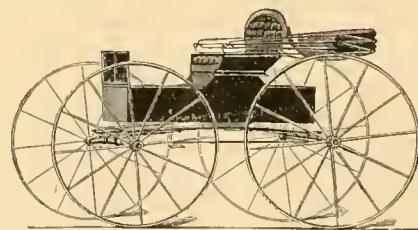
Tablets, Posts, Table-tops, Shelves, Etc., Etc.

Scotch and American Granite Monuments Furnished to Order. Cemetery Work of all kinds Neatly Executed.

Orders promptly Filled, and Satisfaction Guaranteed.

222 Harrison Street, DAVENPORT, IOWA.

MASON'S • CARRIAGE • WORKS



CARRIAGES, HARNESS, AND

**Mason's • Patent • Runner • Attachments
FOR WHEELED VEHICLES.**

*Factory, 119 and 121 East Fourth Street,
Repository, under Kimball House, }*

Davenport, Iowa.

[See Illustration, page 2, No. 34.]

• • **REIS,** • •

DEALER IN

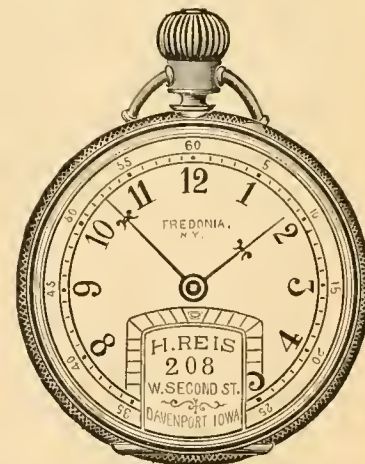
**Watches, * Jewelry,
CLOCKS,**

Silver, and Silver-Plated Ware.

Repairing, Adjusting, Etc., Promptly Done.

No. 208 West Second Street,

DAVENPORT, IOWA.



St. Louis, and the "Illinois Staats Zeitung," in Chicago, it is also the oldest German paper in the great west. The paper was founded in 1851 by Theodore Guelich, now of Burlington, and on November 17th of that year the first issue appeared in the modest form of four pages of five columns each. Right bravely it took up its lance for freedom and social reforms, and, indeed, has maintained constantly during the almost thirty-six years of its existence a firm position for the liberty of the people. In 1852 Mr. Guelich associated Mr. R. Reichmann, now of Tama county, with himself, and soon thereafter the paper was enlarged. At first it was liberal democratic, but at the commencement of the Kansas-Nebraska troubles left the democratic party and joined the "Free Soil" party, and then its successor, the republican party, and whose first candidate, John C. Fremont, the "Demokrat" most energetically supported.

Upon Reichmann's withdrawal Guelich alone conducted the paper and made it a daily, commencing on January 3d, 1856, with Heinrich Ramming, an Austrian refugee, as assistant editor. Soon thereafter, in April, 1856, Guelich sold the "Demokrat" to Henry Lischer and Theodore Olshausen, who had come from St. Louis, and were possessed of valuable and practical newspaper experience. Mr. Olshausen, who since then died in Germany, was the editor. These two gentlemen, in 1860, purchased the "Westliche Post," in St. Louis, and removed there, after selling the "Demokrat" to John A. Daldorf and H. Ramming. Times were bad in those days; owing to the ominous political forebodings which preceded the civil war, all business was depressed, and the publishers felt compelled, from May 7th, 1861, to again make the paper a weekly; and succeeding but poorly in this, Mr. Lischer on June 28th, 1861, again took the paper, and this time as sole proprietor, remaining, however, two months yet in St. Louis to complete a term in the militia, in which he had enlisted upon Lincoln's first call. In August he returned to Davenport and revived the "Demokrat" by publishing it from August 28th, 1861, again as a daily and weekly. On September 17th of the same year the experienced writer, Mr. Jens Peter Stibolt, became the editor,

and has conducted the paper in the furtherance of the people's rights with incessant energy, wisdom, and firmness to the present time. Through this course, and the excellent business care and integrity of its proprietor, "Der Demokrat" has become one of the best known and most influential papers in the entire west; and its daily, weekly, and (since 1879) semi-weekly issues have an extensive circulation, not alone in the United States, but even has its readers on the steppes of Russia, and in Africa and Australia.

The paper has, of course, been steadily increased in size during these years; in 1861 the Daily had only sixteen small columns, but now thirty-two and often thirty-six columns, and the Weekly has fifty-four columns of a goodly size.

At first the paper was often compelled to move its location, but the removals were easily accomplished. In April, 1862, the office was established in the building on the northwest corner of Second and Main streets, and remained there for sixteen years, until finally it was moved, on August 19th, 1878, into a new home of its own at Nos. 207 and 209 West Third street, where every arrangement exists which could be desired for the publication of a paper, as also for conducting a book and job-printing establishment. The elegant front of "Der Demokrat" building, in gothic style, is an object of admiration, and can be seen photographed in our Album.

M. FRAHM & SON'S CITY BREWERY.

(See Illustration, Page 7, No. 56.)

Our German-American citizens appear to take the most prominent position in establishing and successfully conducting the leading breweries in this country. This applies to but few with greater force than to the above-named gentlemen, proprietors of the City Brewery of Davenport.

Mr. Mathias Frahm came to the United States from Germany in 1848, and located at the southwest corner of Sixth and Harrison streets, where at present his brewery stands. When he first arrived in this country he was a practical brewer, having devoted his whole life to the manufacture of beer. From the original establishment of this brewery, he has constantly added to its size and equipments

until now the City Brewery is one of the best in the state, and produces lager-beer, the excellence of which is acknowledged by a large number of dealers and consumers in this and other vicinities.

Henry Frahm, the son-partner, made the most profound studies in the manufacture of this noble beverage at the City of Worms, and other German cities celebrated in this particular business, during a sojourn in that country of over three years.

GERMAN CLINIC.

(See Illustration, Page 9, No. 64.)

The German Clinic, established in Davenport, Iowa, in 1882, is a private institute, conducted by three physicians who are regular graduates from reputable medical colleges of Germany. These gentlemen are not only engaged in the Clinic, but also practice as family and visiting physicians in Davenport and vicinity. The institute has its general, gynecological, surgical, and orthopedical departments. The arrangement and equipment is such that all the requirements of the most advanced science and knowledge in medicine are complied with, and, together with this, a home-like comfort of the patient is provided.

The German Clinic is located near the street-car line, upon the hill in a most salubrious and fashionable neighborhood, and away from all factories or other disturbing influences. Its spacious park comprises nearly one-half a block, bounded on the west by Harrison street and on the north by Sixteenth street, and with its trees and shrubbery, gravel-walks and flower-beds, is attractive in appearance and cheerful in its surroundings. In fair weather this affords the patients out-door exercise and recreation. In the winter a roomy conservatory filled with tropical and other plants, warmed by steam and provided with fountains, singing birds, and other pretty sights, supplies the place of the park.

It should be especially understood that the three physicians who conduct the Clinic, and also their families, live in the institute itself, and consequently are within call, and, indeed, upon duty constantly at any time of the day or night; so that by this means, together with the assistance of skilled and trusty nurses, each

patient receives uninterrupted supervision and attention. All the wants of the patients are provided for in the Clinic.

Physicians and others are cordially invited to visit them and examine for themselves their location, equipments, and surroundings.

The more particular object of the establishment is to treat those who cannot well receive adequate attention from the single physician whose large practice, long drives, and distant visits may leave him but little time for each; and whilst offering to such a constant attendance, they seek to supply them also with the most approved apparatus and greatest possible domestic comfort. Of course, in the most instances, the family physician will be the one upon whose judgment a patient should be advised to go to them, but for the information of those who have no such advice, they will state their more particular plans:

The leading principle of the Clinic is to keep the patient from his home only so long as is absolutely indispensable for effecting a successful cure. In all cases in which the patient can be relegated to the family physician for a prolonged treatment or a dietetic regime it is so done, and thus the patient has the pleasure of returning to his family, and they have the satisfaction of receiving reports from a competent source of the condition of their former patient.

The following are the principal departments of the German Clinic: General, Gynecological, Surgical, and Orthopedical, in which are treated with the best attention all kinds of diseases.

Those desiring admission or any information are requested to write to the German Clinic.

DR. GUSTAF HOEPFNER,

DR. ADOLPH JAENICKE,

DR. CARL MATTHEY,

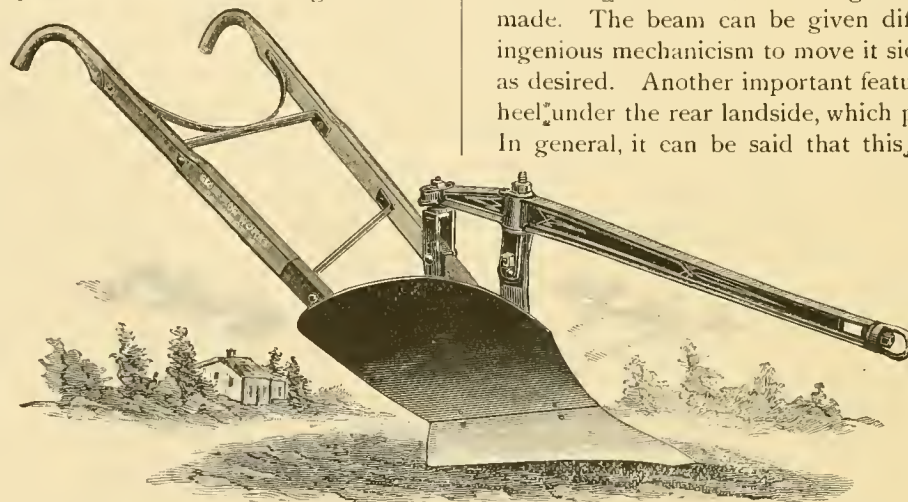
Directors and Resident Physicians.

GLOBE PLOW WORKS.

(See Illustration, Page 5, No. 47.)

The Globe Plow Works, successors to the Davenport Plow Company, established 1850, reorganized and incorporated December 15th, 1886, manufacturers of plows, cultivators, harrows, and

other agricultural implements and farm machinery. The names of the officers are well-known as those of pushing, experienced, and successful business men, Aug. Warnebold being President; E. G. Henderson, Vice-President; H. G. Scharfenberg, Secretary and Treasurer; John C. Lafrenz, formerly with Buford's Plow Works, Superintendent. The first and the third of these four gentlemen have long been connected with the old establishment, and in the two others the very best business qualifications unite with the best of the old to inspire the enterprise with new life and vigor. The shops and the office are at the same place as before, on West Third street, between Harrison and Ripley streets. The present capacity of the works is one hundred men, which number will soon be reached, if the encouraging prospects for business are only partially fulfilled, and it is pretty sure they will. The authorized capital stock is \$250,000. The principal business territory of the new company will be Iowa, Illinois, Kansas, Missouri, Nebraska, Dakota, Minnesota, and Texas, from most of which parts of the United States orders are continually arriving and being filled. It is unnecessary to dwell upon the single implements manufactured at the works, as far as they are not patented, but made in common with other similar concerns, for it goes without saying that no piece that is not fully up to all reasonable requirements shall leave the shops. Special attention, however, should be called to two of the company's patents, by which it cannot fail to secure numerous new customers in addition to the old ones who frequented the works during their involuntary suspension, buying there in preference to other firms



THE GLOBE ADJUSTABLE STIRRING PLOW.

whatever there remained of ready-ware. Now the two principal patents of the Globe Plow Works are:

First. Ben. F. Butler's Hercules Tricycle Sulky Plow, of whose strength, durability, and work all farmers who have seen it handled or handled it themselves speak highly; indeed, it possesses all the points of superiority required to make it the best sulky out; is drawn from the axle, and is easily adjusted and managed by the driver.

Second. The Globe Adjustable Stirring Plow, which has a malleable iron beam, and is lighter in draft than any other plow made. The beam can be given different positions, there being an ingenious mechanism to move it sideways as well as up and down, as desired. Another important feature of this plow is a protruding heel under the rear landside, which protects the landside from wear. In general, it can be said that this plow is so constructed as to

make it almost unnecessary for the driver to take hold of the handles when the plow has once been set for a furrow. It was awarded premiums at the New Orleans Exposition, at the American Institute in New York, at the Mechanical Institute in Baltimore, and at the St. Louis Exposition.

It will not be amiss to

add that the connection of the company with the best steel and iron firms, as well as their capital, enables them to manufacture those splendid first-class implements at prices worth considering by the purchaser before he goes to another factory. Farmers and dealers should call and convince themselves of what the Globe Plow Works is doing for them.

T. KIRCHER.

(See Illustration, Page 2, No. 35.)

T. Kircher, Jeweler, 301 Brady street. This business was established in the year 1852 by Wm. Rutenbeck. After his death,

FIRST NATIONAL BANK,

DAVENPORT, IOWA.

The First National Bank in operation in the United States.

Capital, \$100,000.00.

Surplus, \$50,000.00.

Undivided Profits, \$50,000.00.

OFFICERS.

JAMES THOMPSON, PRESIDENT. J. E. STEVENSON, VICE-PRESIDENT. JOHN B. FIDLAR, CASHIER. GEORGE HOEHN, ASST. CASHIER.

DIRECTORS.

WALKER ADAMS. JAMES THOMPSON. NATHANIEL FRENCH. HENRY W. KERKER.
A. BURDICK. AUGUST STEFFEN. CHRIST. MUELLER. J. E. STEVENSON.
S. F. GILMAN. G. W. CABLE. HENRY KOHRS.

A GENERAL BANKING BUSINESS TRANSACTED.

[See Illustration, Page VI., No. 2.]

WALKER ADAMS, PRESIDENT.
LOUIS HALLER, VICE-PRESIDENT.

JOHN B. MEYER, CASHIER.
OTTO L. LADENBERGER, TELLER.

CASH CAPITAL, \$120,000.00. DEPOSITS, OVER \$1,000,000.00.

Davenport Savings Bank,

OFFICE IN FIRST NATIONAL BANK BUILDING, DAVENPORT, IOWA.

FIVE PER CENT INTEREST PAID ON DEPOSITS. MONEY LOANED ON REAL ESTATE AND PERSONAL SECURITY.

DIRECTORS.

WHIT M. GRANT. WALKER ADAMS. JAMES THOMPSON.
H. KOHRS. LOUIS HALLER. WM. O. SCHMIDT.
A. STEFFEN. A. BURDICK. F. H. HANCOCK.

[See Illustration, Page VI., No. 2.]

in 1868, the business was purchased by Fred. Goos and Otto Kircher, under the firm name of Goos & Kircher. Under their management the business prospered to such an extent that their old store-room on Second street became too small, and larger and more commodious quarters had to be provided. They selected the present site—the northeast corner of Third and Brady streets—where they erected a large building for their use.

After the loss of Mr. Kircher on the steam-ship Schiller, in 1875, his interests were assumed by his widow, Mrs. T. Kircher, the firm-name remaining unchanged.

After the demise of Mr. Fred. Goos, in 1877, Mrs. Kircher assumed control of the entire business under the present firm-name. The business is conducted in the large and nicely-furnished store at 301 Brady street. The stock carried is a very fine and well-selected one. It is valued at about \$40,000, and consists of watches of all kinds, diamonds and other precious stones, fine gold jewelry, and the largest stock of solid silverware in the state. It also comprises a very large stock of plated ware, clocks, and optical goods. There are at present six employes engaged in the business—two watchmakers, one jeweler, one engraver, and two clerks. Mrs. Kircher continues to give her prosperous business her undivided attention.

ROBT. KRAUSE.

(See Illustration, Page 3, No. 37.)

Robt. Krause's wholesale and retail cloth and clothing business, at 115 and 117 West Second street, has grown from a small retail business establishment, in 1854, to the largest in the State of Iowa in that line, and since 1883 a factory of forty sewing-machines, operated by steam-power, employing fifty hands, has been added, in which pants, vests, jeans suits, shirts, and the celebrated "Crow Overall" is manufactured. The working force is eight traveling men and fourteen employes. The building occupied is the basement and three stories, each 40x150 feet. The annual business is \$350,000. The house is favorably known among trade all through Iowa, Nebraska, Kansas, northern Missouri, Dakota, and the western part of Illinois.

NICHOLAS KUHNEN.

(See Illustration, Page 3, No. 40.)

The cigar manufacturing industry of Davenport is fully represented by the large factory of Nicholas Kuhnen—one of the largest cigar factories west of New York City. This business was established in 1854, and has constantly increased since that time. Six floors, each 25x140, besides two basements of the same size, constitute the factory, while two buildings of three stories each, situated in the rear of factory and fronting on Perry street, are occupied for the storage of leaf tobacco. The product of this factory finds a market in every state from New York to California, and from Minnesota to Texas; in fact, Mr. Kuhnen's leading brand of cigars, the "Pappoose," might be said to enjoy a national reputation, and has done good missionary work as a Davenport industry.

J. LAGE & COMPANY.

(See Illustration, Page 9, No. 63.)

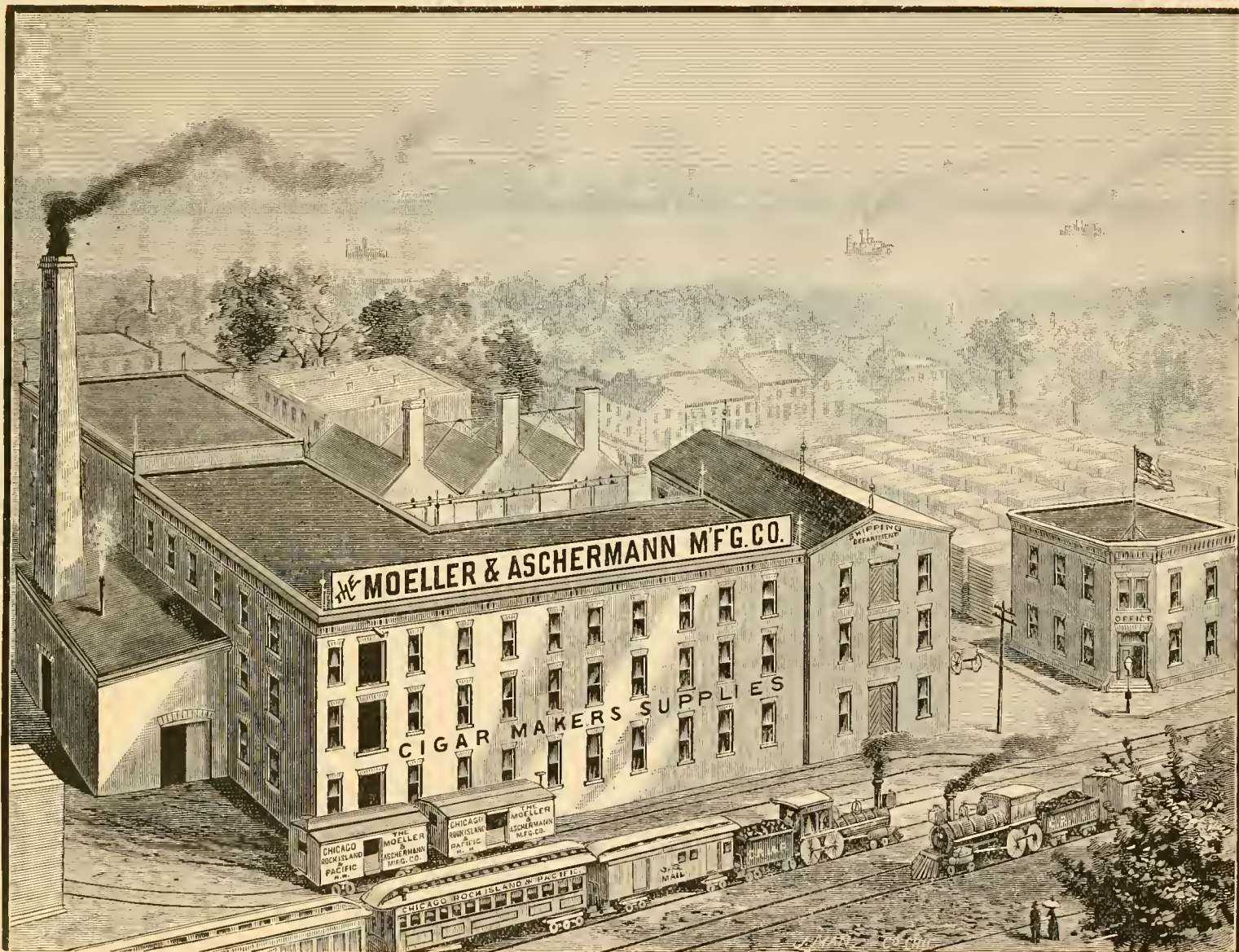
J. Lage & Company's Eagle Brewery, 1235 West Fifth street, has kept up its reputation as one of the most reliable and best establishments of its kind in the state for over thirty years. The members of the firm, Messrs. J. Lage, Geo. Mengel, and H. Klindt, pay their personal attention to the business, and have succeeded in manufacturing a beverage appreciated by all consumers for its purity and healthiness, combining the strength of the North-Albingian with the Rhineland's suavity.

LINDSAY & PHELPS.

(See Illustration, Page 5, No. 48.)

The Lindsay & Phelps saw-mill was erected in 1866—completed by the addition of a gang mill the next season, built by P. W. Gates & Company, of Chicago. This was the first gang mill in operation in this vicinity. Some improvements have been made from time to time, and the capacity has been increased so that the annual product amounts to about 18,000,000 feet of lumber, 4,500,000 shingles, and about 3,500,000 laths. The present owners

513 TO 521 WEST FIFTH STREET.



DAVENPORT IOWA U S A

were from the lumbering regions of Essex County, New York, where their ancestors were lumbermen from fifty to sixty years ago, and lived to see the Adirondac pine, spruce, and hemlock nearly all cut off and marketed. The first logs cut for this mill were from Clark County, Wisconsin, and cut from lands entered by the senior member of the present firm, Mr. J. E. Lindsay, at the United States land office, in 1856-57.

JENS LORENZEN.

(See Illustration, Page 4, No. 41.)

Jens Lorenzen, dealer in china and crockery, 221 and 223 West Third street. The commencement of this firm dates back as far as the year 1857, when a room 16x19 was amply sufficient for the size of the business; but only for a short time, for with increase of business it became necessary to seek larger quarters; but no permanent location was secured until the erection of the magnificent block on Third street, comprising four floors 150 feet deep, of which every inch is occupied. The firm's wholesale trade extends over the States of Iowa, Illinois, and Missouri, and requires three traveling salesmen's constant attention. The firm's claim of being the leader in fine goods is nowhere disputed in the west.

MOELLER & ASCHERMANN MFG. COMPANY.

(See Illustration, Page 14.)

The Moeller & Aschermann Manufacturing Company, manufacturers of cigar-makers' supplies, all kinds of boxes, and apiarian supplies. This company was incorporated a year ago with a capital stock of \$200,000, and is one of the most prominent establishments in the city. Their principal line of manufacturing is the newly-invented cylindrical cigar-shaper (Elges' patent). Bunches made in this shaper cannot be distinguished from hand-work, and this machine will without doubt, in a short time, be adopted by every cigar manufacturer in the world, and make Davenport known all over the globe.

The following gentlemen, well and favorably known in the business world, comprise the company, and their names and capital

can be justly figured upon regarding the great success this institution will have: President, Hon. R. Guenther; Vice-President, Ed. Aschermann; Secretary and Treasurer, Aug. Kleinguenther, who is also General Manager; H. F. Moeller, G. D. Elges, Emil Berger, and John Hill; Book-keeper and Cashier, Julius Grunewald.

A. MORITZ & BROTHERS.

(See Illustration, Page 4, No. 44.)

A. Moritz & Brothers, clothiers and gentlemen's furnishers, 121 and 123 West Second street, have been established for twenty years. This is one of the largest and most notable business houses in Davenport. It is an old and honorable firm, and one that not only successfully conducts an immense establishment, but also conducts it in such a liberal and enterprising spirit as to equally benefit the city as themselves. They occupy one of the finest buildings (24 feet frontage, with a depth of 150 feet), and have more space devoted to their trade than any other clothing house in the State of Iowa. Their four floors, besides the basement, which is also utilized, comprise 14,400 square feet. The interior is arranged splendidly, with everything that modern taste and wisdom can suggest for the accommodation of the patrons of a great clothing store. The high, airy, and dry basement is the storage and shipping-room. The first floor is the retail department; the second, third, and fourth floors are devoted to the exclusive wholesale trade. Their tremendous stock consists of everything that comes under the comprehensive head of clothing, from the coarse overall to the finest broad-cloth suit, together with an immense line of furnishing goods of every description. Strangers in the city are cordially invited to visit this grand establishment.

MUELLER SAW-MILL.

(See Illustration, Page 8, No. 57.)

In the year 1849 Mr. Strong Burnell commenced the foundation of a saw-mill on the present site of the new Chris. Mueller mill. The capacity of the mill, when operations were commenced,

HARD, SOFT, AND BLOSSBURG

COAL

LIME, CEMENT, MARBLE AND GRANITE

MONUMENTS

MCCOSH & DONAHUE.

308 TO 312 EAST THIRD STREET.

BECKER'S HALL, (Formerly Lahrman's.)

GUST. BECKER, PROPRIETOR.

BILLIARDS AND RESTAURANT.

WARM MEALS AT ALL HOURS.

HALL FOR PARTIES AND DANCES.

329 WEST SECOND STREET, DAVENPORT, IOWA.

[See Illustration, Page 11, No. 14.]

SECURITY FIRE INSURANCE CO.

[See Illustration,
Page 6, No. 2.]

DAVENPORT, IOWA.

CAPITAL, \$100,000.00.

FIRE.



LIGHTNING.
TORNADOES.

OFFICERS:

S. F. GILMAN, *President.*

GEO. P. McCLELLAND, *Vice-President.*

ERASTUS A. BENSON, *Treasurer.*

E. J. BABCOCK, *Secretary.*

DIRECTORS:

S. F. GILMAN.

E. J. BABCOCK.

JENS LORENZEN.

GEO. P. McCLELLAND.

F. H. GRIGGS.

J. B. PHELPS.

ROBERT SICKELS.

ERASTUS A. BENSON.

M. L. MARKS.

J. S. WYLIE.

A. F. WILLIAMS.

JOHN J. DAHMS,

REAL ESTATE

— AND —

LOAN AGENCY,

128 EAST THIRD ST., DAVENPORT, IOWA.

was five thousand feet per day, but in a few years was increased to ten thousand feet. The mill changed owners several times, and in 1867 Schricker & Mueller took hold of it and operated it until the death of Mr. Schricker, in 1883, when Mr. Mueller assumed the entire ownership. On December 15th, 1885, the mill was totally destroyed by fire. The capacity of the mill at that time was ninety-five thousand feet per day.

In the spring and summer of 1886 Mr. Mueller erected a new mill. He spared neither pains nor means to make this mill one of the most complete and practicable saw-mills in the northwest. The mill contains three band-mills with all the requisite machinery, edgers, trimmers, lath and shingle mills, etc., and it is said that lumber can be manufactured and handled cheaper here than in any other mill in this vicinity. The capacity of the mill now is 140,000 feet of lumber, 30,000 shingles, and 35,000 lath per day. The number of hands employed is one hundred and ten, and the pay-roll amounts to over \$1,000 weekly.

NEWCOMB HOUSE AND VIELE BUILDINGS.

(See Illustration, Page 9, Nos. 61 and 62.)

This block of buildings is situated on the north side of Second street, between Main and Brady streets, and occupies the entire south half of block 43 in the city of Davenport, Iowa. It was originally constructed by the late Antoine LeClaire, Esq. The old and well-known "LeClaire House," built in 1839, formerly occupied the southwest corner of this block, and for many years was one of the most noted resorts in the Mississippi valley. It was a favorite summer resort for the citizens of St. Louis, and during the heated term was generally filled to overflowing. The building on the corner of Second and Brady streets was constructed by Mr. LeClaire in 1852, and the intermediate building in 1853. In the former of these structures was located the old "LeClaire Hall," which for many years was the place for all public meetings, lectures, and theatrical performances. This valuable property was purchased by the Hon. Charles Viele in 1863, through the instrumentality of his brother-in-law, the late Daniel T. Newcomb, Esq. Soon after the

purchase of this property by Mr. Viele, the old "LeClaire House" was thoroughly remodelled and improved, and its name changed to the "Newcomb House." This, for a long time thereafter, was the principal hotel in the city; and it was in this house that the late Dr. John J. Burtis commenced his career here as a landlord. With the erection of other hotels in the city, this house became unremunerative, and a few years since its occupancy for such purposes was discontinued. At the present time it is principally occupied by the famous notion store of Emerson & Company. This block of buildings is one of the most central and eligible in the city for business purposes, and its store-rooms are always in demand. Being situated back from the line of the street about eight feet it thus affords a twenty-foot sidewalk, which is consequently a favorite promenade. It embraces sixteen stores and a large number of offices. The east part of the block is occupied by the Business College of Duncan & Hawks, one of the largest and most popular institutions of the kind in the western country. Among the present occupants of this block are Isaac Rothschild, E. S. Ballard, and the Messrs. Webb, who have been tenants of Mr. Viele during almost his entire ownership of the property. Charles E. Putnam, Esq., of Davenport, Iowa, acts as the agent of Mr. Viele in the management of these buildings.

J. H. C. PETERSEN & SONS.

(See Illustration, Page 4, No. 42.)

The wholesale dry goods and notions firm of J. H. C. Petersen & Sons commenced business in 1872 in a small store (21x50) with a very small capital. On account of their departure from the old way of doing business, viz: long time and large profits, instead of which they inaugurated a cash system on the basis of small profits and large sales, their business increased so rapidly from year to year that they were compelled to occupy more room annually. They now occupy one large four-story building, 33x150 feet, of which all the floors are connected by two fine hydraulic passenger and freight elevators, and two two-story stores adjoining the above building, each 21x150 feet; also basements of same dimension under each building. They employ seventy-five clerks in their retail, and fifteen

JOHN HILL,

Restaurant,

And all kinds of Refreshments,

122 and 124 Main Street, Davenport, Iowa.

F. J. RAIBLE,

Manufacturer of *FINE CIGARS,*

And dealer in Tobacco, Pipes, and Smokers' Articles,

210 West Second Street, Davenport, Iowa.

C. H. WORLEY,

First-Class Livery, Feed, and Sate Stable,

Telephone No. 208. 425 and 427 Brady St. Davenport, Iowa.

HADSELL & CO.,

Paper Box Manufacturers.

Boxes made to Dimension. Special attention given to Shelf and Shoe Boxes.

104 East Front St., Davenport, Iowa.

DR. E. H. HAZEN,

Specialties: Eye, Ear, Nose, and Throat.

Office Hours, 9 to 11 a. m., and 3 to 5 p. m. Cor. Second and Brady Sts., Ryan Block, Davenport, Iowa.

W. H. FLUKE,

Books, Stationery, Wall Paper, Art Material, Fancy Goods,

Davenport, Iowa.

ALBERT HARTUNG.

PROPRIETOR

El Dorado Billiard Parlor,

(ELECTRIC LIGHT.)

WET GOODS,

116 East Third Street, DAVENPORT, IOWA.

H. J. WITT,

Manufacturer of Mineral Waters,

Bottler of Beer, Porter, Ale, and Cider, and Wholesale dealer in Bottling Supplies.

302, 304, 306 W. Front Street, Davenport, Iowa.

J. W. WIRTEL,

Wholesale Manufacturer of

Trunks and Traveling Bags,

Nos. 220 & 222 Brady St.,

Davenport, Iowa.

CHAS. KARST,

Manufacturer and Dealer in

Fine Imported and Domestic Cigars and Smokers' Articles.

228 Brady St., Davenport, Iowa.

HARRISON'S PHARMACY,

J. H. HARRISON, Proprietor,

DAVENPORT, IOWA.

J. C. BILLS & CO.,

Proprietors of Davenport Showcase Manufactory. Manufacturers of all kinds of Showcases. The Improved Metal-Corner Cases a Specialty.

434 Brady Street, 101, 103, 105 Fifth Street, Davenport, Iowa.

clerks in their wholesale department. They also have two branch houses, one being at Geneseo, Illinois, which occupies three store-rooms, employing twenty clerks; and one at Muscatine, Iowa, occupying two store-rooms and employing fifteen clerks. Their sales are without doubt the largest of any house of the kind in the state.

PHOENIX MILLS COMPANY.

(See Illustration, Page 5, No. 45.)

The Phoenix Mill was first built in 1862 by M. Donahue & Company. In 1866 James Johnston bought it and run it until 1871, when H. Pohl & Brother leased it for one year. After their lease expired H. P. Beattie bought and operated it until it burned down in 1879. He rebuilt it and put in some stone rollers. These rollers not proving a success, the property, in October, 1880, passed into the hands of the Phoenix Mills Company, which is a stock company, with F. H. Griggs as President, and F. T. Blunck as Secretary and Treasurer, and H. Pohl as Superintendent; they remodelled the mill and put in the Stevens steel rollers. These rollers worked very satisfactory. On the morning of September 26th, 1881, the mill was struck by lightning, and the main building, with all the milling machinery was destroyed. Immediately rebuilt and enlarged, it was furnished with Allis & Company's porcelain rolls, which give entire satisfaction. The buildings cover one hundred and five feet on Front street and one hundred and forty feet on Western avenue. The mill has a daily capacity of four hundred barrels of flour, and employs thirty-one persons. It has an enviable reputation for making extraordinary fine flour.

REUPKE-SCHMIDT CRACKER COMPANY.

(See Illustration, Page 5, No. 46.)

Among the many manufacturing interests of the growing northwest none deserve more favorable mention than the Reupke-Schmidt Cracker Company, wholesale cracker and biscuit manufacturers, Davenport, Iowa.

This firm has gained an excellent reputation throughout the country wherever their goods have been introduced. Established in business ever since July, 1874, their increasing trade has made it necessary to require the full capacity of the present buildings, being about four times the original size, with an extensive branch house at Des Moines, Iowa, as a distributing depot for their western territory. They give employment to thirty-five hands, manufacturing ninety varieties of crackers and biscuit, and using ninety barrels of flour per day. Their success may be attributed to the superior quality of goods manufactured and careful attention to the wants of the trade. Orders will be promptly filled either from headquarters in Davenport or from their branch house in Des Moines, Iowa.

ISAAC ROTHSCHILD.

(See Illustration, Page 9, No. 62.)

Isaac Rothschild, proprietor of the largest exclusive retail clothing, merchant-tailoring, and gent's furnishing-goods store in the state. Nos. 203 and 205 Brady street, and 102 and 104 Second street. Established 1865.

What honesty, industry, and square dealing will do: This establishment has grown from a small business, in 1865, to its present proportions, and now occupies a double store, three stories high, together with the second and third stories on the opposite side of the street (45 feet front with a depth of 150 feet).

The first floor is occupied with the choicest stock of ready-made clothing, imported and domestic woolens, and a full line of gents' furnishing-goods. The second floor, overcoats of all descriptions, and a complete line of hats, caps, and rubber clothing. The third floor, trunks and valises. The two stories on the opposite side of the street are occupied by skilled tailors, under the management of Mr. Henry Kamp, formerly of New York City, employing in this department thirty-five men all the year around. Total number employed in the establishment, forty-five.

HENRY BERG,
*Dealer in Sportsmen's Goods, Fishing Tackle,
 Base Ball Goods, and Bicycles,*
 N. E. Corner Third and Harrison Streets.

CHAS. NAECKEL & SON,
*Picture Frames, Wall Paper, Window Glass,
 Paints, Oils, Varnishes, Brushes, Etc.*
 405 W. Second St., Davenport, Iowa.

JOHN H. SCHUETT,
Dealer in Groceries, Crockery, and Glassware,
 492 West Third Street. DAVENPORT, IOWA.

LOUIS HANSSEN,
*Dealer in General Hardware, Farming Tools,
 And all kinds of Seeds. Agent for Washing Machines, Chains, Etc.*
 213 and 215 West Second Street, bet. Main and Harrison Sts., Davenport, Iowa.

A. J. LERCH & BRO.,
*Stoves and House-Furnishing Goods,
 Tin, Copper and Sheet-Iron Ware.*
 120 West Third Street, Davenport, Iowa.

THOMAS THOMPSON,
*The Central Book Store—Wholesale and Retail.
 Books, Stationery, Wall Paper, Pictures, Frames, Etc.*
 Corner Third and Brady Streets.

SCHAUDER'S HOTEL AND ORCHESTRION HALL,
 L. SCHAUDER, PROPRIETOR,
 126 West Front Street, Near Ferry Landing, DAVENPORT, IOWA.

C. O. D. STEAM LAUNDRY AND SHIRT FACTORY,
 C. CRUYS, PROPRIETOR,
 112 and 114 West Third Street, DAVENPORT, IOWA.

CHRIST. KUEHL,
*Dealer in Staple and Fancy Groceries, Crockery,
 Glassware, Hardware, Paints, Flour and Feed.*
 Telephone No. 5. Cor. Eddy and Mound Streets, Davenport, Iowa.

G. F. KNOTSMAN & SON,
*Manufacturers and Dealers in all kinds of Furniture,
 Carpets, Oil Cloths, and Matting.*
 Telephone No. 120. 207 and 209 East Second Street, Davenport, Iowa.

FARMER'S HOTEL, (KOESTER'S.)
 J. L. SIEGFRIEDT, PROPRIETOR.
*Good Accommodations at Reasonable Rates,
 Good Stabling Connected with the House.*
 212 and 214 Scott Street, Davenport, Iowa.

P. H. GRUENAU,
 DEALER IN BOOTS AND SHOES,
 No. 408 West Second Street, Davenport, Iowa.

G. M. SCHMIDT,
 DEALER IN LADIES' AND GENTS' FINE SHOES,
 Cor. Second and Harrison Sts., Davenport, Iowa.

P. & E. KOENIG,
*Millinery and Fancy Goods, Zephyr Worsteds, Embroideries,
 Materials for Embroidery, Notions, Trimmings, and Stamped Goods.*
 318 West Second Street, Davenport, Iowa.

THE IOWA REFORM,
Semi-Weekly and Weekly German Newspaper.
 ADOLPH PETERSON & BRO., Proprietors. GUSTAV DONALD, Editor.
 N. W. Cor. Second and Scott Streets, Davenport, Iowa.

REIMERS & BRAUCH,
Dealers in Stoves and House-Furnishing Goods,
 No. 414 West Second Street, Davenport, Iowa.

LAHRMANN'S HALLE,
 B. H. LAHRMANN, PROPRIETOR.
 S. W. Cor. Second and Ripley Sts., Davenport, Iowa.

ATLANTIC HOTEL,
 GEORGE PAHL, PROPR. \$1.50 PER DAY.
 Cor. Fifth and Perry Sts., Opp. C. R. I. & P. Depot, Davenport, Iowa.

DAVIS & CAMP,
*Manufacturers of and Dealers in Granite and Marble Monuments
 and Headstones, Marble, Slate, Iron, and Wood Mantels and Grates.*
 Don't forget the place, and come and see us before purchasing, and you will save money.
 224 East Third Street, Davenport, Iowa.

WM. O. SCHMIDT,
 ATTORNEY AT LAW,
 S. W. Cor. Second and Harrison Sts., Davenport, Iowa.

U. N. ROBERTS & COMPANY.

(See Illustration, Page 6, No. 49.)

THE business of this firm was established in 1865 by Mr. U. N. Roberts, and thus for twenty years has had a continuous and growing prosperity. Since the death of Mr. Roberts, in 1877, the business has been under the exclusive management of Mr. Uriah Roraback, who has been a member of the firm since 1871. The firm are manufacturers of and wholesale dealers in glazed sash, doors, blinds, mouldings, stair-work, etc. The house stands high in the trade, and their goods have a first-class reputation. Their trade extends east to Indiana, west to Utah, north to Dakota and Minnesota, and south to the Gulf of Mexico. The measure of success attained by this well-known and old-established concern is largely due to the personal attention given to details by the manager and his employes. Their commodious and well-arranged store-rooms, built by them exclusively for their use, afford the best facilities for handling the large amounts of material which daily pass through their hands.

FERD. RODDEWIG'S SONS.

(See Illustration, Page 10, No. 68.)

Ferd. Roddewig's Sons, *importers of and wholesale dealers in foreign and domestic wines, liquors, cordials, etc., Nos. 409 and 411 Harrison street.* The wholesale trade in fine wines and liquors has a worthy representative in Davenport in the old-established and prominent house of Ferd. Roddewig's Sons, whose fine premises, so centrally located, have no superior in the west. The immense business conducted here has reached the thirty-second year of its existence, having been founded by the late Mr. Ferd. Roddewig in 1855, and ably, honorably, and successfully managed by him up to his sudden demise in December, 1885. The firm was continued by his three sons, Paulo, Peter, and Ferd. Jr., and the business has had a steady growth, indicative of the purity and high quality of all goods handled.

The building has been planned throughout to secure the great essentials of light, air, and convenience. Its thick walls and sturdy foundations, heavy girders and solid partitions, all indicate the honest character of the work, while every modern improvement has been introduced by the enterprising owners. The main floor, devoted to the firm's splendid and unrivalled stock, is 32x152 feet in dimension, with a ceiling fifteen feet high. The cellarage accommodations beneath are unexcelled, which, with the warehouse in the rear, completely filled, enables them to fill the largest wholesale orders.

The gentlemen are popular and respected citizens, noted for their honorable methods and sterling integrity, and worthily maintain the lead as importers of wines and liquors, controlling, as they do, the best class of trade in this city and all through the state.

RYAN BLOCK.

(See Illustration, Page 10, No. 65.)

This block of buildings, situated on the southwest corner of Second and Brady streets (the two principal business streets of the city), is four stories high, with large, airy basement, and is the model office building in the city. The basement is occupied almost entire

by H. A. Pearne as a candy factory, working about fifteen hands. The first floor has three store-rooms, the corner, No. 101, being occupied by the Boston store, Harned, Pursel, & Van Maur, proprietors; the middle store, No. 103, by H. A. Pearne, wholesale and retail candies, and the west store, No. 105, by M. Carroll, dry goods. On the second floor Dr. J. B. Morgan has the handsomest dental parlors in the state; Miss Hazen, art studio; Dr. Hazen, an elegant suite; the Penn Mutual Life Insurance Company, Messrs. Lyman & Miller, agents, and W. T. Dittoe and W. M. Chamberlain, attorneys, have each handsome rooms. On the third floor the Northwestern Mutual Life Insurance Company, of Milwaukee, have three elegant rooms finely fitted, and are as handsome office rooms as can be found in any city, George E. Copeland, general agent. In a large, airy front suite the Equitable Life, of New York, holds forth, Charles G. Bliss, general agent. The entire west half of this floor is made into a very handsome little hall (24x75) for dancing parties, with reception-rooms adjoining.

The entire fourth floor is occupied by the Iowa Commercial College, Wood & Van Patten, proprietors, and is the largest and best-equipped school of the kind in the state. Here actual business principles are taught—telegraphy, short-hand, and stenography—besides the ordinary penmanship, book-keeping, etc., of ordinary commercial schools.

The entire building—store-rooms, each office, and the college—is heated by steam, and has every convenience of a modern building. The offices are rented to tenants, including steam-heating and janitor service, Mr. Ryan having a janitor employed by the year to take care of the offices, keep the halls and stairways always neat and clean, and there is no such kept building in the city, which fact makes the building, together with its unexceptional location, a most popular office and business building.

SICKELS, PRESTON & COMPANY.

(See Illustration, Page 3, No. 38.)

Sickels, Preston & Company, wholesale hardware, metals, tinners' stock, rope, paints, and oils. This house was established in

CHARLES HILL,

MANUFACTURER OF AND DEALER IN

—≡ FURNITURE ≡—

CARPETS, AND DRAPERIES.

317 AND 319 W. SECOND STREET, DAVENPORT, IOWA.

W. P. HALLIGAN & CO.,

Dealers in Anthracite, Blossburg, and Soft Coals,

S. E. Cor. Fifth and Harrison Streets, Davenport, Iowa.

THEO. KLAHN, : : : : WESTERN LANDS A SPECIALTY.
LAND AND STEAM-SHIP AGENT,

225 West Second Street, DAVENPORT, IOWA.

"FAMOUS" : : : : *127 W. Second St., DAVENPORT, IOWA.*
BOOT AND SHOE HOUSE.

A. F. JUDIESCH, THE LEADER IN LOW PRICES.

C. L. LINDHOLM,

No. 316 Perry Street, Davenport, Iowa,

MERCHANT TAILOR.

Work at Lowest Prices Warranted.

Dealer in Imported and Domestic Piece-Goods.

E. D. ROBESON & SONS,

STOCK DEALERS,

And Wholesale and Retail dealers in

Fresh and Smoked Meats,

Telephone 204. No. 426 Brady St., Davenport, Iowa.

HANS F. GRILK, *Agent for Burks' Stoves and Ranges.*

*Dealer in Stoves, Tin and Copper Ware,
And House-Furnishing Goods,*

304 Harrison Street, DAVENPORT, IOWA.

KNIEGGE & HARTUNG,

*Manufacturers of Fine Cigars, and dealers in Smokers' Articles,
For a good Ten-Cent Cigar, smoke Signal Service and Commerce.
Five-Cent Brands: Red Cloud and Special.*

327 Brady Street, DAVENPORT, IOWA.

CHAS. SCHAKE,

MERCHANT TAILOR AND CLOTHIER,

*330 West Second Street, between Harrison and Ripley Streets,
DAVENPORT, IOWA.*

P. B. HARDING, Agent for

*The Osborne Steel-Frame Self-Binders and Mowers,
the Advance Threshers and Engines,
And Dealer in GENERAL FARM MACHINERY.*

*Also agent for the American, Standard, and Helpmate
SEWING MACHINES.*

N. W. Cor. Second and Harrison Sts., Davenport, Iowa.

The Fair * EMERSON * The Fair

MAIN ENTRANCES

5 and 10 Cent Store,
120 West Second Street.

China Hall,
122 West Second Street.

99 Cent Store,
124 West Second Street.

Pictures, Paintings, and Picture Frame Department,
124½ West Second Street.

Wholesale Department, Third Floor.

BARGAINS IN ALL KINDS OF MERCHANDISE.

CROCKERY, CHINA,
GLASSWARE,
TINWARE.

WOODENWARE,
HARDWARE,
LAMPS AND
LAMP GOODS,

SILVER-PLATED WARE,
CLOCKS AND WATCHES,
JEWELRY,

GUNS AND REVOLVERS,
HARNESS,
SADDLERY,
WHIPS, ETC.

TRUNKS AND SATCHELS,
BOOKS AND STATIONERY,
FISHING TACKLE,

SPORTING GOODS,
JAPANESE GOODS,
BABY CARRIAGES,

TOYS,
NOTIONS,
FANCY GOODS,

BIRD CAGES,
MUSICAL INSTRUMENTS,
BASKET GOODS,
WILLOWWARE.

EVERYBODY INVITED TO VISIT OUR MAMMOTH STORE.

EMERSON & COMPANY, Proprietors.

[See Illustration, Page 9, No. 61.]

111 West Second Street, **H. DEUTSCH** DAVENPORT, IOWA.

Dealer in Staple and Fancy Dry Goods.

Always the Latest Novelties at the Lowest Prices.

MANUFACTURER AND IMPORTER OF LADIES' MISSES' AND CHILDREN'S CLOAKS.

Cloaks and Wraps made to order.

H. DEUTSCH, 111 West Second Street.

[See Illustration, Page 4, No. 43.]

1853, and has steadily increased in magnitude of business. It now ranks among the largest houses in its line in the west. The main business of the firm is conducted in their wholesale store, Nos. 121 and 123 West Third street, a large and capacious store fully stocked. They have also a large retail establishment, No. 226 West Second street, where, in addition to a full line of hardware, they carry the largest stock of belting and mill-furnishing goods in this section. They also have two large warehouses on Front street for the storage of nails, wire, pumps, wheelbarrows, building-paper, and other bulky goods.

AUGUST STEFFEN.

(See Illustration, Page 2, No. 36.)

August Steffen, wholesale and retail dry goods and notions, Nos. 226, 228, and 230 West Second street, corner of Harrison, commenced the above business in 1878, being exclusive retail until 1882, when the jobbing department was opened. The business increased to such an extent that they were compelled twice to enlarge their establishment, and now occupy three floors and basement. The first or main floor is used for retail, and measures 44x150 feet, and the wholesale department occupies the second and third floors, each of which have the enormous dimensions of 66x150 feet.

Four traveling salesmen and forty-four employes constitute the working force of this establishment. The annual sales amount to \$500,000.

ST. JAMES HOTEL.

(See Illustration, Page 2, No. 33.)

The St. James Hotel is located opposite the ferry-landing, corner of Front and Main streets. It was built by Judge James Grant in 1876, and was first opened by Mr. Charles Ryan, and afterwards run by Mr. James Bellows, until it fell into the hands of its present manager, Mr. Gough B. Grant, who became proprietor September 1st, 1879. The above hotel has a capacity of forty-five sleeping-rooms, nearly half of which are double. The St. James is largely patronized by commercial travelers, and ranks second to none as a \$2.00 per day house. Its popularity has continued to grow to such an extent that Mr. Grant is putting up an addition, by

which he will be able to accommodate twenty-five to thirty more guests. The new building is situated on Main street, with a frontage of forty-one feet; will be three stories high and forty-five feet deep. It will be a handsome structure, and add much to the appearance of Main street.

A. WARNEBOLD (FARMERS MILLS).

(See Illustration, Page 8, No. 59.)

The Farmers Mills, situated on Harrison and Eighth streets, were built by Winn & Blagrooz in 1873. This firm done a flourishing business until July, 1877, when they sold their interest to Warnebold & Wittenberg. These gentlemen being so well and favorably known for their sterling business qualifications, under their superior management the mills soon began to show signs of rapid improvement. The demand for their flour increased so that in a short time they found that in order to keep their trade fully supplied they would have to enlarge the capacity of their mill. Finally, in 1881, the mill was changed to the new roller system with double capacity. The flour since produced by the new system is universally acknowledged to be equal if not superior to any in the market. They give employment to twenty-one men.

On June 16th, 1887, Mr. Wittenberg sold his interest to A. Warnebold, who is now controlling the whole mill.

M. WEIDEMANN.

(See Illustration, Page 3, No. 37.)

M. Weidemann, wholesale dealer in notions, white goods, embroideries, laces, and trimmings, hosiery and millinery goods, a resident of Davenport since 1852, was engaged in the wholesale and retail dry goods business until 1873, but for the last two years has been conducting the present business at No. 113 West Second street.

YOUNG & HARFORD.

(See Illustration, Page 10, No. 66.)

This firm was founded in 1860, by D. T. Young, and was continued by him until 1880, when George H. Young was admitted as a partner, the firm name being D. T. Young & Son, until 1881. It

GUS HAASE.

WM. HAASE.

HAASE BROS.*Wholesale Dealers in Wines and Liquors,**No. 216 West Third Street,*

DAVENPORT, IOWA.

GANNON & McGUIRK,**ATTORNEYS AT LAW.***Collections promptly attended to.**Telephone No. 325. S. W. Cor. Third and Brady Sts., Davenport, Iowa.***STEAM MUSTARD MILLS,***The Theo. Tiedemann Co.*

Manufacturers of and Wholesalers in all kinds of Mustard,

624 W. Third Street, Davenport, Iowa.

H. SONNTAG,*Plumber and Gas Fitter.*And sole agent for Hydraulic Beer Pumps,
321 West Third Street,*Davenport, Iowa.***HINCHER'S SUMMER GARDEN,***Popular Summer Resort.**Concerts every Wednesday evening, and Sunday afternoon and evening,
by Strasser's Union Band.*

Telephone 343.

Twelfth and Brown Sts., Davenport, Iowa.

THE FEDERAL LIFE ASSOCIATION

is recognized by the Insurance Department of Iowa as one of the leading companies in the State.

It has an accumulated Reserve Fund of over \$20,000, which is being added to constantly. It has paid in death losses over \$40,000. It pays all valid claims promptly and in full.

Cost of insurance stated definitely, and may be paid in yearly, semi-annual, or quarterly payments. All securities for investments made are deposited and held by the Auditor of State. It will pay you to investigate the plans and workings of the

FEDERAL LIFE ASSOCIATION,

*P. O. Block, Cor. Third and Perry Sts.,**Davenport, Iowa.***H. HUEBINGER,**CONFECTIONERY,
FANCY BAKERY AND RESTAURANT,
ICE CREAM AND CAKES.*Dinners and Suppers to order.**Warm Meals at all hours.**Dinner from 12 to 2 P. M.*

Telephone No. 60. 322 Brady Street, DAVENPORT, IOWA.

JOHN M. KILLIAN,*Decorative Paper-Hanger, House and Sign Painter,
AND GRAINER.*

Whitening done on short notice.

*Shop, 512 West Second St., bet. Scott and Western Aves., Davenport, Iowa.***J. H. WHITAKER,***Contractor and Builder,**Manufacturer of Sash, Doors, and Blinds,
1010 to 1016 East Front Street,**Davenport, Iowa.***H. SCHNECKLOTH,****— BOTTLER, —***516 Harrison Street, Davenport, Iowa.***ALBERT F. MIEKLEY,***Contractor, House Builder, and Carpenter,*

No. 314 West Fifth Street,

DAVENPORT, IOWA.

KURMEIER & RASCHER,

Henry Kurmeier, Frank Rascher.

Cooking and Heating Stoves, Tin and Sheet-Iron Ware. Jobbing and Roofing Done.
224 Second Street, Davenport, Iowa.**RICHARDS' DRUG STORE AND PHARMACY,***212 Brady Street, Davenport, Iowa.***J. L. REID,***Dealer in Stoves and Tinware, also New and Second-Hand
Furniture and House-Furnishing Goods.*

218 Brady Street, Davenport, Iowa.

was then reorganized under the firm name of George H Young & Company, the company being Mr. E. S. Ballard, a gentleman of liberal means, and one being identified with Davenport interests. The business was materially enlarged and was continued until the spring of 1884, when T. W. Harford purchased of E. S. Ballard his interest in the concern, and the name was changed to Young & Harford, under which it now exists. George H. Young has been fully schooled in every detail of carriage building, and is fully competent to superintend the work with which he has been so long connected. T. W. Harford has long been upon the road, and has the care of disposing of the out-put of the firm. The specialties of this

firm are spring wagons and top buggies, of which they will manufacture none but the best — such as can be fully recommended and warranted. But not every buyer of a buggy cares for these qualities, but rather looks for cheapness. For such customers Young & Harford carry a full line of the machinery-made buggies, which are having a large sale. They are agents for the Standard Wagon Company, of Cincinnati, who build the best cheap work on the market. Their trade extends throughout Iowa, Minnesota, Missouri, Nebraska, and Kansas, and by the united efforts of the partners, their business is increasing rapidly, and it bids fair to be one of the prominent manufacturing firms of the city and state.

A. HUEBINGER.

M. HUEBINGER.

Huebinger's
Photographic Art Gallery,

Corner Third and Brady Streets, Davenport, Iowa.

Large Portraits a Specialty.

CONSOLIDATED TANK LINE CO.
Carbon and Lubricating Oils,
M. MAXON, Manager. *DAVENPORT, IOWA.*

H. B. POHLMANN.
Proprietor of the Brick Yard,
1233 Marquette St., Davenport, Iowa.
Orders from the city solicited
Also, goods delivered.

W. STERNBERG.
Proprietor
West Davenport Machine Shops
AND BRASS FOUNDRY,
1642-44 West Locust St., Davenport, Iowa.

BRAMMER & OTT,
JULIUS BRAMMER, LOUIS OTT.
Dealers in Groceries, Crockery, Hardware,
Paints, Oils, Etc.,
1647 and 1649 West Third St.,
Davenport, Iowa.

A. LINDBLOM,
Merchant Tailor, Cleaner,
and Repairer,
125 East Third St., Davenport, Iowa.

HAT FACTORY.
F. A. BUSSE, Proprietor.
324 Brady Street, Davenport, Iowa.

JENS HANSEN,
Manufacturer and dealer in
Furniture of all Kinds.
1522 West Locust St., Davenport, Iowa.

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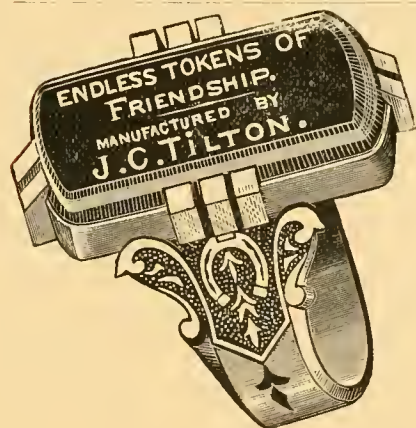
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| Hazen, E. H., Ryan's Block, cor. 2d and Brady 18 | |
| Hoepfner, Gustav, 16th bet Harrison and Main 10 | |
| Jaenicke, A., 16th and Harrison | 10 |
| Pictures. | |
| Berwald, John, 214 w 2d, tel 270 | 3 |
| Fluke, W. H., 317 Brady, tel 228 | 18 |
| Thompson, Thomas, sw cor. 3d and Brady, tel 283 | 20 |
| Piano Factory. | |
| Zimmerman, John, 120 Main | 32 |
| Picture Frames. | |
| Berwald, John, 214 w 2d, tel 270 | 3 |
| Frisius, Adolph, 316 w 2d, tel 138 | 36 |
| Naeckel & Son, 405 w 2d | 20 |
| Thompson, Thomas, sw cor. 3d and Brady, tel 283 | 20 |
| Plow Manufacturers. | |
| Globe Plow Co., 322 w 3d, tel 259 | 10 |
| Plumbers, Gas and Steam Fitters. | |
| Clayton, R. C., 408 Brady | 32 |
| Davenport Steam Heating Co., 118 w 3d, tel 111 | 7 |
| Eyer, Peter, 416 w 2d | 4 |
| Lindsay, J. B., 128 e 3d | 22 |
| Sonntag, H., 227 Harrison | 26 |
| Real Estate Agents. | |
| Brown, L. J., 203 w 3d | 34 |
| Dahms, John J., 128 e 3d | 16 |
| Klahn, Theodore, 225 w 2d | 23 |
| McHart, J. C., 205 Brady, tel 415 | 4 |
| Montague, A. J., 304 Brady, tel 111 | 34 |
| Ochs', John, Sons, 126 Main | 30 |

| Restaurants | PAGE |
|---|------|
| Becker, Gust., 329 w 2d, tel 170 | 16 |
| Hill, John, 122 and 124 Main | 18 |
| Huebinger, H., 322 Brady, tel 60 | 26 |
| Roofers. | |
| J. C. Watson & Co., 430 Brady, tel 375 | 4 |
| Sash, Doors, and Blinds. | |
| McClelland, T. W. & Co., 304 to 312 Main, tel 267 | 6 |
| Roberts, U. N. & Co., 4th and Harrison, tel 190:21 | |
| Scale Manufacturers. | |
| Arc-Scale Mfg Co., 411 and 413 Rock Island | 34 |
| Seeds. | |
| Hanssen, Louis, 213 and 215 w 2d | 20 |
| Sewing Machines. | |
| Harding, P. B., 2d and Harrison | 23 |
| Techentin & Hoyer, 308 w 2d | 6 |
| Shirt Manufacturer. | |
| Cruys, C., 112 and 114 w 3d, tel 372 | 20 |
| Show-case Manufacturers. | |
| Bills, John C. & Co., 434 Brady | 18 |
| Sleighs. | |
| Mason, J. L., 119 and 121 e 4th, tel 219 | 8 |
| Young & Harford, Front and Perry | 27 |
| Soda-water Factories. | |
| Collins & Baker, 432 w 5th | 31 |
| Witt, Henning, 302 to 306 w Front, tel 386 | 18 |
| Steamship Agents. | |
| Berwald, John, 214 w 2d, tel 270 | 3 |
| Frisius, A., 316 w 2d | 36 |
| Klahn, Theo., 225 w 2d | 23 |
| Stoves and Tinware. | |
| Grilk, H. F., 304 Harrison | 23 |
| Hender, Walter, 219 Brady | 32 |

| Stoves and Tinware—Continued. | PAGE |
|--|------|
| Kurmeier & Rascher, 608 w 2d | 26 |
| Lerch, A. J. & Bro., 122 w 3d, tel 231 | 20 |
| Reid, J. L., 218 Brady | 26 |
| Reimers & Brauch, 414 w 2d | 20 |
| Tobacco. | |
| Albrecht & Co., 306 w 2d, tel 357 | 6 |
| Kuhnen, Nicholas, sw cor. 2d and Perry | 13 |
| Toys. | |
| Berwald, John, 214 w 2d, tel 270 | 3 |
| Emerson & Co., 124 w 2d, tel 334 | 24 |
| Frisius, A., 316 w 2d | 36 |
| Trunk Factory. | |
| Wirtel, J. W., 220 Brady | 18 |
| Undertaker. | |
| Nissen, H., 420 w 4th, tel 449 | 4 |
| Wagon Shop. | |
| Hansen, Hans, 305 w 3d | 28 |
| Wagon Stock. | |
| Lamp, Peter & Co., 111 and 113 w 3d, tel 383 | 36 |
| Wall Paper. | |
| Fluke, W. H., 317 Brady, tel 228 | 18 |
| Naeckel, Charles F., 405 w 2d | 20 |
| Thompson, Thomas, 3d and Brady, tel 283 | 20 |
| Washing-machines, Churns, and Boxes. | |
| Brammer & Co., 317 to 323 Warren, tel 388 | 3 |
| Moeller & Aschermann Mfg Co., Scott and 5th, 218 | 14 |
| Wood Dealers. | |
| Abel & Co., 307 w 2d, and 2d and Davie, tel 126:28 | |
| Woolen Mills. | |
| Davenport Woolen Mills Co., Front e of Bridge av | 7 |

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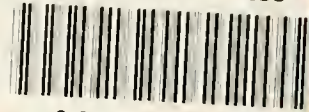
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
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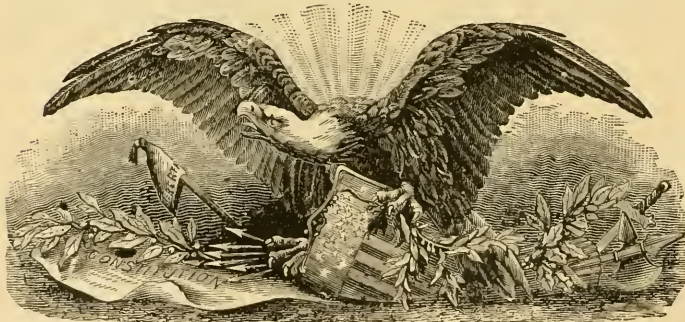
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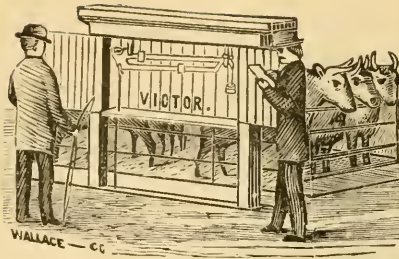
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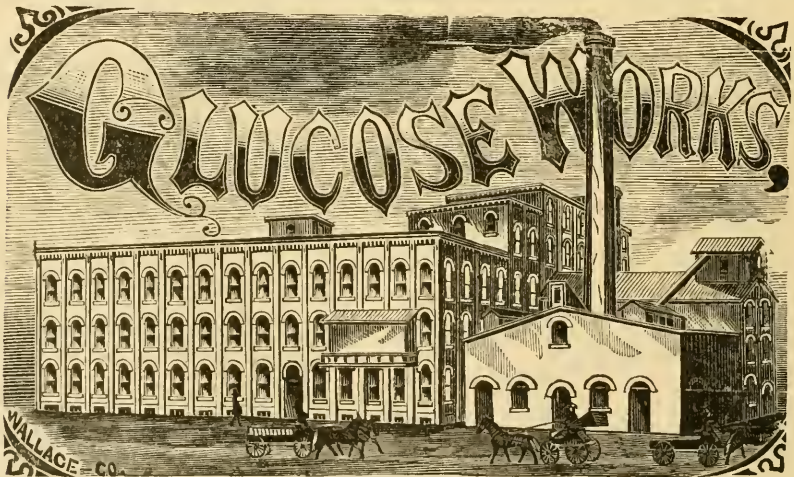
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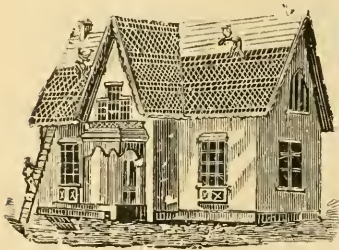
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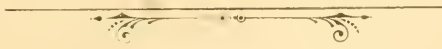

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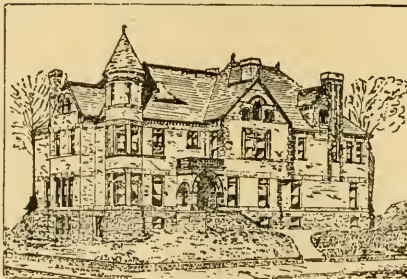
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Sixteen years experience in the Real Estate business in Moline has given me the advantage of knowing the value of every foot of land in the city and vicinity.

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THREE CITIES: DAVENPORT, ROCK ISLAND, AND MOLINE.

THEIR LOCATION, INDUSTRIAL ENTERPRISES, WHOLE-
SALE TRADE, TRANSPORTATION FACILITIES,
BUSINESS OPPORTUNITIES, BANKS,
SCHOOLS, CHURCHES, AND
GENERAL INTERESTS AND SURROUNDINGS.

ALSO A DESCRIPTIVE SKETCH OF ROCK ISLAND ARMORY AND ARSENAL,
WITH ILLUSTRATIONS AND MAPS.

25,3
2 33

BY B. F. TILLINGHAST.

The Valley of the Mississippi is, upon the whole, the most magnificent dwelling-place prepared by God for Man's abode.—DE TOCQUEVILLE'S DEMOCRACY IN AMERICA.

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DAVENPORT, IOWA :
EGBERT, FIDLAR, & CHAMBERS, PRINTERS AND BINDERS.
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BUSINESS FACTS.

THE THREE CITIES AS A MANUFACTURING AND COMMERCIAL CENTER.

Davenport, Rock Island, and Moline form the most populous, most important, and most prosperous manufacturing and commercial center between Lake Michigan on the east, the Missouri river on the west, the head of Mississippi river navigation on the north, and the mouth of the Illinois river on the south. The municipal limits of the three cities fall within a circle whose radius is about four miles, and the central geographical point of which is in longitude 13° and 37' west of Washington, and in latitude 41° and 30' north. With reference to well-known places the point already fixed is: By rail, 181 miles west of Chicago and 318 miles east of Omaha; by river it is 332 miles north of St. Louis and 397 miles south of St. Paul. The population of these cities is very close to 70,000, about equally distributed on either bank of the Father of Waters for a distance of eight miles. Nature intended this as a locality upon which she could bestow her richest gifts. She placed the most beautiful of the many islands which divide the waters of the great river here. Around this Island of Rock Island is the cluster of cities described in this book, and upon it is the National Armory and Arsenal of the Mississippi Valley, designed to be the largest on the continent. While affording the nation protection in time of danger, it furnishes the trio of cities and their visitors a park without an equal in the west.

RICH IN MATERIAL RESOURCES

The location is not only picturesque and attractive for its natural beauty and as a place of residence, but it is wonderfully rich in material resources, which as yet have been but imperfectly developed. Here is an unlimited water-power which the government partially utilizes in its wheels of nearly 4,000-horse-power, and which has made the city of Moline known as the Lowell of the West. In the diversity of resources may be found an abundance of cheap coal, and transportation facilities by river and rail which afford means for reaching iron-mines, north and south, and pine-forests in Wisconsin and Arkansas.

A YEAR'S MANUFACTURES.

But specific facts and figures are more stubborn things, and also more satisfactory than general statements, however well they may be vouched for. Let us deal with realities—with the business of Davenport, Rock Island, and Moline for the year just closed. Over 100 factories, of all kinds, have been in operation. They have invested as capital \$16,804,000.00; gave employment to 9,343 hands, who received in wages \$4,361,500.00. The actual business transacted, as shown by the volume of sales, was \$21,997,600.00.

THE WHOLESALE TRADE.

While the industrial interests take precedence in the extent of business done, the wholesale trades are a factor of immense importance. They number more than forty. The capital invested is \$3,650,000.00. The wholesale houses employed 817 hands, and did a business of \$11,226,000.00. These factories and wholesale houses keep an army of 350 commercial travelers on the road. The retail business and general trade are in keeping with the manufacturing and wholesaling.

SOME LEADING INDUSTRIES.

To be more definite. The one industry of largest proportions is that of lumber-making. The eight saw-mills, during the last season, cut 191,500,000 feet of lumber;

40,500,000 lath, and 35,250,000 shingles. Upon their pay-rolls are the names of 1,756 men, and their salesbooks show \$4,575,000.00 as the business of twelve months. The second most important industry is plow-making. The five factories employ 1,550 men; their sales reach \$3,000,000.00, and in the twelve months of 1887 they made more than 400,000 implements. The various cigar factories have given employment to over 700 hands, and made more than 16,000,000 cigars. Flour-making, pork-packing, the manufacture of wagons, glucose, pumps, paints, crackers, candy, stoves, glass, beer, soap, saws, scales, paper, malleable iron, organs, steam boilers and engines, furniture, clothing, vinegar, threshing-machines, brick, and pottery, are some of the other industries which help to make the totals given.

THE MEASURE OF BUSINESS.

The banks measure business accurately. Their figures are accessible. The eight national banks and one private banking-house sold exchange during the year 1887 amounting to \$45,610,000.00. Their paid up capital is \$950,000.00. Their resources at the time of their December statements were \$4,519,820.80. The savings banks show the thrift and condition of the working classes. There are four of these institutions, with an aggregate capital of \$490,000.00, and undivided profits of \$239,197.00. They have deposits of \$4,780,933.00, and the number of their depositors is 10,753—an individual average of \$444.61. What western city can make a proportionate showing?

POST-OFFICE GAINS.

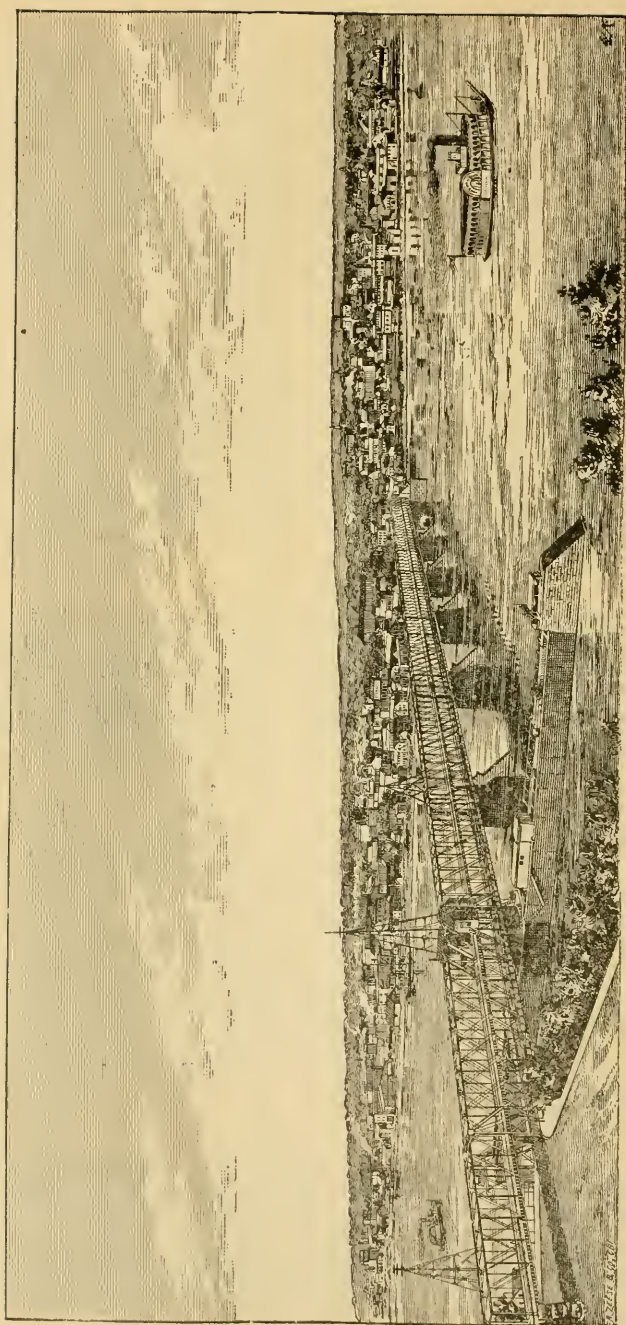
The statistics of the post-offices in the three cities for the year 1887 show an increase of twenty-five per cent in the gross receipts over 1886. These amount to \$80,726.50. The number of money-orders issued is over 14,000, representing \$129,501.60; the number of postal-notes issued was more than 9,000, amounting to \$16,025.84. The number of money-orders paid is 26,000, and the amount \$381,189.30; the number of postal-notes paid was more than 14,600, aggregating \$32,316.64.

A YEAR'S INCREASE.

Carefully compiled statistics of 1887 show an increase in the business of the various trades and industries of from fifteen to twenty-five per cent over any former year. And this is confirmed by bank figures, proving the last twelve months to have been the most prosperous equal period ever known. In the way of building improvements and new factories established, the increase has been far greater. New business blocks, public buildings, and private residences represent a cost of fully \$2,000,000.00. The ten brick-yards have burned 12,000,000 brick, and this home product has been supplemented by purchases elsewhere to meet the demand. The transportation companies—railroads and steamboats—have been paid in excess of \$3,000,000.00 for freight moved to and from Davenport, Rock Island, and Moline during the year. While this sum is enormous, the shippers of this locality have advantages in rates, in competitive lines, and in nearness to markets unexcelled by any other commercial center.

A FAVORED LOCALITY.

It is the design of the author and the artist in the succeeding pages to describe and picture in detail the causes and institutions which contribute to the aggregates above given; to state facts which will bear examination. The success of the manufacturing and commercial houses here; the thrift of the general public; the steady growth of the three cities; the enduring foundations which have been laid; the opportunities for business and investment; the central location, and the diversified advantages, all unite to make the three cities a locality which capitalists, manufacturers, builders, and those seeking homes cannot afford to overlook.



BIRD'S-EYE VIEW OF THE CITY OF DAVENPORT.

DAVENPORT.

GENERAL FEATURES.

A RECORD OF FACTS.



HIS BOOK is not a romance. It is not intended for a work of the imagination of any kind. It is simply a plain statement of facts that ask for a careful examination at the hands of men of business who are willing to make investigation. This locality claims to have advantages second to those offered by no western city, and to have profited by them to a marked and flattering degree, though as yet the resources have been developed but to a comparatively small extent.

In their further development it is confidently believed that by helping new industries and commercial houses to establish themselves here, those already established will be helping themselves. Unlike some western cities which have had a remarkable paper growth, and are now suffering from high-pressure inflation which must sooner or later end in a disastrous collapse, Davenport has not been made delirious by the boom fever. It has discouraged rather than aided any movement in that direction. It has, however, enjoyed a steady, stable, and satisfactory growth. During the year 1887 its trade was, on the average, twenty-five per cent larger than during any former year, and its building improvements more than one hundred per cent greater and more diversified than for any twelve months since the War of the Rebellion. It is the object of this work to show where and how the advance has been made, and to prove that the prosperity of the year just closed is only the beginning of a new era of wonderful expansion.

A WORD FOR THE PAST.

The picture to be presented is one of the present, and yet Davenport, as it is, cannot be understood correctly without some acquaintance with its half-century of history. At the close of the Black Hawk War, in 1832, there were no settlements on the Iowa side of the Mississippi River. The purchase from the Indians of the territory where Davenport now stands, in common with all the river counties, was made September 15th, 1832, the treaty having been signed on the one side by General Scott. In 1833 there were one or two claims made upon the lands now occupied by the lower part of the city. Davenport was laid out in 1835 by Colonel George Davenport and Antoine Le Claire, and some fifty lots were sold at that time for from \$300.00 to \$600.00 each. These two enterprising pioneers built the first public house in 1836, and in honor of the new town, named it the Davenport Hotel. The building is still to be seen at the northwest corner of Front and Ripley streets. During this year Antoine Le Claire was appointed the first postmaster, but in a short time the

duties became burdensome, and he turned the business over to D. C. Eldridge, who, after using his hut for the purpose for two years, built a brick post-office, 10 by 12 feet in size, where the Masonic Temple now stands. James Mackintosh opened the first store, in October. The following year, 1837, was an eventful one. It witnessed the first religious service; the opening of the first law office; the birth of the first boy, L. S. Cotton, and the first girl, Sarah Eldridge; the first flat-boat ferry; the first ball; the first duel, and the first marriage. It was twenty-one years earlier that the first troops arrived — May 10th, 1816 — on the Island of Rock Island, and began the construction of Fort Armstrong. In 1838 the tide of emigration began to flow into the new territory from the older states, and each succeeding year it has continued to grow larger without interruption.

ADVANTAGES OF LOCATION.

Davenport was selected as the site of a great city by the pioneer prospectors, because it exceeded in natural beauty and picturesque surroundings any other locality on the Mississippi river. Approaching the city by rail from the east, or from the north or south by boat, the observer has his attention fixed upon the waving bluffs which follow the river east and west. Between the line of these and the river is a triangular-shaped plateau, narrowing at the eastern limits of the city, and large enough to accommodate a population of 150,000. Handsome homes dot the bluffs, while much of the residence part of the city lies beyond, or to the north. River views, as building sites, have been largely occupied, the scope of country brought within the range of the eye furnishing variety of scenery unequalled. The drainage is naturally good, street rising above street like terraces.

AS A PLACE OF RESIDENCE.

No city in the Mississippi Valley, or in that of the Missouri, offers more or better inducements as a place of residence. Its sanitary conditions are unsurpassed, the statistics of the Board of Health showing that Davenport ranks high, not only among the cities of the United States, but of the world. Epidemic diseases have rarely made their appearance, and the light forms have been shown by the remarkably low death rate. The cost of living, as shown by the average prices of commodities, is less than most western cities, for the reason that many of the staples are home grown. The supply of pure water is never-failing, as shown in a separate chapter. The educational system comprehends public schools, seminaries, and colleges; and the various religious denominations are represented by large churches and noble cathedrals. The judicious management of municipal affairs places the city's credit high in financial centers.

REAL ESTATE.

The opportunities for safe investment by men of means, and by those who wish to build for their own accommodation, are pre-eminently good. Desirable building sites may be selected in some of the best parts of the city, and they may be secured at prices that will guarantee the holder a large interest and certain profit. The advance in values during the year 1887 has been steady, and the volume of real estate transactions has been larger than during any former equal period. The unusual extent of building operations during the last twelve months, and the contracts already placed for 1888, have had their natural effect in stimulating prices. Good property is not waiting for purchasers, because the advance of realty prices is based on legitimate causes. Within the eight months ended December 31st, inside city property has increased in value in some districts more than fifty per cent over one year ago. This gain has been brought about largely by residents, who have thus shown their confidence in the future of their city. Several additions have been made to the city. One of them affords a striking illustration of the force of the statements already made. Park Lawn Addition, in the west end, was laid out September 1st, and a public sale was held thirty-four days later. Of the 206 lots, 160 were sold for \$35,000.00, cash being paid for more than three-fourths of the property.

NEW RAILROAD AND BRIDGE FRANCHISES.

A special tax of \$125,000.00 has been voted in aid of the Davenport, Iowa, & Dakota Railroad. The conditions have been complied with, and during the three last months of 1887 ten miles of road was graded, bridged, and tied. During the present year the track will be laid to Anamosa, a distance of about forty miles. Beyond that point the road is graded to Independence, some seventy miles. This new road, which is shown on the railroad map on the last page of the cover, will open a new territory for trade, and add valuable railroad connections. The franchise includes three blocks on the levee for depot, side-tracks, and other purposes. The forty-ninth congress granted the Davenport & Rock Island Bridge Company a franchise for a second bridge across the Mississippi river between Davenport and Rock Island. There are good reasons for believing that the completion of this proposed bridge is a certainty of the near future. The same congress granted the Davenport & Rock Island Horse-car Company the right to use the government bridges between the two cities for street-car purposes, thus connecting the systems in the three cities.

STAGES OF WATER.

The Mississippi river is one of changes, these depending upon the rainfall, and particularly upon the snowfall in Wisconsin and Minnesota. The highest mark reached was on June 26th, 1880, when the gauge used, on the draw-pier of the government bridge, recorded 18.4 feet above low-water mark; and the lowest—zero mark—December 14th and 15th, 1878. The average stage of high water for thirty years has been 13.17 feet; in no instance has it proved destructive to any large amount of property, owing to the fortunate location of the city. During the season of navigation the river rarely falls to a stage so low as to seriously interfere with the running of steamboats and rafts.

With the general facts already given in mind, the reader is invited to a more careful study of the material interests and the more prominent institutions of Davenport, the commercial metropolis of Iowa.

THE WATER-WORKS.

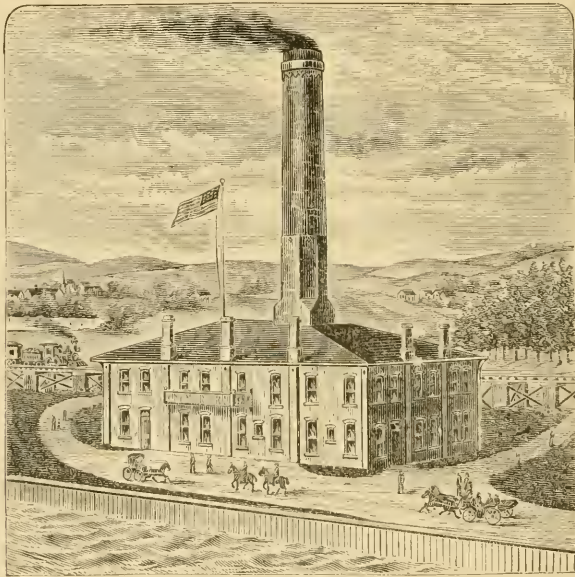
THE SYSTEM DESCRIBED.

Without any exception Davenport has the most complete system of water-works, both for fire protection and sanitary purposes, of any city in the west. It is not secondary to the manufacturing interests, for without it they would not feel the security which experience has proved admits of no doubt. The system comprehends a magnificent plant, in which nearly \$1,000,000.00 has been invested, and the best known engineering skill used. No one point carries greater weight to the manufacturer or business man seeking a new location than this of fire protection, while those who enjoy it estimate the advantage as practically beyond value. The Davenport Water Company is a private corporation, which was organized through the efforts of the late ex-Mayor Michael Donahue and his brother, the late Colonel Peter Donahue, of San Francisco. The works comprise two pumping-stations and a reservoir; about twenty-eight miles of water mains from 4 to 16 inches in diameter. There are 256 public and nine private fire hydrants, and about 1,400 water consumers.

The pumping capacity of Station No. 1 is 11,000,000 gallons in twenty-four hours. This station comprises the original works, and is situated on the Mississippi river, about a mile above the government bridge. The pump-house is a large two-story building, 68 by 93 feet, including the boiler-room. There are two sets of pumping-engines in this station. Pumping-engine No. 1 is a condensing set of duplex engines of 5,000,000 gallons capacity per twenty-four hours, built by the Clapp & Jones Manufacturing Company. Pumping-engine No. 2, which has been completed within the last few months, is a high-duty Worthington compound condensing du-

plex engine of the very latest design, and capable of delivering 6,000,000 gallons of water in twenty-four hours against a head of 345 feet. There has also been placed in this station within the last year a new triple set of steel boilers of the most improved pattern. At this station the smoke stack is 133 feet high, and one of the largest in the west. There is also one of the largest steam-gongs ever built.

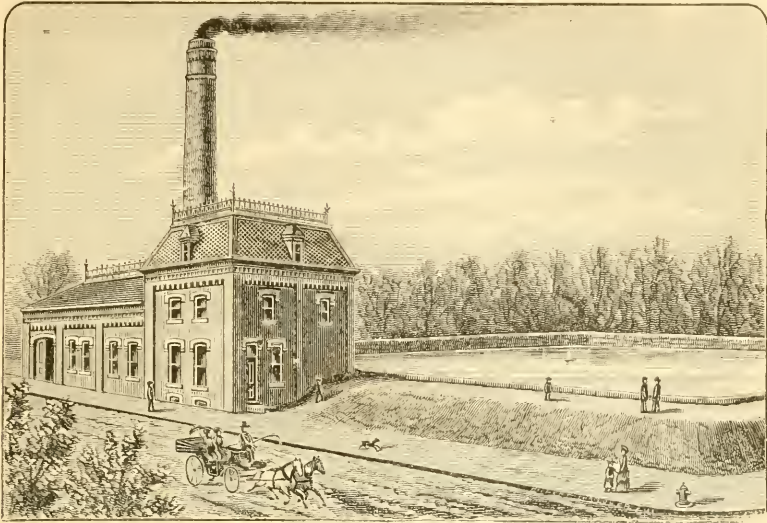
The pumping capacity of Station No. 2 is 5,000,000 gallons in twenty-four hours. The bluff or high service, or all that portion lying above Sixth street, is supplied by reservoir water delivered by the pumps at this station, which are located at the reservoir. These engines are vertical—of the duplex compound condensing type. In precisely thirty seconds the pumps of Station No. 2, which are continually running for the high-service, can be changed so as to pump into the gravity-service, and pump down hill in case the reservoir pressure is not sufficient for fire purposes. Then, too, there is another resource in case of fire; and that is Pumping-Station No. 1, which can be set in motion and give all the additional pressure necessary. This means that the piping system is so designed that the pumps at Station No. 1 and Station No. 2 can pump at the same time, at their respective ends of the distribution mains, thereby insuring increased pressure—an almost unlimited supply of water and pressure in time of fire.



PUMPING-STATION NO. 1.

The reservoir, shown in the next illustration, has a capacity of 5,000,000 gallons. The gravity supply is used to furnish that part of the city below Sixth street during the night and when the pumps at the station are not in operation. This reservoir was built in 1883, and cost \$100,000.00. The reservoir has an elevation of 115 feet, and gives a natural pressure of sixty pounds to the square inch. The purity of the water furnished for domestic and sanitary uses is quite as important as its almost limitless supply for fire purposes. The water taken from the river has been repeatedly analyzed, and has been proven to be purer, by a great weight of evidence, than water drawn from any well or cistern in the vicinity. The purity is assured, not only from the fact that no town of any size is drained within forty miles, but also from the manner in which the water is taken from the river. The company tunneled under the bed of the river until the channel was reached, where the water runs over solid rock for several miles, with a current never less than six miles an hour. The pure, cool water is delivered through this long tunnel into a large well

15 feet in diameter and 30 feet deep, and the water is, to a certain extent, filtered in this well before it supplies Pumping Station No. 1. The rates to consumers are exceedingly reasonable — much below those charged for poorer service in other cities.



PUMPING-STATION NO. 2.

The water-works are managed by the following officers: Nicholas Kuhnen, President; James P. Donahue, Vice-President and Secretary; Thomas N. Hooper, Chief Engineer and Inspector. These officers, with Colonel James M. Donahue, of San Francisco, Hon. J. H. Murphy and F. H. Griggs, of Davenport, constitute the Board of Directors.

INDUSTRIAL INTERESTS.

MANUFACTURING ADVANTAGES.

It does not require argument to prove that Davenport offers great inducements to all kinds of industrial interests. More than fifty flourishing factories and shops furnish the positive and indisputable evidence. There is a vast market in this region and further west for manufactured goods. Most of the materials required for manufacturers are within easy reach. The facilities for transportation include the four leading trunk lines of the west, with their many divisions and connections, as shown by the map on the cover of this book. They also include the Mississippi river with its competing lines of steamboats and barges. The year 1888 finds Davenport in the enjoyment of better railroad rates than ever before, and more and better means of distributing its products. New territory in the southwest and northwest has been opened, and the 200 traveling representatives have occupied it in the interest of their houses. The region for a thousand miles west of the Mississippi river is perhaps a country of richer soil than is to be found elsewhere in the world. Illinois ranks third and Iowa fourth of the coal-producing states. Within a radius of fifteen miles of Davenport the annual coal product is over 500,000 tons, and the price is therefore correspondingly cheap. The iron of Lake Superior and Missouri, together with that of Tennessee and Pennsylvania, furnishes the raw material at a cost for

transportation comparatively small. The pineries of the north furnish an abundance of soft wood. Of this the river floats to and by this locality each summer more than one thousand million feet. The great hard-wood forests of the southern states supply all the material necessary to enter into the construction of farm machinery.

FACTS IN FIGURES.

A carefully-taken census of the manufacturing interest of Davenport for 1887 shows that the capital invested is \$4,869,000.00; the number of hands employed 3,575; the amount paid for wages \$1,502,500.00, and the aggregate business \$9,877,600.00. Some of the industries which make up these figures will now be noticed.

THE LUMBER WORKS.

The leading industry is lumber sawing. During the past season there were in operation four saw-mills, those of Lindsay & Phelps, the Cable Lumber Company, Christ. Mueller, and the Davenport Lumber Company. These mills gave employment to 501 hands, who received in wages over \$210,000.00; they have a capital invested of \$625,000.00; and the total business was \$1,325,000.00. These mills cut 76,000,000 feet



THE CABLE MILL.

of lumber; 15,000,000 lath, and 15,000,000 shingles.

FLOUR MILLS.

There are three large flouring mills—the Phoenix, Crescent, and Farmers. Their business for the year reaches \$2,000,000.00, and about 100 men are engaged. They have a capacity for making 1,100 barrels of flour daily.

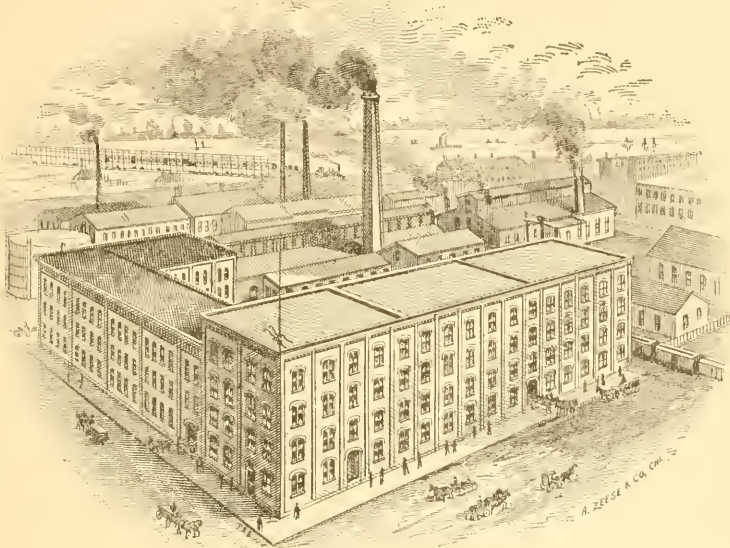
GLUCOSE MANUFACTURING COMPANY.

This is the largest establishment of its kind in the west, and in many respects it is unequalled in the country. It regularly employs 100 hands, and its business amounts to three-quarters of a million dollars annually. It manufactures glucose and many kinds of syrups, whose purity has been demonstrated by repeated tests. These articles are of world-wide use, and the limits of the United States mark the territory from which orders come and to which goods are forwarded by this house. Estimated by weight, the product of these works is represented by 35,000,000 pounds. This enterprise was the first of the kind projected in the west, but the wisdom of the undertaking has never been questioned. It has vastly benefited Davenport and the tributary country, as it furnishes a market for nearly 3,500 bushels of corn daily, or more than a million bushels yearly. Farmers, after disposing of their corn, find in the starch-feed a very desirable article for their stock. It is not unusual for two hundred teams to be loaded in a day with this feed. During the year just closed improvements have been added to the amount of \$40,000.00, including an elevator, boiler-house, and general extensions of the plant.

AGRICULTURAL IMPLEMENTS.

There are four important factories devoted to agricultural machinery and implements. The leader of these is the Eagle Manufacturing Company, which gives employment to 125 hands regularly, and whose business looks down on \$300,000.00. While having its specialties in the Golden Eagle Cultivators, it manufactures a full line of plows, listers, cultivators, sulky rakes, stalk-cutters, harrows, cotton-planters,

and other implements. The Globe Plow Works is a younger institution, but one whose business is bound to grow. The threshing-machine works of John S. Davis'



EAGLE MANUFACTURING COMPANY'S SHOPS.

Sons is one of the largest manufacturing houses of its kind in the west, and in addition to the "Davenport Oscillator," makes traction and portable engines. Fifty men are employed.

CRACKERS.

There are two cracker factories, the Roddewig-Schmidt Cracker Company and the Eagle Steam Bakery; the former being the more important and the older. Their line of goods is complete. They give employment to sixty hands, and do a yearly business of over \$200,000.00.

CIGARS AND TOBACCO.

Davenport has sixteen cigar and tobacco factories. The leader of these, and the most extensive in Iowa, is that of Nicholas Kuhn.

His army of 300 employes does not fairly represent the work done, for the reason that lately-invented machinery is called into play on a large scale. Mr. Kuhn's business is on the rising side of a quarter of a million dollars, and his famous brands of cigars are known from the Mississippi river to the Pacific and far eastward. Otto Albrecht & Co. hold second position, working thirty-six hands, and doing a business of \$60,000. Some of the other factories are extensive. The number of



NICHOLAS KUHNEN.

cigars made in this city in 1887 is 14,104,618, and employment has been given to nearly 600 persons.

WOOLEN MILLS.

There is no better illustration of what new industries may do than what has been accomplished by the Davenport Woolen Mill. It employs 100 hands, and does an annual business of over \$125,000.00, finding a western market for its goods.

VINEGAR WORKS.

The Amazon Vinegar Works have a pay-roll of more than forty names, and do a business of more than \$150,000.00; manufacturing over 15,000 barrels of vinegar annually.

BOXES, CHURNS, BARRELS, ETC.

Under this heading there are five important enterprises: The Davenport Cigar-Box Company, which turns out 500,000 boxes a year; the Møller & Aschermann Manufacturing Company, which makes and handles all kinds of cigar manufacturers' supplies; H. F. Brammer & Co., who add churns, boxes, and shipping cases to washing machines; Henry Bremer & Son, who turn out 50,000 barrels annually; and the Coopers' Union, which does even a larger business. These industries have a capital invested of \$250,000.00; employ more than 200 hands; pay out \$80,000.00 in wages, and do a business of \$350,000.00 a year.

FURNITURE, STAIRS, ETC.

Under this head are Knostman, Peterson & Co., who manufacture all kinds of household furniture; M. Bunker, who makes a specialty of stair-building supplies, decorative wood-work, grates, etc.; A. J. Smith & Son, Knostman & Son, and Charles Hill, who have specialties. They furnish employment to upwards of 130 hands, and do a business of more than \$300,000.00.

BRICK-MAKING.

The owners of brick-yards enjoyed their busiest season in 1887. They began with nearly 2,000,000 brick on hand from the previous year. These were quickly used, and something of a brick-famine followed, owing to the unprecedented extent of building operations. The five yards of John Ruch, B. Ruch, Joseph Otten, B. H. Pohlman, and G. H. Delfs manufactured over 6,000,000, leaving the surrounding towns of Rock Island, Muscatine, and other places to meet the wants of builders.

PUMPS, LADDERS.



RED JACKET PUMP COMPANY.

The Red Jacket Pump Company is a vigorous manufacturing house, pushing to the front its special make of adjustable force pumps and general line of wood pumps. The Davenport Ladder Company is the only exclusive ladder house in the west, and it manufactures all kinds of firemen's, farmers', trestle, step, and extension ladders.

PORK-PACKING.

There are four extensive packing-houses—those of John L. Zœckler, Henry Kohrs, John Ruch, and Ranzow & Haller. During the past packing season they slaughtered 26,280 hogs; gave work to 100 hands, and did a business of more than \$350,000.00.

MALT-HOUSES.

Four houses represent the malt-making business — W. H. Decker, John George, John Noth, and Henry Frahm. They do a business of \$200,000.00 a year.

BOTTLING WORKS.

Two bottling establishments — H. J. Witt and Collins & Baker — do a business of nearly \$100,000.00, and employ thirty-two hands.

CANDY FACTORIES.

The three manufacturing confectioners are Reimers & Fernald, H. A. Pearne, and B. F. Taylor. They give employment to fifty hands, and do a business of \$175,000.00.

CARRIAGES AND WAGONS.

There are twelve carriage and wagon shops and factories, the largest of which are those of J. L. Mason, Young & Harford, and A. C. Duve & Co. This industry employs over 200 hands; and does a business of about \$300,000.00.

THE TANK LINE.

The Consolidated Tank Line Company has an investment in its Davenport plant of \$25,000.00, and this being a principal distributing point, over 60,000 barrels of oil are handled. The aggregate of the year's business will reach \$450,000.00. The company has made in its own shops 20,000 barrels, besides being a large purchaser.

PAINTS.

The Dettloff & Stearns Paint Works, having a branch house at St. Paul, employ thirty-five hands, and do a business reaching up to \$175,000.00.

CLOTHING.

Robert Krause is an extensive manufacturer of pantaloons, overalls, and shirts, employing about fifty hands in this department of his establishment.

PLANING MILLS, ETC.

T. W. McClelland & Co., J. H. Whitaker, and U. N. Roberts & Co. represent the planing, sash, blind, door, and glass interest, with a force of over 150 men, and an annual business of about \$400,000.00.



U. N. ROBERTS & CO.'S BLOCK.

GENERAL MANUFACTURING.

The design is not to give wearisome details of Davenport's manufacturing houses, but to show their number and variety; and these include, beyond what has already been noted, some of the industries being extensive ones, the following: The paper-bag works of Smith & Hughes; the machine shops of Ebi & Neuman, P. D. Quirk, and Einfeldt & Barnholt; the Novelty Manufacturing Company, forty hands; J. W. Wirtel, trunk-maker; Charles G. Hipwell, roofing; the Davenport Pottery Company; M. G. Lee & Son's broom-works; the American Fire Hose Manufacturing Company; the blank-book and printing-house of Egbert, Fidler, & Chambers; the boiler shop of Grupe & Murray; G. H. Young, awnings and tents; the Northwest Davenport Machine Shop; the horse-collar works of I. H. Sears & Sons; the soap works of Matthes Bros.; the Arc-Scale Company; E. W. Brady, window shades; Hadsell & Co., paper boxes; William Sternberg, iron castings; C. Cruys, shirts; Boudinot & Sons and Charles Stoltz, rope-walk; the Davenport Shoe Works; A. Schreiber, files; C. L. Burleigh, hair goods; Mossman & Vollmer, rubber stamps, and numerous small factories, which swell the aggregate of Davenport's manufacturing to the figures given.

NEW INDUSTRIES AND ENTERPRISES.

NOTABLE ADDITIONS.

In the preceding chapter on "Industrial Interests" notice has not been taken of the very important enterprises which have been built or begun business during the year, nor is this chapter intended to cover the business blocks, public structures, and hundreds of private residences, the building of which has made the past year a ceaselessly busy one.

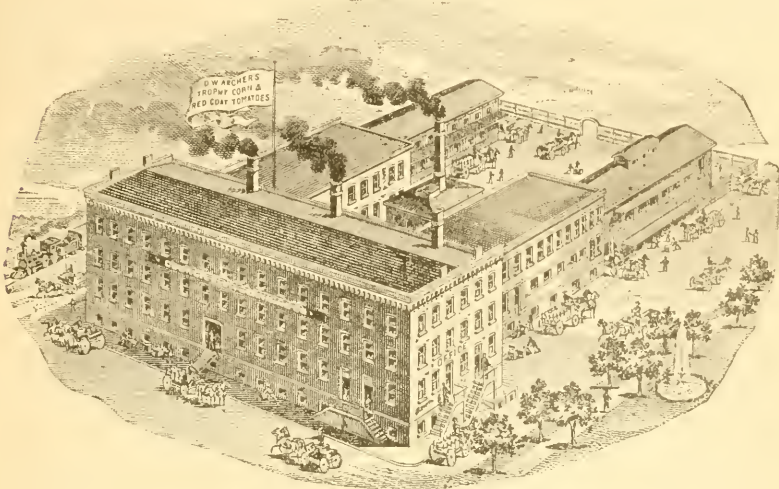
C., R. I. & P. R. R. SHOPS.

The Chicago, Rock Island & Pacific Railway Company expressed the purpose of erecting new and capacious shops for the building of cars and general work. The principal cities along its line were quick to make liberal propositions in the hope of securing the location; but the business men of Davenport made cash subscriptions to the amount of \$12,000.00, bought a desirable site of several acres, and presented a deed to the company. Operations were at once begun by the company, and the largest railroad shops in Iowa at once resulted. The dimensions are as follows, all the buildings being of brick, and of the most substantial character: The car shop proper is 162 by 104 feet; a part of it, 53 by 104, being two-story, with slate roof, the one-story portion having a tin roof. The engine-house is 42 by 50 feet, with a smoke-stack 75 feet high, the base being 9 by 9 feet, resting on bed-rock, concrete, and railroad iron. The machine shop is 181 by 100 feet, of which 50 feet in width is devoted to a blacksmith shop (50 by 100 feet). The machine shop proper is 130 by 100 feet; it has a slate roof on iron supports. The paint shop is 130 by 175 feet. The boiler-house is of brick and stone, 32 by 22 feet. These shops are supplied throughout with boilers, shafting, machinery, tools, and every necessity for turning out ten cars daily. The cost of this improvement is \$130,000.00.

DAVENPORT CANNING COMPANY.

This is the largest canning factory in Iowa, if not in the west; and its location here was secured, like the car shops, by the public spirit of the citizens over competing points. The dimensions of the works shown in the accompanying illustration are as follows: The main building is three stories, 48 by 120 feet, with basement. It has two two-story wings, each 32 by 150 feet. The boiling or process room is 50 by 50 feet, one story and basement. The boiler-house is one story, 44 by 50 feet. All

the buildings are of brick. The buildings and their equipments cost \$35,000.00, and the capital invested in the business is \$60,000.00. During the busy season — June, July, August, September, and part of October — employment was given to 300 hands,



DAVENPORT CANNING WORKS.

and business transacted amounting to \$100,000.00. The season was but a partial one, and yet the pack was 600,000 cans of tomatoes and 600,000 of corn. With an abundant yield, the pack of 1888 will be more than 1,000,000 cans of the vegetables named, beside the fruits of the locality.

DAVENPORT FOUNDRY AND MACHINE COMPANY.

This new company completed its buildings and was ready for business in December. The capital stock is \$50,000.00, and the beginning was made with thirty hands. Automatic steam-engines will be made a specialty, while all kinds of foundry and machine work will be attended to. The machine shop is 140 by 42 feet; the foundry is 80 by 42; the pattern shop, 42 by 35, and the blacksmith shop 42 by 35. A fifty-horse-power automatic engine of the company's own make drives the machinery. These buildings cost \$20,000.00.

BETTENDORF METAL WHEEL COMPANY.

This enterprise, which begins 1888 with remarkably fine prospects, has a future of certain development. The capital invested in the plant is \$50,000.00, and fifty hands will find employment. New buildings, specially adapted to the purposes of the company, have been erected. The main shop is 200 by 52 feet, with two wings 75 by 40 feet each. The cost of this improvement is \$25,000.00. The Bettendorf metal wheel is an invention which has proved a boon for makers of agricultural implements, baby carriages, wheel-barrows, etc.

WASHBURN-HALLIGAN COFFEE COMPANY.

This industry is devoted to the preparation of coffee and pure spices for the wholesale trade. Though started but a few months, its business has become established. Over \$20,000.00 has been invested in the business, and ten hands are employed.

OTHER NEW ENTERPRISES.

Among these are the Novelty Bustle Factory, the Quilt Factory, and the Astronomical Clock Works.

THE WHOLESALE TRADE.

WHAT THE FIGURES SAY.

The advantages of Davenport as a wholesale and jobbing center are shown by the fact that there are twenty-two houses of this kind, with a capital invested of over \$4,000,000.00, and whose sales for the last twelve months have been considerably over \$10,000,000.00. The trade territory is reached not only by the Mississippi river and its tributaries, which act as regulators of the railroad tariffs, but by a system of railroads which penetrate nearly every county of Iowa and Illinois, and the more thickly settled parts of Missouri, Kansas, Minnesota, and Nebraska. The amount of business done is one important element of success, and demonstrates that Chicago, St. Louis, St. Paul, and Kansas City find competition here which they cannot overcome. A new advantage is found in the pro rata tariffs from the cities of the seaboard to the Mississippi river which the trunk lines have made during the last few months, and which have materially settled in its favor the claims put forth by this commercial center. Embraced within the territory reached by the jobbing trade is a country of matchless fertility, and one whose population must multiply several times in the near future. It is the granary of the world.

GROCERIES AND PROVISIONS.

There are four exclusively wholesale grocery houses—Beiderbecke & Miller, Van Patten & Marks, Erdix T. Smith & Bro., and Martin, Woods & Co.—whose annual business reaches \$2,500,000.00. Besides these there are several large grocery stores which do a wholesale business in specialties.

DRY GOODS.

The three leading wholesale dry goods firms are W. C. Wadsworth & Co., J. H. C. Petersen & Sons, and A. Steffen. Their business aggregates upwards of \$2,000,000.00 yearly, and covers a wide territory.

HARDWARE, IRON, ETC.

The wholesalers of hardware, iron, wagon stock, and paints are Sickels, Preston & Co., R. Sieg & Co., and Peter Lamp & Co., while two smaller houses do a considerable shipping business, the whole annual trade amounts to upwards of \$1,000,000. The house of Sickels, Preston & Co. is the largest of its kind in Davenport, and the only exclusively hardware house in Iowa. It has built up a business which is widespread in the territory covered, and which, in the sale of barb-wire, white lead, and paints, is unequalled between the Mississippi and Missouri rivers.

CLOTHING.

R. Krause and A. Moritz & Bros. are the leading representatives of the wholesale clothing trade. They do a business of about \$500,000.00.

CHINA AND CROCKERY.

The largest house of its kind—china, crockery, and glassware—in Iowa is that of Jens Lorenzen.

OTHER WHOLESALE HOUSES.

S. P. Bryant & Co. are an extensive firm in the way of boots, shoes, and rubber goods. E. B. Hayward & Son do a large business in staves, headings, shingles, and cedar posts. Egbert, Fidler, & Chambers manufacture and wholesale blank-books, stationery, and supplies. J. S. Wylie ships coal in car-load lots throughout the northwest. I. H. Sears & Son are manufacturers and wholesalers of horse-collars, saddlery-hardware, etc. James McIntyre, representing the Cincinnati factory of the Emerson & Fisher Co., deals extensively in buggies, carriages, phaetons, etc. Barr & Co. deal in oysters and fish. H. W. Kerker is wholesale agent for the Charles A. Pillsbury flouring mills. D. H. McDanel & Co. deal in hides, pelts, and tallow. There are four wholesale liquor houses.

CITY ELEVATOR.

J. F. Dow & Co. are proprietors of the City Elevator, and handle annually from 750,000 to 1,000,000 bushels of grain. All kinds of grain cleaned and corn shelled in transit.

LINES DAVENPORT NEEDS.

While several houses manufacture and job their own goods, as cigars and tobacco, flour, crackers, paints, agricultural implements, lumber, syrups, canned goods, scales, vinegar, etc., Davenport has need of more wholesale houses, and offers an inviting field for them which must soon be filled. The special lines of goods which could be profitably handled are drugs and medicines, hats and caps, jewelry, rubber goods, and paints and oils.

NEW BUILDINGS.

A PROSPEROUS YEAR.

The chapter on "New Industries and Enterprises" notes the building of factories involving an outlay of more than \$200,000.00, and yet this is only a beginning of the season's work, which swells to over \$1,100,000.00, as detailed a little further on. More factories, business blocks, and residences are planned for 1888 than have been completed during the past year.

THE COURT HOUSE.

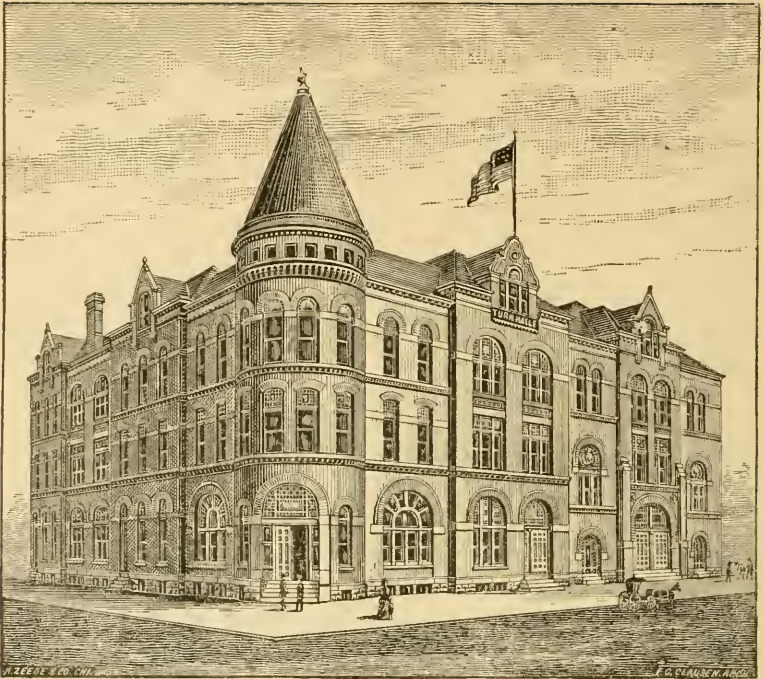
The amount voted for this temple of justice was \$150,000.00, but the cost, including heating, furnishing, and frescoing, will reach upwards of \$175,000.00. The style of architecture is known as the Italian-Renaissance. The ground dimensions have a frontage of 152 feet on Fourth street, with a depth of 106 feet. The building is of stone, brick, and iron fire-proof. Its front is characterized by a massive portico, from which a wide corridor leads to the rotunda. This is connected with the various offices. The third floor furnishes the court rooms on either side the rotunda, the east room being 45 by 60 feet, and the west 54 by 46 feet. The first story is 12 feet, the second 16 feet, the third 16 feet, with each court-room 26 feet, and the mezzanine 14 feet in height. From the center of the building rises a circular-tower, capped by a dome surmounted by a lantern, the top of which is 206 feet from the ground, and upholds a flag-staff. The massive structure presents an imposing view, and is the most conspicuous building in the city.



SCOTT COUNTY COURT HOUSE.

TURNER HALL.

The Turner Society of Davenport owns, beyond per adventure, the best building devoted to gymnastic and theatrical purposes of any society of the kind in the United States. The cost of the unfurnished structure is over \$85,000.00. It was designed and its building superintended by F. G. Clausen. It faces north on Third street, and has a front of 151 feet by a depth on Scott of 140 feet. Its architectural proportions are fairly shown in the cut. The eastern side of the block, 79 by 140 feet, is devoted to general purposes, the first floor containing ball, billiard, sample rooms, and offices; the second has the dining-hall, sleeping, card, smoking-rooms, and wardrobe; the third is assigned to meeting-rooms, reading-rooms, library, etc. The gymnasium occupies the first floor of the west side, or Turner Hall proper. It is 72 by 114 feet, with a gallery, the room being 22 feet from floor to ceiling. Above this is the main hall and theater, which is entered from two main stairways 10 feet wide; also from the sides. The stage is 35 feet deep by 71 wide, and the width of the proscenium is 34 feet. The gallery, 20 feet in width, runs around three sides.



TURNER HALL AND OPERA HOUSE.

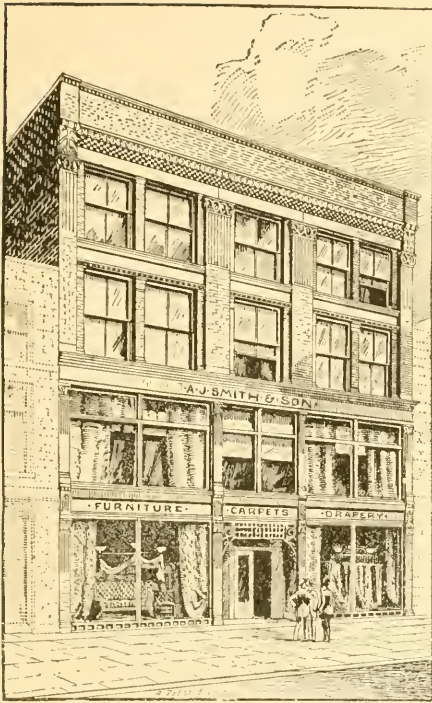
The seating capacity is 1,300. The building is of brick, trimmed with stone, and is complete in every department and detail. Over the main entrance to the office, at the corner of Third and Scott streets, a circular tower rises 100 feet high.

THE MASONIC TEMPLE.

No exception can be taken to the statement that the New Masonic Temple is the noblest building in Iowa devoted to the uses of the Craft, and one of the largest in the great west. Its cost, exclusive of furniture, is \$75,000.00. It is located on the northeast corner of Third and Main streets; has a front of 65 feet, and a depth of 150 feet. The Temple has four floors and basement which is devoted to offices. A corridor 12 feet wide, entered through an arched vestibule, runs the length of the building. The first floor is entered through an archway 16 feet in width and 19 feet high. This floor is devoted to spacious offices. The second floor is similar in its arrangement. On the third floor the rooms are practically the same as those beneath, except there is an assembly-room at the north end 50 by 60 feet



MASONIC TEMPLE.



A. J. SMITH & SON'S BLOCK.

Roddewig's Sons have erected a business block which is of unusually fine architectural proportions. E. S. Hammet is the architect. Another large four-story building is that completed late in the season by J. H. Whitaker on Third street, west of Brady. These by no means exhaust the list, but there is a limit to the space at command. In the way of private residences great gains have been made, the most attractive along the western bluffs being the elegant home of M. D. Petersen, and the most picturesque in the central part of the city being that of J. S. Wylie. But of far more significance than any ten residences costing \$15,000.00 each, or \$150,000.00 in all, is the great number of modern cottages which are to be found in the outskirts of the city. A careful canvass shows that not less than 150 of these have been built during the past twelve months. They are all owned by their occupants. The workingman finds that in Davenport he shares the property of the manufacturer. Following is given a list of the more important buildings of the past year:

in size. The Masonic floor is in the fourth story. The Blue Lodge hall is on the front, 50 by 38 feet, and 26 feet high. The Asylum and Chapter are located in the northwest section. This apartment is 30 by 40 feet. On the east of it is the Red Cross room, 20 by 34 feet. There is also a banquet-hall, 30 by 41 feet. There are parlors, preparation, and other rooms. In the attic-story are the kitchen, cook-room, pantry, store-rooms, etc. The exterior is in the Romanesque style of architecture. The tower rises at the southwest corner to a height of 114 feet. The windows in the raised basement story and the first and second stories are square, with transoms. In the third they are arched, and in the fourth square again. The appearance of the Temple is majestic. J. W. Ross is the architect.

BUSINESS BLOCKS.

Among the business blocks there are some deserving of particular mention: One of these is the fine block erected by A. J. Smith & Son, on Third street, almost exactly opposite the Masonic Temple. It is a four-story brick structure, half a block in depth. On Harrison street, between Fourth and Fifth, Ferd.



RODDEWIG BLOCK.

| | | |
|---|-----------|---------|
| <i>Public Buildings.</i> | | |
| Court House, Fourth street | \$175,000 | |
| Turner Hall, Third street | 90,000 | |
| Masonic Temple, Third street | 80,000 | |
| Soldiers' Orphans' Home | 5,000 | |
| <i>Churches, Schools, and Colleges.</i> | | |
| St. Anthony's Church, annex, Fourth St., | 7,000 | |
| St. Ambrose College, Locust street | 5,000 | |
| School House No. 8, Fourth street | 3,500 | |
| Presbyterian Church, Brady street | 2,500 | |
| <i>New Shops, Factories, Etc.</i> | | |
| C., R. I. & P. Shops, Fifth and Case Sts., | 130,000 | |
| Davenport Canning Works, Division St., | 35,000 | |
| Bettendorf Wheel Works, Fourth and | | |
| Farnum streets | 25,000 | |
| Davenport Foundry and Machine Shops, | | |
| Fourth street | 20,000 | |
| Novelty Bustle Works, Second street | 8,000 | |
| A. Zoller & Bro. Malt House, Third St.... | 4,500 | |
| Children's Carriage Factory, Third St.... | 6,000 | |
| Quilt Works | 4,000 | |
| Sternberg's Machine Shops, West Locust, | 3,000 | |
| Second Street Railroad Barns | 3,000 | |
| <i>Additions to Shops, Factories, Etc.</i> | | |
| Davenport Glucose Works, Rockingham | | |
| road | 40,000 | |
| Davenport Water-Works, Front street ... | 30,000 | |
| Moeller & Aschermann Manufacturing | | |
| Company, Fifth street | 10,000 | |
| M. Frahm, Harrison street | 8,000 | |
| Young & Harford, Carriages, Front St.... | 5,000 | |
| H. F. Brammer & Co., Churns, Warren | | |
| street | 3,000 | |
| Amazon Vinegar Works | 3,000 | |
| Dettloff & Stearns, Paint Works | 3,000 | |
| <i>Business Blocks.</i> | | |
| A. J. Smith & Son, Third street | 15,000 | |
| Ferd. Roddewig's Sons, Harrison street. | 15,000 | |
| J. H. Whitaker, Third street | 15,000 | |
| J. Hageboeck, Third street | 10,000 | |
| D. B. Horne, Third street | 6,000 | |
| H. F. Petersen, Third street | 6,000 | |
| A. Meisner, Third street | 4,000 | |
| M. Greeley, Third street | 4,000 | |
| D. Bush, Eddy street | 3,000 | |
| Tierney & Stapleton, Perry street | 2,500 | |
| Fred. Genzlinger, Front street | 2,500 | |
| Davis & Camp, Third street | 2,000 | |
| Lorton Bros., Third street | 2,000 | |
| <i>Additions to Business Blocks.</i> | | |
| St. James Hotel, Main street | 10,000 | |
| Ryan Block, Second street | 10,000 | |
| R. Sieg, Warehouse, Fifth street | 7,000 | |
| Democrat-Gazette Block, Main street | 5,000 | |
| W. S. Hollbrook, Second street | 4,000 | |
| Joseph Oehls' Sons, Main street | 3,000 | |
| Emerson & Fisher Co., Fourth street ... | 3,000 | |
| F. Stroh, West Second street | 3,000 | |
| <i>Residences.</i> | | |
| M. D. Petersen, Sturdevant street | 18,000 | |
| J. S. Wylie, Brady street | 10,000 | |
| T. O. Swiney, Perry street | 8,000 | |
| J. W. Ross, Fourteenth street | 5,000 | |
| H. Haller, Main street | 5,000 | |
| M. D. Snyder, row of buildings | 8,000 | |
| J. L. Tillotson | 5,000 | |
| R. R. Baldwin | 4,000 | |
| J. R. Clemens | 4,000 | |
| Joseph Plambeck, Franklin street | 4,000 | |
| Theo. Hartz, West Eighth street | 4,000 | |
| M. T. Brown, Grand Avenue | 4,000 | |
| Mrs. Dieser, West Eighth street | 3,500 | |
| W. A. Spaulding, Tremont Avenue | \$ 3,000 | |
| Trinity Church, rectory, Brady street | 3,000 | |
| Henry Stoltenberg, West Twelfth street, | 3,000 | |
| John Turner, West Third street | 3,000 | |
| John Turner, West Third street, addi- | | |
| tional buildings | 3,000 | |
| P. T. Walsh, Marquette street | 3,000 | |
| T. Peterson, West Eighth street | 3,000 | |
| Charles Whitaker, Walnut street | 3,000 | |
| Gust. Haase, Sixth street | 3,000 | |
| Peter Kloppenburg, West Locust street.. | 3,000 | |
| William Haase, West Eighth street | 3,000 | |
| P. Jones | 3,000 | |
| J. M. Ackley, Locust street | 3,000 | |
| Theodore Peterson | 3,000 | |
| F. Belfer, West Locust street | 2,500 | |
| H. M. Mandeville, Brady street | 2,500 | |
| O. P. Sampson, East Fourteenth street... | 2,500 | |
| William Reuter, Eighth street | 2,500 | |
| A. Meisner, Third street | 2,500 | |
| D. Bush, Eddy street | 2,500 | |
| W. Camp, East Third street | 2,000 | |
| P. Conway, Case street | 2,000 | |
| J. H. Whitaker, Iowa street | 2,000 | |
| J. Walters, Sixth street | 2,000 | |
| Hans Osbar, Third street | 2,000 | |
| Dr. J. P. Crawford, East Sixteenth St.... | 2,200 | |
| George Henriksen, Third street | 2,000 | |
| C. Ruschmann, West Locust street | 2,000 | |
| J. A. Place, East Fifteenth street | 2,000 | |
| E. H. Whitcomb, Grand Avenue | 2,000 | |
| R. Channon, Arlington Avenue | 1,800 | |
| G. W. Leamer, East Fourteenth street... | 1,800 | |
| William Armil, West Locust street | 1,600 | |
| R. Hinscher, Brown street | 1,600 | |
| Peter Otter, Marquette street | 1,600 | |
| F. Genzlinger, East Front street | 1,500 | |
| W. Brown, Le Page street | 1,500 | |
| C. W. Clemens, West Fourteenth street.. | 1,500 | |
| C. W. Clemens, Grand Avenue | 1,500 | |
| August Blumck, Second street | 1,500 | |
| I. Hanschild, West Eighth street | 2,000 | |
| Mrs. Dueser | 2,000 | |
| John Helnuick, Locust street | 2,000 | |
| Frank Fearing, Locust street | 2,000 | |
| Thomas Shields, Seventh street | 1,800 | |
| H. Lauer, Fourteenth street | 1,800 | |
| Fred Ruhe, Marquette street | 1,800 | |
| Robert Burchill, Fourteenth street | 1,700 | |
| Robert Burchill, Thirteenth street | 1,600 | |
| N. C. Morrison, Iowa street | 1,600 | |
| J. C. Chaamon, Tremont Avenue | 1,500 | |
| Joseph Hassler, Bowdich street | 1,500 | |
| John Hallaback, East Ninth street | 1,500 | |
| Byron Whitaker, Third Avenue | 1,500 | |
| W. D. Nichols, Eighth street | 1,400 | |
| Will. Evers, Rock Island street | 1,300 | |
| John Lucey, Fifteenth street | 1,200 | |
| Mrs. Andrews, Fifteenth street | 1,200 | |
| William Gordon, Sixteenth street | 1,200 | |
| William Oakes, East Eighth street | 1,200 | |
| Fritz Priess, Third street | 1,200 | |
| T. Mulane, Harrison street | 1,200 | |
| B. Baldwin, Bridge Avenue | 1,200 | |
| John O. Teegen, Bowdich street | 1,200 | |
| Joachim Roopman, Bowdich street | 1,200 | |
| J. Bockelmann, Gaines street | 1,200 | |
| M. Dellahane, Gaines street | 1,200 | |
| J. Moeller, Gaines street | 1,200 | |
| H. Kirk, Warren street | 1,200 | |
| H. Schoeller, Mitchell street | 1,200 | |
| M. Welzenbach, Sturdevant street | 1,200 | |
| J. Trainer, Harrison street | 1,200 | |
| Andrew Fullerton, Le Page street | 1,200 | |
| E. S. Tilford, Tremont Avenue | 1,200 | |
| William Frazer, Fifteenth street | 1,200 | |
| One hundred and forty-five cottages, | | |
| from \$500 to \$1,000 each, averaging | | |
| \$800 | | 116,000 |

Affording a grand total, at the lowest estimate, of about \$1,200,000.00, for the building operations of Davenport in 1887.

BANKS AND BANKING.

THE MEASURE OF BUSINESS.

The financial operations of a city, as shown by the transactions of its banks, mirror its importance as a commercial center, and reflect the prosperity of the country tributary to its business. The banking capital and deposits of the financial institutions of Davenport are greater than those of any other city in Iowa. The amount of business done with country banks, in the way of having their accounts kept here, give unexcelled facilities for making collections. More than one hundred of these banks are represented, and they often save a day's business, as compared with calling on Chicago or St. Louis for their currency. There are three national and three savings banks.

THE NATIONAL BANKS.

The First National.—This bank was the first in operation in the United States under the national banking law. It has a capital of \$100,000.00; a surplus of \$50,000.00, and undivided profits of \$50,000.00. The officers are: James Thompson, President; J. E. Stevenson, Vice-President; John B. Fidler, Cashier.

Citizens National.—This institution has a capital of \$100,000.00, and a surplus of \$100,000.00. It is a United States depository. The officers are: F. H. Griggs, President; Robert Krause, Vice-President; E. S. Carl, Cashier; Adolph Priester, Assistant Cashier.

Davenport National.—This bank has a capital of \$200,000.00, and a surplus of \$45,000.00. Its officers are: E. S. Ballard, President; S. F. Smith, Vice-President; S. D. Bawden, Cashier.

THE SAVINGS BANKS.

The three savings banks have an aggregate capital of \$490,000.00; undivided profits of \$239,197.00. They have 9,553 depositors, and the aggregate of the deposits is \$4,500,933.00, or more than half the entire amount of all the savings banks of Iowa. The uniform rate of interest is five per cent.

German Savings.—This bank has a paid up capital of \$300,000.00, and a surplus of \$60,000.00. It has accounts with 5,613 depositors, the aggregate of whose deposits is \$2,635,000.00. The officers are: H. Lischer, President; L. Wable, Vice-President; H. H. Andresen, Cashier; J. F. Bredow, Assistant Cashier.

The Davenport Savings.—It has a cash capital of \$120,000.00; undivided profits of \$60,000.00. Its depositors number 2,450, and their deposits amount to \$1,183,761.00. The officers are: A. Burdick, President; Louis Haller, Vice-President; J. B. Meyer, Cashier; O. L. Ladenberger, Teller.

Scott County Savings.—This is the youngest of the savings institutions of the city. It began business December 1st, 1883. It has a capital of \$70,000.00; \$682,172.00 in deposits, and 1,460 depositors. Its officers are: I. H. Sears, President; H. F. Petersen, Vice-President; J. H. Hass, Cashier.

THE POST-OFFICE.

A YEAR'S BUSINESS.

The Davenport post-office transacted its heaviest business in 1887. In the free-delivery department there was an increase in every particular except registered letters delivered. The nine carriers delivered 602,969 more pieces of mail, and collected 390,108 more pieces than in 1886, a total excess of 993,077—an increase of twenty-five per cent. The gross receipts were \$40,363.75—an increase of more than \$2,000.00. More than \$10,000.00 of this sum was transmitted to the United States treasury, and a like amount paid to the clerks of the railway mail service. In the money-order department the remittances from other offices were \$633,689.25. Seven

thousand money orders were issued, amounting to \$64,750.80; 4,500 postal-notes, in the sum of \$8,012.92—a total of \$706,452.97. Money-orders numbering over 13,000 and aggregating \$190,594.00 were paid; 7,300 postal-notes, amounting to \$16,158.32; and nearly \$500,000.00 was deposited with the postmaster at Chicago. It will thus be seen that the money-order business aggregated nearly \$1,500,000.00—a gain over 1886 of nearly \$250,000.00. J. M. DeArmond is postmaster.

BUSINESS ORGANIZATIONS.

DAVENPORT BUSINESS MENS' ASSOCIATION.

This is a newly organized, vigorous, and representative body of about 150 members, whose object it is to protect the rights and advance the mercantile, manufacturing, and other interests of the community. The further aims of the association are to promote the public welfare by furnishing reliable information regarding the city; to assist in securing the location of new and desirable industries in our midst; to obtain just and equitable rates of transportation; to facilitate the entry of additional lines of railroad; to entertain strangers, and to cultivate the social and business acquaintance of the representatives of the trades, industries, and professions of the city of Davenport. There are standing committees on by-laws, membership, statistics, finance, transportation, manufactures, local trade, advertising, and entertainment. The association has comfortably-furnished rooms in the Masonic Temple, to which all visitors to the city are invited. Its officers are: J. S. Wylie, President; J. A. Freeman, Vice-President; H. T. Denison, Secretary; J. H. Hass, Treasurer.

THE ADVANCE CLUB.

This organization has a membership of nearly 400. Its affairs are managed by the President, F. H. Hancock, and an Executive Committee of twelve members. It has been at work for two years, and the resulting benefits are seen in the securing of a new railroad and business enterprises.

BOARD OF TRADE.

Of this body J. M. Eldridge is President and L. M. Parker Secretary. The Board has done effective work in advertising the city in many directions, and in inducing the investment of capital here.

TRI-CITY SHIPPERS' ASSOCIATION.

This organization has nearly 200 members, representing the leading business houses of Davenport, Rock Island, and Moline. The object is to secure equitable rates, efficient service, and the best transportation facilities. The interests of shippers are looked after by Fred Wild, the general agent, who is one of the best-posted railroad experts in the west.

THE PRODUCE EXCHANGE.

The membership of the exchange is composed of grain-buyers, pork-packers, and others directly interested in obtaining the latest quotations from the market centers of the world. It has rooms in the St. James block, and its own telegraph service. The officers are: F. H. Hancock, President; R. H. Hayward, Vice-President; J. F. Dow, Secretary and Treasurer.

LOAN, BUILDING, AND SAVINGS ASSOCIATION.

This very successful association is in its eleventh year. Its assets, at the time of its last statement, were \$117,351.00. It had 1,792 shares of stock of the ten series issued. The objects are entirely mutual in their character. It has helped hundreds of persons of small means to secure homes of their own easily and safely, under a system of monthly payments.

LINDSAY LAND AND LUMBER COMPANY.

This is a corporation composed of some of the leading men of money in Davenport, Rock Island, and Moline, organized for the purpose of manufacturing and dealing in Arkansas lumber and timber lands. The principal office is in this city. The company has a paid up capital of \$150,000.00, the limit being placed at \$1,000,000.00. It owns 125,000 acres of the best timber lands in the state of Arkansas—land that is known will average 10,000 feet of lumber to the acre, or 1,250,000,000 feet. The members of the corporation are: Fred Weyerhaeuser, Charles H. Deere, J. T. Browning, J. E. Lindsay, William Renwick, D. N. Richardson, S. H. Velie, C. R. Ainsworth, J. M. Gould, George S. Shaw, J. B. Phelps, Fred Wyman, Christ. Mueller, and others.

EAGLE LUMBER COMPANY.

This Davenport institution is located at Eagle Mills, Ouchitau county, Arkansas, on the cotton-belt line. The shipments reach from Texas to Chicago, Minneapolis, Omaha, and circumscribed territory. The mill has a capacity of over 60,000 feet a day, having recently made the largest cut of any mill in the state in a single day. The company own 6,000 acres of valuable timber land. The capital stock is \$50,000.00. The principal stockholders and officers are: H. M. Gilchrist, Viola, Ill., President; E. S. Crossett, Vice-President; E. B. Hayward, Secretary and Treasurer; S. W. Pierce and George W. Cable, all of Davenport.

EDUCATIONAL INSTITUTIONS.

THE PUBLIC SCHOOLS.

The first school-house was built in Davenport in 1838, and the graded school system was organized in 1858. It has always kept abreast of the best in course of study and methods of instruction. There are ten school buildings, all well adapted and well equipped in every way for school purposes. The largest is the high school, which was erected in 1874, at a cost, including grounds, of \$65,000.00. The enrollment of pupils in it in 1887 was 309. The staff of instructors is composed of Superintendent J. B. Young, ten principals, and eighty-nine teachers, ten of whom teach the German language, one vocal music, and one gymnastics. The two last named subjects are as regularly and systematically taught as any other subjects in the course. Drawing and penmanship are successfully taught without the help of special teachers. The last census gave a school population of 9,313. Last year the total enrollment was 4,416, and the average membership 3,547. The annual cost of the schools is \$76,000.00. The management rests in a Board of Directors consisting of six members, two of whom are elected each year. A free evening school is maintained for four months each winter, which affords excellent instruction in reading, writing, arithmetic, the elements of bookkeeping and of physics. It has a large patronage, and is a popular feature of the public school system. As a department additional to the regular high school course there is maintained a most excellent normal and practice-school, in which most of the teachers in the schools are trained and tried before entering upon their work. To the services of this school is due largely the high standing of the Davenport public schools.

SAINT KATHARINE'S HALL.

This is a boarding and day school for girls, without a superior in the United States. The noble building, which is devoted exclusively to the school, crowns one of the highest and most commanding bluffs on the Mississippi river. The views eastward, southward, and westward are unobstructed, overlooking the National Armory and Arsenal, the cities of Davenport, Rock Island, and Moline, and a beautiful stretch of river miles in extent. The school is now in its fourth year, its prosperity being unexampled. Founded for the education of Christian women, it has been true to its high mission. Its roll of patrons numbers 150, and they are the representative business men of the west. Twice enlarged, Saint Katharine's capacity is again crowded. Its course includes three departments—preparatory, intermediate, and academic—and covers seven years. It is complete in the primary and in the advanced studies. While the Bishop of Iowa is the head of the school, the direct control is entrusted entirely to the Principal, Miss Emma Adelia Rice, whose personal care and attention is devoted to every pupil. Miss Rice is a rarely-gifted woman, of fine executive ability and experience, whose success as a teacher has placed her name at the head of western educators. She is supported by a well-chosen staff of twelve instructors. Nowhere in the west are educational advantages for girls and young ladies offered superior to those of Saint Katharine's, and in very few cities of the country are equal facilities to be found.

GRISWOLD COLLEGE.

This institution was founded in 1859, and offers special advantages to students from the western states. It is conducted under the auspices of the Episcopal Church, and has three courses of instruction—a four-year classical course, a three-year scientific course, and a one-year commercial course. The teaching is thorough.

KEMPER HALL,

The preparatory department of Griswold College, occupies a separate building, beautifully located and handsomely furnished—a model of all that a school-building should be. Each pupil has a separate room, and sleeps in a single bed. The Rev. P. C. Wolcott is head-master, with competent assistants. It is pre-eminently a home school, and one which regards the moral and physical, as well as the mental training of youth. The military drill has been introduced into the school with remarkable success.

IMMACULATE CONCEPTION ACADEMY.

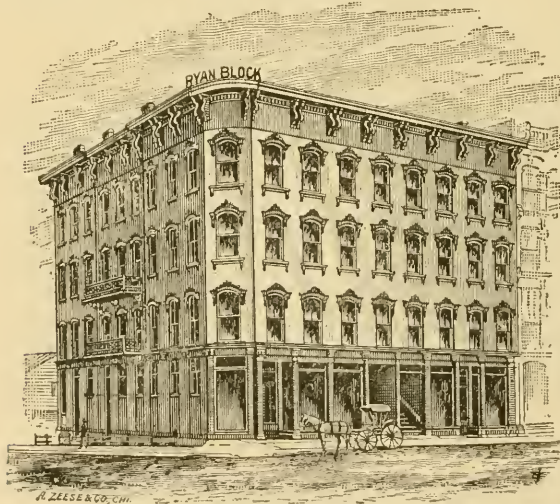
This institution, conducted by the Sisters of the Blessed Virgin Mary, is pleasantly situated on one of the crowning eminences that overlook the city. The buildings are elegant and commodious. Young ladies of every religious denomination are admitted, and every facility is afforded for mental and moral training. The institution is in its twenty-ninth year.

ST. AMBROSE SEMINARY.

This collegiate school occupies a new and commodious building, beautifully located. It was established through the efforts of Rt. Rev. Henry Cosgrove, Bishop of the Roman Catholic See of Davenport. It has three departments—preparatory, commercial, and classical—each complete, and confers academic honors upon its graduates. Rev. J. A. Schulte is President.

IOWA COMMERCIAL COLLEGE.

The history of western business institutions shows no more surprising success than is found in the Iowa Commercial College. From a small beginning in May, 1884, it has grown into one of the largest and most prosperous institutions in the country. The school occupies the upper floors



RYAN BLOCK.

of Ryan Block, one of the largest and most central business buildings in Davenport. Sixteen states and three territories were represented by 378 students in the catalogue issued in 1886, since which time the applications for admission have been more numerous than before. In the new field of short-hand the proprietors, Wood & Van Patten, have equipped a large number of young ladies and gentlemen for practical business life. The best proof that this college enjoys the endorsement and support of the business men of Davenport, Rock Island, and Moline, is found in the fact that a large number of its students is engaged here, and that they are giving perfect satisfaction and commanding good salaries. The college has in a great measure revolutionized business methods during the last four years by introducing the type-writer, whose merits the college has advocated, and whose utility it has taught. The use of short-hand and type-writing save one-half the time, or make it possible to do twice the business at a slight increase of expense. The Iowa Commercial College is a member of the National Union of Business Colleges, of which D. R. Lillibridge is President. The Western Penman's Association will hold its third annual meeting in the rooms of the Iowa Commercial College, December 26-30, 1888. This association is composed of a body of business educators now numbering ninety-six members. Prof. B. C. Wood, of Wood & Van Patten, was one of the corresponding secretaries for the past year, and is chairman of the Executive Committee for the present year.

{ OTHER SCHOOLS.

There are nine private schools, of which two are kindergardens, one a free German school, and the other six parochial schools.

HOMES AND HOSPITALS.

COOK'S HOME FOR THE FRIENDLESS.

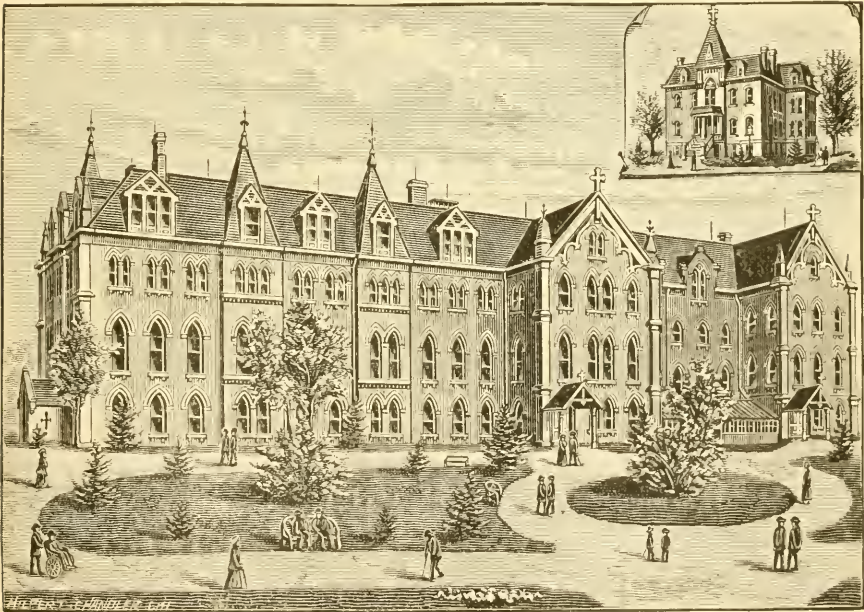
This charity was made possible by the munificence of Mrs. Clarissa C. Cook, deceased. Her will designated the sum of \$50,000.00 for the purpose of providing a home for "destitute and indigent females." To this sum \$65,000.00 has been added.

SOLDIERS' ORPHANS' HOME.

The Iowa Soldiers' Orphans' Home and Home for Indigent Children is a state charitable institution. It was organized December, 1863, and opened July, 1864. S. W. Pierce was elected Superintendent, Mrs. S. W. Pierce, Matron, and Dr. W. F. Peck, Physician, November, 1867, and they are the present incumbents. The home was strictly for soldiers' orphans till July, 1876, when it became a home for all indigent children. There were at the close of the year 313 children at the home, of whom fifty-six were soldiers' orphans. There are thoroughly graded schools and an industrial department for both boys and girls. Altogether about 2,000 children have been cared for and educated. Suitable buildings on the cottage plan, sixteen in number, have been provided.

MERCY HOSPITAL.

The illustration gives a partial view of Mercy Hospital and grounds. The upper building on the right represents, though imperfectly, St. John's Asylum, which is set apart for the accommodation and comfort of the male insane patients. It is a monument of the zeal and charity of the lamented Rt. Rev. John McMullen, the first Catholic Bishop of Davenport. St. John's Asylum is in reality a four-story brick building, completed in 1884 at a cost of \$25,000.00. The architecture conforms to the hospital proper, with accompaniments which enhance its stately appearance. It has a frontage of 45 feet, with a depth of 91 feet, and east and west wings, each 12 by 20 feet. In 1886 Rt. Rev. Bishop Cosgrove, on visiting the female department, recommended for the better accommodation of patients the erection of a third building. This has been done, the structure having a frontage of 60 feet by a depth of 90 feet. It has three stories and an attic with all modern improvements, and is elegantly equipped for its intended use.



MERCY HOSPITAL AND ST. JOHN'S ASYLUM.

Mercy Hospital, in all of its departments, is one of the first institutions of the kind in the country — one with which there is no other in Iowa for favorable comparison. The main building is a massive brick, four stories high, and 150 by 60 feet. The present grounds cover thirty acres, being located just outside the city limits on the north, and distant from the post-office about two miles. The institution was opened in December, 1868, but from its humble beginning it has grown to magnificent proportions. As to the management of Mercy Hospital, it is quite sufficient to say that the entire control and discipline are in the hands of the Sisters of Mercy. It is subject to constant visitation by county officials, who point to it with a feeling of just pride. The institution has not only the entire confidence of the official board and of the city physicians and surgeons who regularly visit it, but, when occasion requires, it has the patronage of the best citizens. Its wonderful success is the best evidence that it fulfills the grand mission for which it was organized.

MUNICIPAL AFFAIRS.

CITY GOVERNMENT.

Davenport is divided into six wards, each of which is represented in the city council by two Aldermen, elected to serve two years. The Mayor, City Clerk, Treasurer, and Assessor are elected annually; the Police Magistrate biennially. The Engineer, Fire Chief, Attorney, Chief of Police, and Collector are appointed. The city is incorporated under a special charter, and has full legislative power under it.

THE FIRE DEPARTMENT.

In connection with the perfect system of water service which has been described, Davenport has a fire department equalled in its efficiency by but few cities in the country, and surpassed by no other place of corresponding size. The paid department is composed of three hose companies, one hook and ladder company, and a chemical-engine, all well housed, and in the hands of trained firemen. The force is always on duty, and is supplied with the best of horses, abundance of hose, and all essentials to a complete outfit. The value of the service is vastly increased by an electric fire-alarm telegraph with alarm-boxes, or stations, distributed throughout the city. By means of gongs at the water-works and hose-houses, and bells struck by electricity, the location of a fire is made known instantly. The average time occupied from the first sound of an alarm until the firemen are in their places, with the horses on a wild run toward the scene of the fire, is from fifteen to seventeen seconds. In case of a conflagration—from which the city has not suffered since the paid department was equipped—there are volunteer fire organizations covering the outlying districts which can be summoned. The protection is such that Davenport is practically a fire-proof city.

THE POLICE DEPARTMENT.

This consists of a Chief, Night-Captain, and thirteen patrolmen. The number of arrests average less than two per cent of the population. In no city is life safer, property more secure, or better order maintained. The last few years have been notably free from the work of criminals.

PARKS AND STREETS.

Davenport has three public parks—Central, Washington, and Lafayette. The first is the largest, embracing thirty-five acres, and was bought by the city for \$13,000.00 in 1885. An artesian well is now being sunk there, and the grounds are to be handsomely laid out and ornamented. Lafayette Square was laid out by Antoine Le Claire in the original plat of the city.

STREETS AND SEWERS.

The entire city is divided into blocks—most of them 320 feet square—by 126 streets, 60 to 80 feet wide, which, if placed continuously, would extend a distance of eighty miles. Over \$1,000,000.00 has been expended in macadamizing the streets, which are in good condition for both hauling and driving purposes. The city is well sewered, the drainage being natural from the bluffs to the river.

REVENUE AND DEBT.

The revenue of the city amounts annually to about \$150,000.00, of which one-fifth is derived from licenses, and the rest is secured from an assessed valuation of over \$7,000,000.00.

BOARD OF HEALTH.

The sanitary condition of the city is watched by a Board of Health, which is clothed by state law and municipal ordinance with all necessary power.

MEANS OF LIGHTING.

The city is lighted by electricity, the plant containing ninety-four lights of 2,000 candle-power each, of which forty are placed on eight towers 125 feet high, fifty-two upon mast-arms 30 feet high, and two upon poles 50 feet high. The wires have a length of over 26 miles, and the light is perfect. There are 26 miles of gas mains.

STREET-CAR LINES.

Davenport has three lines of street-cars—the Third street, the Brady street, and the Second street lines—in all twelve miles. The Second street line was built during the fall of 1887, at an expense of \$20,000.00, and the city council has granted the franchise for an extension of eight miles of line in 1888. All parts of the city can be reached easily and quickly.

CHURCHES, LIBRARIES, ETC.

ACADEMY OF SCIENCES.

The Davenport Academy of Natural Sciences is an institution known throughout the scientific world. The collection of mound relics is incomparable. The academy building was erected for the purpose which it serves upon a slightly lot, the gift of Mrs. P. V. Newcomb. The academy has 120 regular, 78 life, and 300 corresponding members. The library is a most valuable collection, containing many thousands of books and pamphlets. The number of yearly visitors is about 6,000, of whom from 1,500 to 2,000 are non-residents. Four volumes of proceedings—works of acknowledged scientific value—have been published, and the fifth volume is in preparation.

THE PUBLIC LIBRARY.

A fine building, dedicated to public library uses, is centrally located. Its cost was \$13,000.00. The shelves contain about 12,000 volumes of standard books, and the reading-tables are supplied with the leading magazines and newspapers.

CHURCHES.

Davenport is a see city, being the seat of the Protestant Episcopal Church of the Diocese of Iowa. Rt. Rev. William Stevens Perry, Bishop. Grace Cathedral, a grand Gothic edifice, cost more than \$80,000.00, and, with its handsome grounds, upon which is the Bishop's vine-covered residence, occupies a block. Trinity Episcopal Church has a chime of bells costing \$6,000.00, and their peals may be heard for miles. This city is also the place of residence of the Bishop of the Roman Catholic Diocese of Davenport, embracing the southern half of the state of Iowa. Davenport has four Baptist, four Catholic, one Christian, two Congregational, four Episcopal, one Hebrew, three Lutheran, four Methodist, four Presbyterian, and one Unitarian churches.

IN GENERAL.

THE PRESS.

Davenport has five daily newspapers—The Morning Democrat-Gazette, independent; the Evening Democrat-Gazette, democratic; Der Demokrat (German), democratic; the Evening Times, a labor paper, and the Morning Tribune, republican. All publish weekly editions, and Der Demokrat, a semi-weekly. There are also the Northwestern News, Iowa Messenger, Iowa Reform (German), published weekly; the Dania, semi-monthly, and the Iowa Churchman and Familien Journal, monthly. The Democrat-Gazette is the only paper in Iowa issuing both morning and evening editions.

HOTELS.

The Kimball House is the leading hotel of Iowa in all that pertains to a strictly first-class house. It is always kept up to the highest rank in appointments and service. During the last two years \$40,000.00 has been expended in interior improvements and furnishings. The Kimball is five stories in height, with a frontage of 300 feet on Fourth by 150 on Perry street. It is supplied with telegraph, telephone, elevator, and all modern conveniences. The proprietor is Howard Burtis.

The St. James is located on the corner of Main and Front streets, commanding a delightful view of the river, and within a few steps of the ferry and steamboat landings. It has become known as "the commercial man's friend," and as such it is a favorite. The proprietor is Gough B. Grant, whose personal attention is always given to guests, and they are made to feel really at home. The house is capacious, elegantly furnished, and the table is excellent. During the past season a \$10,000.00 addition has been made to the St. James.

There are numerous other smaller, though well-kept, houses in Davenport, which may be commended to strangers.

THEATRES.

The Burtis Opera House is connected with the Kimball House. It has a seating capacity of 1,700. It is supplied with upholstered opera-chairs, large stage, and beautiful scenery, ample for the setting of any play.

The German Theatre is described elsewhere in connection with the new Turner Hall.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

This society is in its twenty-first year. It has quarters in the central part of the city, which are well supplied with gymnastic apparatus, bath-rooms, library, reception-rooms, etc.

SOCIETIES, ETC.

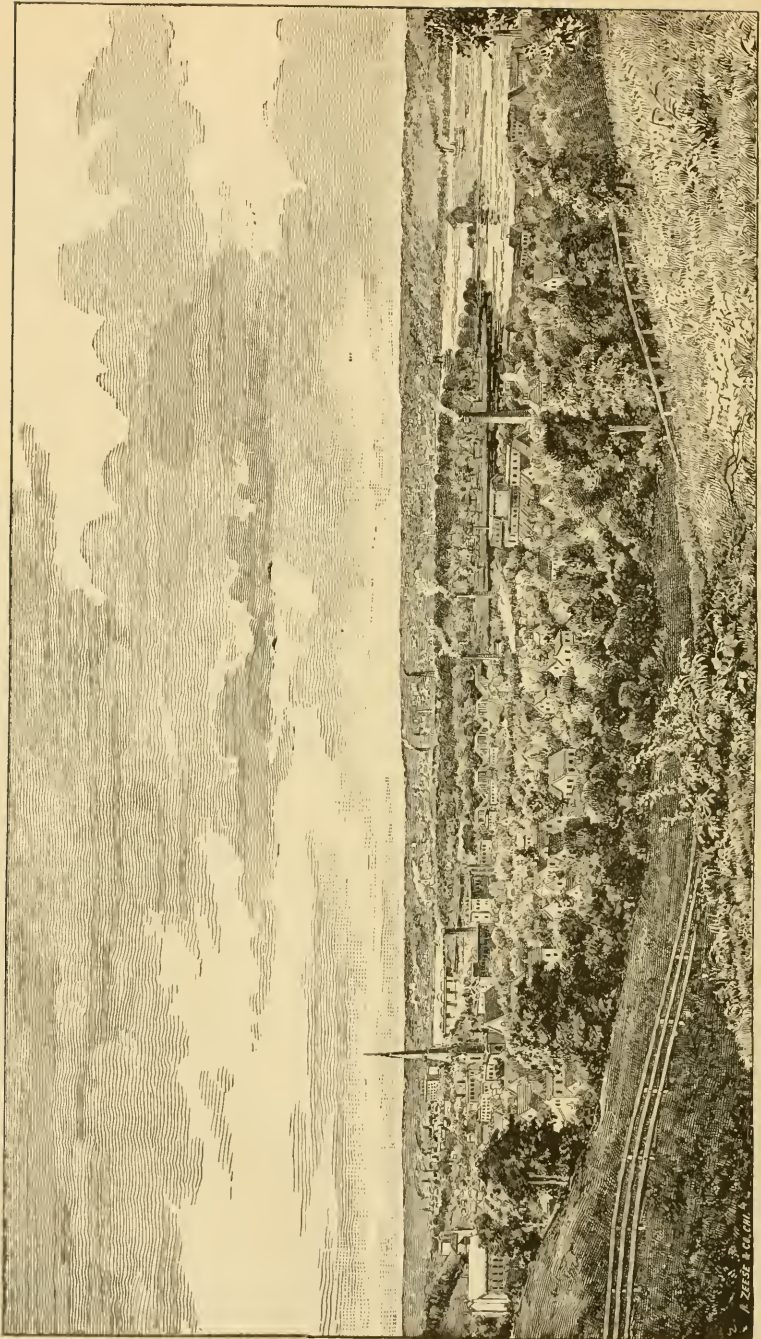
The leading Turner society of the state is here. There is a strong military organization in Company B, I. N. G.; a ball club; a boat and a canoe club; and nearly all of the various fraternities, orders, societies, and brotherhoods are represented.

SECURITY FIRE INSURANCE COMPANY.

This home company is endorsed without qualification by every bank and banker in the city. It affords absolute security to all holding its policies. It offers protection against loss by fire, lightning, and cyclone, the last by no means an improbable disaster. The Security has a capital of \$100,000.00. It has received in premiums since its organization about \$175,000.00. It has paid losses aggregating \$43,000.00, and numbering 201, the average size of the loss being not quite \$213.00. Its stockholders are the most responsible capitalists and business men of Davenport, and its officers are men of successful experience in business.

THE FEDERAL LIFE ASSOCIATION.

This is a Davenport company whose sterling character is vouched for by bankers and business men of this city, who are familiar with its workings and management. The Federal affords the safest and most perfect system of insurance. It provides for life insurance only, at the lowest cost consistent with security on terms of entire equity. Its special features commend the Federal as giving the most insurance for the least money possible.



OVERLOOKING THE CITY OF MOLINE FROM THE SOUTHWEST BLUFFS.

MOLINE.

GENERAL FEATURES.

OBJECTS OF THIS WORK.



ERE THIS a work of ancient history, it would dwell on the degree of civilization attained by the mound-builders and the character of the implements and utensils they used, showing the vast difference between their times and ours. Were it a book of modern history, it would linger on the explorations of De Soto, who discovered the Mississippi river in 1541, of Marquette and Joliet, who descended it almost to its mouth in 1673, and of La Salle, who in 1682 passed through it to the Gulf of Mexico and took possession of the country in the name of the King of France. Were it an account of Indian wars, it would recount the war-dances of the Algonkins, the Dakotas, and the Sioux. But it is intended for those now on earth, doing business and on the lookout for more advantageous localities,

although there are those now living here who knew Keokuk and Black Hawk personally (the latter died October 3, 1838) before Moline attracted much attention. Manufacturing here dates back to 1840, when a rude dam thrown across Sylvan water at the foot of Rodman avenue supplied openings for seven wheels.

THE CITY'S LOCATION.

Moline, whose name signifies City of Mills, is distinguished for its healthful and beautiful location, as well as for the amount and excellence of its manufactures, which in one form or another find their way to almost every farm and into almost every



VIEW OF SYLVAN WATER, OPPOSITE MOLINE.

home from New York to Oregon, and from the great lakes to the Gulf of Mexico. The city is located on the south (the Mississippi running westerly for a few miles) bank of the river near the foot of the upper rapids, nearly midway between the

cities of St. Paul on the north and St. Louis on the south. Moline lies south of the eastern half of the Island of Rock Island, which has a length of three miles, reaching westward to the limits of the city of Rock Island, and southward almost to Rock river, three miles distant, and whose confluence with the Mississippi is some six miles below. The site of the city is attractive and beautiful. The lower or plateau part is largely filled with factories, which occupy the water-power and river bank for nearly two miles. Moline is rightfully designated as the "Lowell of the West," for it is one of the busiest, most thrifty cities in the Mississippi Valley, famed the world over for the variety and extent of its industrial interests as well as for the quality of their products. The city's bluffs and the plain stretching beyond them furnish the most desirable building opportunities.

SPLENDID ROWING WATER.

The accompanying illustration shows a part of Sylvan water, between the water-power wall and the Island. It is over a mile in length, by nearly 1,000 feet in width, affording the best sheet of rowing water, protected as it is on all sides, in the entire west. This course has been four times selected during the last ten years by the Mississippi Valley Amateur Rowing Association for its annual regattas. It is the only place on the great river where slack water in sufficient quantity can be found. Moline has its Sylvan Boat Club of 100 members, an organization which takes advantage of its fine opportunities for pleasure and practice.



MOLINE BRIDGE TO NATIONAL ARSENAL.

MUNICIPAL GOVERNMENT.

Moline has a population of over 11,000. The corporation limits are divided into seven wards, each of which has two representatives in the city council, one Alderman being elected for two years each alternate year. The rate of taxation, for all purposes, is 6 $\frac{3}{4}$ cents on each \$100.00 equalized valuation. For 1887 the assessed valuation was \$1,720,555.00. The assessed valuation is on a basis of from one-sixth

to one-fourth of the actual value. The bonded debt is \$73,500.00. The City Marshal acts as health officer under the state law. The sanitary condition of Moline, as shown by its mortuary record, is remarkably high. The death rate during 1887 was less than two to each 100 of the population.

THE WATER-WORKS.

Moline has its complete system of water-works, ample for fire protection, household, and general purposes. The works were built in 1883 by Davis & Co., who operated them as a private enterprise till July 1, 1886, when they were bought by the city. They are located at the foot of Seventeenth street, and represent a judicious outlay of \$100,000.00. There are eleven miles of mains and distributing pipes, and 138 fire-hydrants, covering every point within the city limits. The pumping-station is 60 by 45 feet, of brick. Three Deane engines are used—one of 1,500,000 gallons capacity, and two each of 500,000 gallons pumping capacity every twenty-four hours. There is an inlet pipe furnishing the water which is over half a mile in length, and extends from the cistern, which is also a settling-basin, out into the channel of the Mississippi river, where the water is uncontaminated. A recent test has proved that ten good fire streams can be thrown a distance of 200 feet. In case of need, the engines of three of the largest factories in the city can be utilized to supplement the water-works, thus assuring fire protection. During 1887 the works pumped over 220,000,000 gallons of water. Fred Alsterlund is chief engineer.

The fire department is a complete, efficient volunteer organization of five companies, one for each fire district, which has proved its trustworthiness repeatedly. Each of the larger factories has its own fire department fully equipped.

THE PUBLIC SCHOOLS.

ORGANIZATION.

The public schools of Moline, of which W. S. Mack has been Superintendent for ten years, are the pride of the city, as much so as the manufacturing industries. No city east or west furnishes its youth better educational facilities. The schools are organized under what is known as the general school law of Illinois. Under the provisions of this act the management of the schools is entrusted to a Board of six members, two of whom and a President are elected each year, the first Saturday in April. The President holds his office one year, and each member of the Board three years. The Board elects its Secretary and its committees. The President presides at the meetings of the Board, votes in case of a tie, and signs orders. "He does not count to make a quorum, nor does he perform any other duties unless so directed by the Board." The school district is a political unit entirely distinct from the municipal unit, although the boundaries of the two are co-extensive. This takes the school elections out of the field of party politics, the people being called upon in electing members of the School Board to consider only matters of school policy.

GROWTH.

Since the organization of the schools under the general school law, in April, 1873, there has been a steady growth commensurate with the development of the industrial interests of the city. From a population of some over 4,000 in 1873, the district had grown in 1887 to 10,514. The school population increased in the meantime from 1,533 to 3,111; the average monthly enrollment from 624 to 1,626; the number of teachers from 16 to 40, and the salary account from \$8,014.00 to \$21,092.00. The tuition per pupil, on average monthly enrollment, was, in 1873, \$12.84; in 1887, \$12.97.

PRESENT CONDITION.

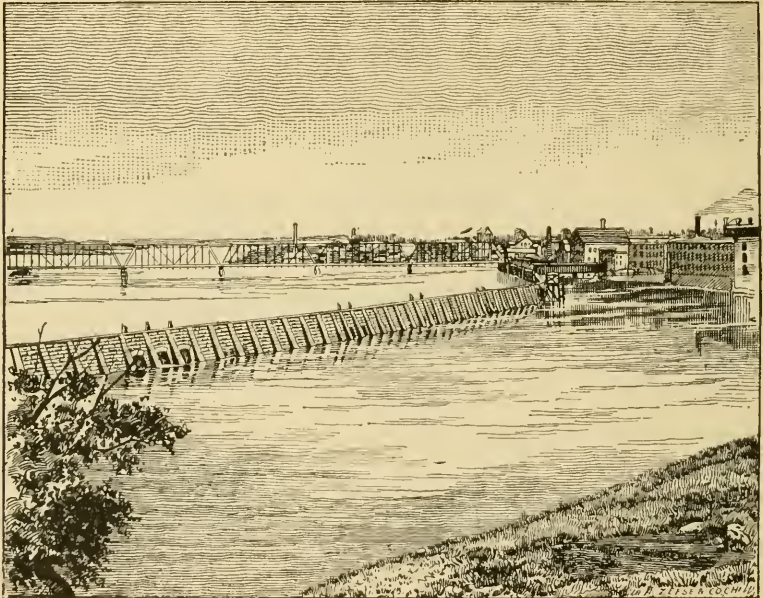
The district now owns six school buildings—four brick and two frame buildings—containing forty-two school-rooms, besides the high school, with ample accommodations for 1,900 pupils, and so distributed as to be easily accessible to the school

population. Nothing so quickly attracts the attention and calls forth the admiration of the stranger, and is at the same time the source of so much pride to Moline's citizens, as its attractive and well-kept school buildings and sites. Few, if any, cities of its size can boast of more valuable school property. The course of study covers eight years below the high school, and a four-year English and a three-year Latin course in the high school. Without going into the details of the course of study, two lines of policy to which the schools as a whole seem to be committed may be mentioned: *First*. The substitution of independent thought and investigation for the mere study and committing of texts, and as a result of and a means to this end, the establishment of school libraries and collections of specimens in the different buildings. *Second*. The systematic teaching of drawing, as another means of acquiring information, accompanied by the realization in different kinds of materials of the forms drawn, thereby providing thorough manual training for the development of a side of the child's nature heretofore neglected. Much more could be said concerning the school privileges which the people of this manufacturing city have provided for their children, and which should commend Moline to any who may be seeking investment for their capital and desirable homes for their families.

MOLINE WATER-POWER.

WHAT IT HAS ACCOMPLISHED.

The water-power of Moline has always occupied a prominent place in the history of the city, deciding its location, and for many years causing its growth. The enterprising pioneers of forty or more years ago were quick to see that a power easy



MOLINE WATER POWER TAIL-RACE.

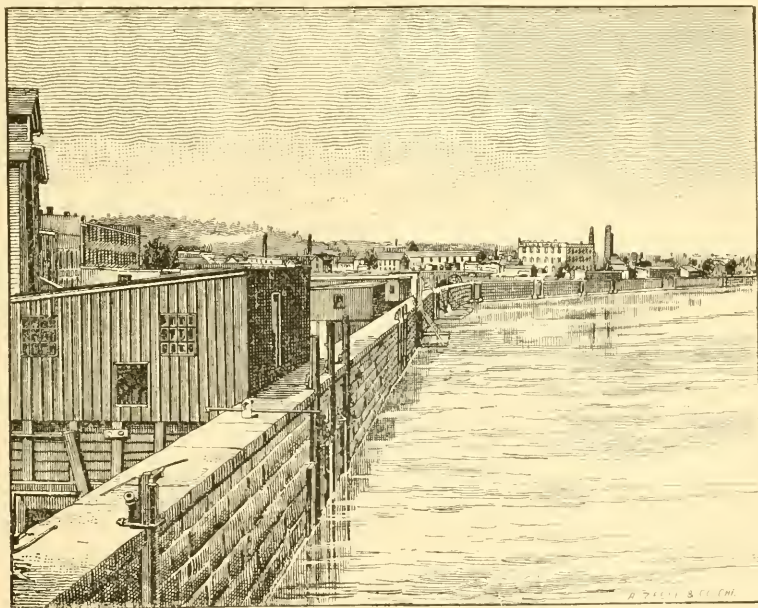
of development and vast in extent (from the peculiar character of the river) as this evidently was would attract a large industrial population, and prove a continuous source of growth and prosperity.

THE EARLY IMPROVEMENTS.

The first improvements of the power were crude, yet they attracted a few mills and manufactories, and from a beginning so small Moline has grown to be a manufacturing city whose reputation is national, and whose industrial products are known to almost every civilized country of the world. The water-power was hampered at the start by lack of capital—a not uncommon experience in those early times—and after passing through the hands of several parties, who in vain strove to supply the requisite capital, it came at length into the hands of the present company about twenty years ago.

THE PRESENT WATER-POWER COMPANY.

Soon after the passage of the water-power into the hands of the present company, the long-dreamed-of plan of a national armory and arsenal in the Mississippi Valley began to assume a definite form, and the Island of Rock Island was fixed upon as a suitable site. The Island had been reserved by the government for the purpose, and successfully held both against the settlers and land rings, which repeatedly endeavored



MOLINE WATER-POWER POOL.

to obtain possession. Fort Armstrong, a military post in the early Indian wars, was located at the lower end of the Island, and here numbers of young officers did service, many of them afterward becoming famous in the Mexican and Civil wars, notably Winfield Scott and Jefferson Davis.

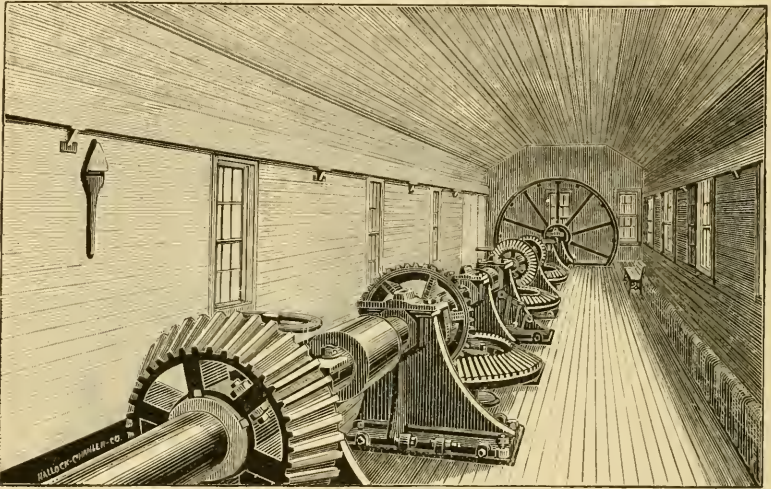
THE GOVERNMENT AND THE COMPANY.

Col. Davenport, whose name our sister city bears, had obtained a part of the Island, and made it his home, and several other small cessions had been made. D. B. Sears had secured a small piece of territory on the upper end of the Island, with the right to abut dams for water-power purposes, and in pursuance of this right, had built a dam from the west side of the Island to the little island in the main channel, and had erected a saw and a flouring mill. Mr. Sears' rights, together with those of the Davenport estate, were taken by the government and paid for under appraisal. It was proposed in addition to remove the dam and obliterate the

power, paying the Water-Power Company by a similar appraisalment. But most strenuous protests were made against such a proceeding — although a sale would have been advantageous to the company — inasmuch as it involved the blotting out of the town, and meant virtual ruin to the industries built up by the water-power and dependent upon it, as well as surrendering the finest power site on the Mississippi river, with all its great possibilities of future advantage.

CONDITIONS OF THE AGREEMENT.

A final agreement, however, was made, by which the power was saved to the town, by the Water-Power Company surrendering the entire power to the government without consideration, save an agreement on the part of the government to enter at once upon plans for its complete development, and to maintain the same, and give the company one-fourth of the entire developed power, free of charge for rent. As to what degree the power was capable of development, both the government



ARSENAL WATER-POWER MACHINERY.

and the company agreed that a twelve-foot head was practically obtainable, there being a fall of twenty feet over the rapids to this point. At this transfer to the government, appropriations were made and improvements begun on plans having such ultimate development in view.

CHANGES IN THE PLANS.

Subsequent changes in the plans were made, however, to enable the government to bring the power down to a point opposite the shops in the middle of the island. This extension of the power entirely changed the plans for the dam, and largely increased the amount of the work and the consequent expense, and took precedence over the general improvements on which the Water-Power Company were dependent for power, and also left a contracted tail-race for the escape of the water. These changes in plan rendered the water-power practically worthless to the company, as far as general utility was concerned, since the completion of the dam. But now work has been done in enlarging the capacity of the tail-race, and in improving the inlet to the pool, which has in a measure restored the water-power to usefulness.

POWER FOR NEW INDUSTRIES.

The result has been that many of our manufacturers during the past year have resumed the use of the power, which they had previously abandoned, and has enabled the company to put in new wheels, aggregating a large amount of power to

rent to new industries. Now that the Arsenal shops are completed, and can be equipped with machinery for their immediate use, the importance of completing the water-power for operating them on short notice has presented itself to the attention of the war department, and this work has been decided upon as the next step in the equipment of the Arsenal. This insures a power of uniform head at all stages of the water and during all seasons of the year the best on the Mississippi river, full of promise for the realization of the advantages expected from it by its enterprising founders and promoters.

MOLINE MANUFACTORIES.

THEIR PROSPERITY.

“What is the strongest inducement Moline offers new manufacturing enterprises to locate here?”

This question was asked by the writer of Hon. John M. Gould, one of the first business men, in point of time, to establish himself here. As President of the First National Bank for many years, as a prominent member of the Moline Water-power Company, as one of the great lumber firm of Dimock, Gould & Co., and as one who has been, and is, identified with the city's interests in many ways, he was thought to be thoroughly competent to meet the query. The answer was brief and significant—as full of meaning as if it had been amplified in the form of a book. It came in these seven words:

“The success of the factories already here.”

Within a few years some of the largest industries of their kind in the country have been built up here. In every instance the start was made in a small way, and enlargements came as they were demanded by the growth of business. The steps taken have always been in one direction, and that upward and forward. What has been done here can and will be done again many times over. It is as certain as any future can be—as sure as the recurrence of the seasons—that within ten years the number of factories here will be more than doubled, while those established will go on expanding at a rate surpassing the national census. In most of the widely and wildly-boomed western towns the promises are all for the future; there are no redeemed pledges to exhibit for the past. Moline points to what has been achieved as the best evidence of the new advances which are to be made. The success of the factories already here afford the strongest inducement Moline can offer new manufacturing enterprises about to start, and those already established which desire to take advantage of better opportunities.

THE VALUE OF A GOOD NAME.

It is a modest statement that affirms that millions of dollars have been expended in carrying the name of Moline and its products all the way around the world. Through newspapers and magazines of every class and in every civilized country; by means of trade-circulars in many languages; by exhibits at state, national, and international expositions; by traveling salesmen and agents; by the work of agricultural implements in field-tests everywhere, and by innumerable plows, planters, cultivators, and machines in daily use in America, Mexico, Brazil, England and English provinces, France, Spain, Germany, Egypt, Japan, and even China, the name “Moline” has been made a familiar one. It has a value which represents a heavy outlay through several years, and yet its use is offered to all who care to avail themselves of it. The word “Moline” carries with it a kind of good-will and endorsement which for business purposes is invaluable.

THE WORLD FOR A MARKET.

The world being the territory from which Moline draws its trade, it follows that reverses or unfavorable years never come. A certain section of the country may have had a famine in 1886, or a flood in 1887, or it may be a scourge will come in 1888; but owing to the wide distribution of the products of Moline factories, nothing less than universal disaster can ever affect them.

PROSPERITY DISTRIBUTED.

With the success of capital comes the prosperity of labor. This is forcibly illustrated in Moline. Hundreds and hundreds of mechanics who have followed their trades have reached conditions of comfort, own their homes, and have a savings-bank account to meet the proverbial rainy day, or means with which to pass their vacations in travel, or give their children advantages which are unknown where idleness is common or starvation-wages paid. The working men of Moline do not need to be told that they have cast their lots in a fortunate place.

AN INVITATION.

With the foregoing introduction the reader is invited to make a tour through some of the larger factories, and satisfy himself of their extent and variety, first glancing at "A Year's Business," by way of preparing for the interesting round.

A YEAR'S BUSINESS.

MONEY WELL INVESTED.

Capital well placed at seven per cent interest is considered a fortunate investment. Government bonds yield only about half this interest; railroad stocks fall below it, and general business for a series of years is considered satisfactory if the profits equal it. But in the great majority of commercial ventures success is not the rule; it is the few and not the many who prosper. Looking over the statistics of Moline manufacturing since the close of the Civil war, it is found that the majority of enterprises started here have succeeded well; that business has increased and profits multiplied at a ratio largely exceeding the legal rate of money. Moline has been a notable exception to the rule in manufacturing centers in the east as well as in the west.

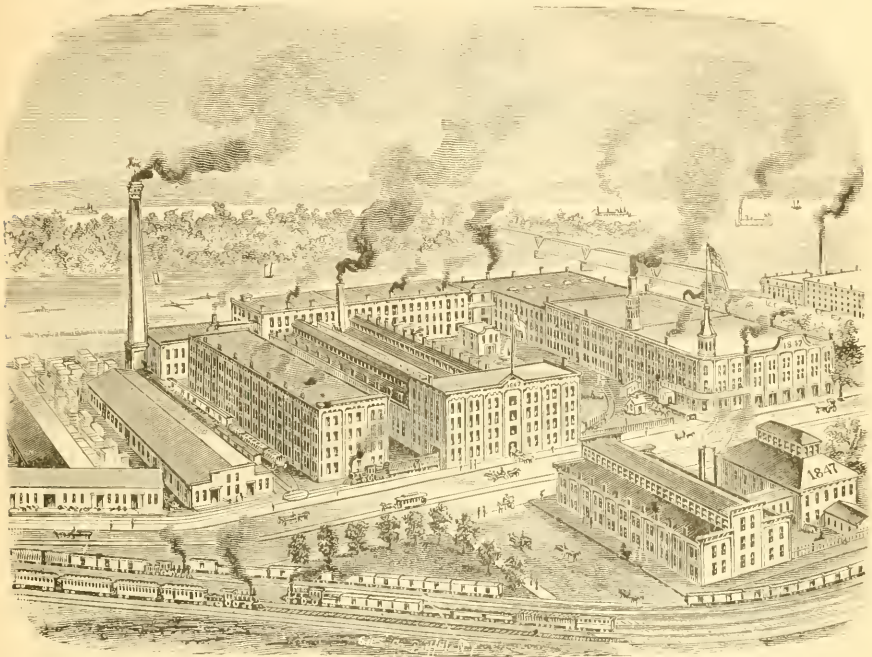
WHAT STATISTICS SHOW.

A personal canvass of every industry in Moline furnishes the figures used herewith. They are not exaggerations. The capital invested in manufacturing enterprises at the close of 1887 was \$7,935,000.00. The number of employes on the pay-rolls for the year was 3,768. The amount paid for wages, \$1,859,000.00. And the aggregate of business transacted was \$7,120,000.00—the largest in the history of the city. The number of men indicated, it is only fair to note, have not been employed continuously, for the reason that here, as elsewhere, the "busy season" occurs, and it is made the most of. The saw-mills, too, usually cannot run more than from seven to eight months, on account of snow and ice. But on the whole, the average mechanic and employe, the worker in wood and iron, is certain of regular employment twelve months in the year.

DEERE & COMPANY.

Forty years ago, when Moline was but a small village, with no special commercial advantages, when railroads were unknown, and steamboats were the only freight lines, a far-seeing mechanic — John Deere — who recognized in the immense water-power which might be utilized the key to a successful business future, chose the spot as a base of operations and set up his little plow-shop on the banks of the Sylvan water. It was not much of an establishment. A small two-story and basement frame building, with a one-story L, in which were two or three forges, a large grindstone, and some machinery of rather primitive style run by water-power, in addition to the ordinary tools of the blacksmith's trade, a wood-worker's bench or two, and a small paint-shop. That was about all. Here was continued the manufacture of steel plows which had been commenced at Grand Detour, Ill., a short time before. The first year's output would hardly stock the warehouse of an ordinary implement-dealer of to-day, and yet it was a successful year's business. Who could have prophesied that the immense establishment represented in the accompanying cut

would be in so short a time as forty years the outgrowth of this small beginning. The secret of the grand success that has so universally attended the business started in so small a way nearly half a century ago, and which still attends it, has been the determination carried out through all these years to make the best goods possible by conscientious painstaking, the employment of the most skilful mechanics and the most approved machinery, and the use of only the best material; the market



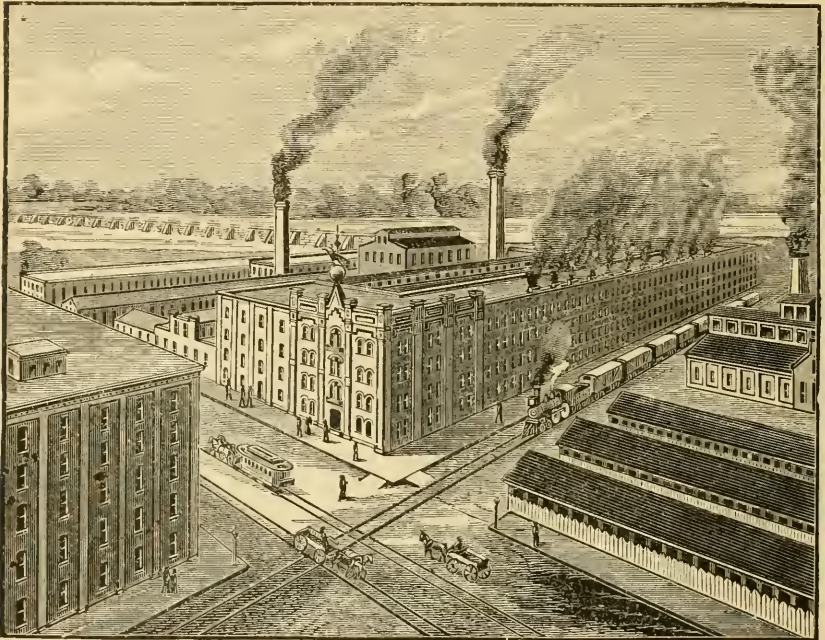
DEERE & COMPANY'S WORKS.

affords. This course of action is what has made the "John Deere Plows" known the world over; and wherever known, most popular. This institution has done much for the community in which it is located, and is a credit to the city as being the largest establishment of its class in the world.

MOLINE PLOW COMPANY.

The next illustration does injustice to the immense shops of the Moline Plow Company, and yet it furnishes some idea of the facilities at command for manufacturing far more than a thousand plows weekly, to say nothing of other agricultural implements. The works cover more than two acres of ground — which means more than eight acres of floor space — and every square yard of it is crowded with men, machinery, and material for the conversion of train-loads of coal, iron, steel, and lumber into the finished implements, which are carried by rail, river, and ocean-steamer to the four quarters of the earth. The Moline Plow Company is an institution of no less rapid growth than of enduring character. It was organized twenty-one years ago, with a capital stock of only nominal proportions, but by men of more than ordinary resources in the way of energy and enterprise; by men who had faith in Moline as well as in the development of the great west and the means which must be largely used to accomplish it — by implements which, to use the expression of one of the first statesmen, himself a farmer, "when they tickled the soil caused it to laugh with a harvest." On reaching the age designated as that of legal manhood, this

company finds itself possessed of a vast estate in the way of territory; of a manufacturing plant which few of the largest cities can equal; of an established and growing business, and of an army of skilled employes and agents. The twenty-five employes of the first year have grown to be twenty times as many. The small shop has divided itself into departments, and these have become a great factory, with branch establishments in Kansas City, Omaha, Des Moines, and Minneapolis, and extensive agencies and supply-houses in Cincinnati, Columbus, Peoria, Toledo, St. Louis, San Francisco, Sacramento, and Portland. Each year of the life of this company has wit-



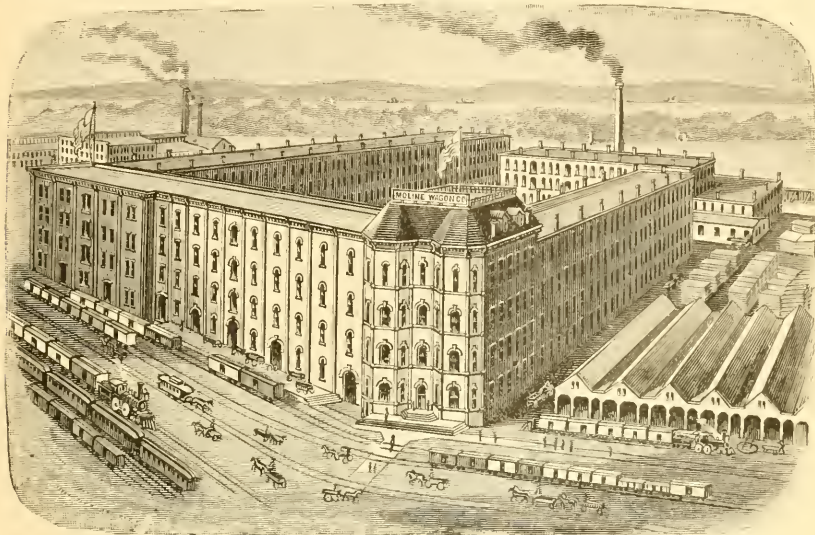
MOLINE PLOW COMPANY'S WORKS.

nessed enlargements, and 1887 is no exception. Two large brick structures, one 54 by 78 feet, three stories, and the other 30 by 50 feet, three stories, have been added, with the view of enlarging the manufacturing facilities. The President of the Moline Plow Company for many years has been Hon. S. W. Wheelock, a prominent factor in Moline's history. Associated with him as Secretary is A. L. Carson, and a large and efficient executive force.

MOLINE WAGON COMPANY.

Moline is a magical word. There is an enchantment about it which is wonderful. Yet the city in which mills and factories have been founded, and which have flourished marvelously, is subject to no power of sorcery. The agencies have been the same in all—a combination of favorable circumstances and the application of the strict rules of business to them. What true merit in the product combined with executive ability and business sagacity can accomplish in such a location as this has a striking illustration in the upbuilding of the Moline Wagon Company, a fine view of whose extensive works is given on the next page. If the plow is the fittest emblem of agriculture, the wagon certainly holds the place of the farmer's best friend. It is his independent line of transportation, which can never be subjected to government control through inter-state laws. The maker of a good wagon is the helper of the agriculturalist. The company which is the subject of this sketch is

one of the largest manufacturers of farm and spring wagons in the world. Its most gratifying growth has been within the last fifteen years, during which the capacity has been more than quadrupled. The two-story shop, 60 by 80 feet, has been transformed into four-story brick structures, covering, with the warehouses and lumber-sheds, about six acres of ground. The thirty employes who began with the organization of the company have multiplied more than fifteen times, while the addition of machinery has been supplied in an equal ratio. Add to the skilled workmen the toughest and best-seasoned lumber and every mechanical device, and to this fifteen years practical experience and the most watchful supervision over every detail, and



MOLINE WAGON COMPANY'S WORKS.

the secret of success becomes known. Nothing has been left to chance. Every step of progress has been made in the face of fierce competition. Despite all obstacles, and by sheer force of time-tried worth, the Moline wagon has taken its place by the side of the Moline plow as having a superior nowhere. In different parts of the country the company has distributing houses, including Minneapolis, Winnipeg, Des Moines, Kansas City, St. Louis, Indianapolis, Fort Worth, and Salt Lake City. The President is Morris Rosenfield, whose genius has directed the affairs of the company from the first.

LUMBER AND WOODEN-WARE.

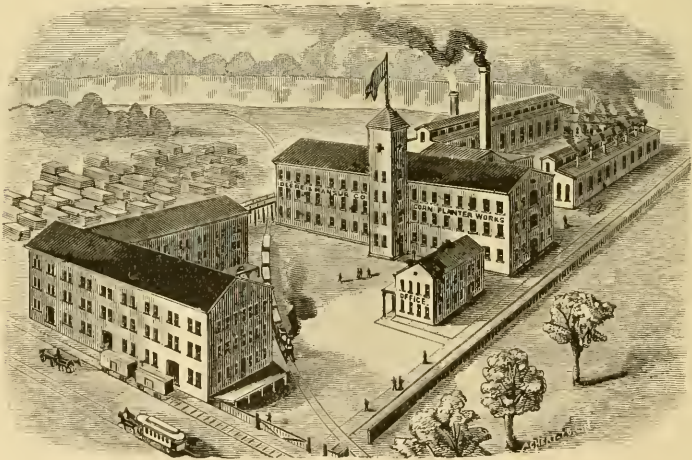
Next in importance to the manufacture of agricultural implements comes the lumber interest, which if not more extensive than that of any other city on the Mississippi river, is certainly far more varied. It gives employment to nearly 500 hands, who receive in the way of wages more than \$200,000.00, while the business of a twelve-month runs up to about \$1,000,000.00.

The firm of Dimock, Gould & Co. is the oldest in continuous business in Moline. The senior member of the firm, J. M. Gould, with D. C. Dimock, recently deceased, began the manufacture of tubs and pails in 1852, in a frame building on what is now the Island of Rock Island—the site of the National Arsenal and Armory. During the last year the company had a force of 275 men, the most of them the year through. Although they cut 20,000,000 feet of lumber and 3,000,000 lath, this was by no means the extent of their business. In another department of their works they made 600,000 wooden pails, 120,000 tubs, and 120,000 washboards. Nor is this all. A third department is devoted to the manufacture of paper-pails, and of these 135,000 were made.

The Keator Lumber Company, like that of Dimock, Gould & Co., has been tried by fire as well as by time. Each has proved its strength, while their prosperity was never more marked than it is to-day. Mr. J. S. Keator is a pioneer in the felling of pine trees, the rafting of logs and their conversion into marketable lumber and building material. He has not only seen great changes in the business, but he has been at the front in making them. The Keator mill is now one of the most perfect in the northwest. During the past season it cut 22,500,000 feet of logs, 4,000,000 lath, and 3,000,000 shingles. In 1874 B. C. Keator became a partner, and since that time three other sons have become stockholders—S. J. Keator, F. W. Keator, and E. B. Keator. The paid up capital stock is \$200,000.00. In 1862, in 1870, and in 1883 the mill was burned, but after each fire, and before the smoke had blown away, a larger and better mill was begun. The present main building is 64 by 185 feet, corner posts 30 feet high. The cost was \$75,000.00. A band-saw just added makes the capacity of the Keator mill 30,000,000 feet annually. A planing-mill has lately been completed, at a cost of \$10,000.00. About twenty acres of ground are occupied by mills and yards. The employes number 175, and the last year's business amounts to \$500,000.00.

DEERE & MANSUR COMPANY.

Eleven years ago the corn-planter works of the Deere & Mansur Company were organized, and in the interval of little more than a decade they have taken their place by the side of the largest in the country. Employment is given to more than 150 men. The main building occupied is a slightly brick structure, four-stories, 180 by 60 feet, and supplied with the best machinery the ingenuity of man has devised. The corn-planter, while it is the implement to which attention is largely turned — no

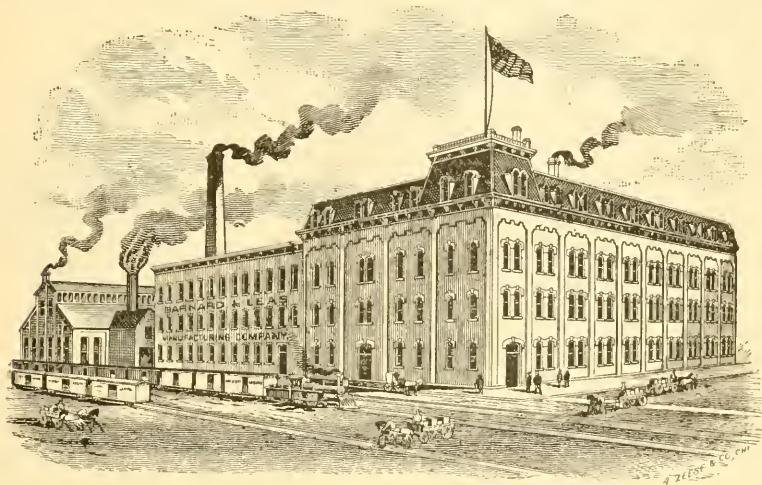


DEERE & MANSUR COMPANY'S CORN-PLANTER WORKS.

less than six kinds being made — is by no means the only implement manufactured by the company. Four lines of check-rows, three of stalk-cutters, three of seeders, four of sulky-rakes, with garden-cultivators and seeders, harrows, and drills, give an idea of the variety of demands which this house is able to supply. The history of western industries does not afford an instance showing where a new enterprise has found business at its command, from the day its implements were placed upon the market, comparable with this. The name "Moline" was worth a fortune to the corn-planter works from the beginning. It has equal value awaiting factories yet to locate here. The name means superiority of workmanship and design; it signifies merit, and is accepted as such everywhere.

BARNARD & LEAS MANUFACTURING COMPANY.

From an insignificant beginning in 1860, in a small two-story frame building, the Barnard & Leas Manufacturing Company has developed into the largest manufacturing house of its kind in the country. They have followed enlargements with additions until the shops now cover nearly a block and a half, and furnish about two acres of floor-room. On visiting these shops the stranger is suddenly convinced that he is inside a vast bee-hive of industry. Machine departments, foundries, paint-shops, and wood-working floors all unite to tell the story of well-directed energy. Two hundred employes, mostly skilled mechanics, have their places. At the start, only one machine was made—a smutter and separator. To-day the Barnard & Leas Manufacturing Company are prepared to furnish throughout the largest flouring-mill



THE BARNARD & LEAS MANUFACTURING COMPANY'S SHOPS.

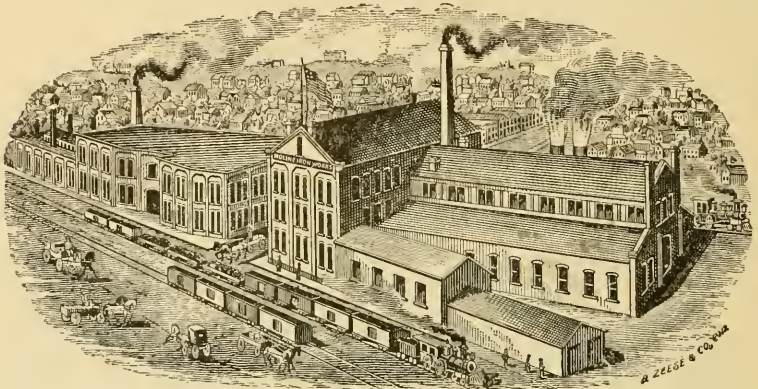
with their famous separators, smutters, scourers, corn-shellers, cleaners, packers, purifiers, reels, and rollers. Mr. Barnard is the inventor of several of these machines—the best of their kind—and they are made exclusively by his firm. As one item of the past year's business, it may be said that this house has built and equipped over one hundred flouring mills and elevators. Their agents in London, England, Rio Janeiro, South America, and other foreign countries annually call for carloads of their machines. The business of 1887 amounted to nearly half a million dollars.

MOLINE PIPE-ORGAN COMPANY.

The observing reader has by this time noted that Moline's industries are not confined to one line. The Moline Pipe-Organ Company, of which Lancashire & Turner are the proprietors, was started in 1871, incorporated in 1879, and during that time the instruments which they make have received the endorsement of the best-known organists. Instruments ranging in price from \$500.00 to \$20,000.00 have been built; among many others, for the following churches and societies: Sinai Synagogue, St. Andrew's, St. Paul's, Armonr's Mission, Swedenborgian Temple, Western Ave. M. E. Church, Chicago; St. Paul's Episcopal Church, Evansville, Ind.; Grand Ave. and Dundee M. E. Churches, Kansas City; First Congregational Church, St. Louis; Swedish College, Lindsborg, Kas.; the Congregational Church, Des Moines, Iowa; the M. E. Church, Muskegon, Mich.; Congregational Church, Michigan City, Ind.; Presbyterian Church, South Bend, Ind.; the M. E. Church, Greenville, Penn.; Congregational Church, Fergus Falls, Minn.; Catholic Cathedral, St. Cloud, Minn.; Presbyterian Church, Burlington, Iowa; Swedish Lutheran College, St. Peters, Minn.

THE MOLINE IRON WORKS.

Alfred Williams founded what is now the great iron works of Williams, White & Company, in 1854, and he has been a witness of the steady growth of what was one of Moline's earliest enterprises until now it is one of the largest. The large buildings, shown by the illustration, are arranged for the special work of the company, and are supplied with the most complete machinery. The officers and principal owners are: Alfred Williams, President; M. H. White, Vice-President, and H. A. Ainsworth, Secretary and Treasurer. About two and one-half acres of ground are occupied by the shops. The foundry is 114 by 60 feet; pattern-shop, 120 by 40 feet, three stories; the machine and other departments are of similar proportions. One



THE MOLINE IRON WORKS.

hundred mechanics and moulders find constant work. A specialty is made — though all kinds of work is done — of power-hammers, drop-presses, and the "bulldozer," a machine for forging by pressure. The "bulldozer" has been made to order for such establishments as the Pullman Car-Shops, at Pullman, near Chicago; the Illinois Central; Chicago, Burlington & Quincy, and other railroads; the Cooke Locomotive Works; for shipbuilders, and other heavy workers in iron and steel.

MOLINE SCALE COMPANY.

Moline scales weigh the grain and the live stock of the northwest. The Victor Scale Works continued business here from 1868 to 1877, when Major Josiah Grout bought the plant, enlarged the business, and changed the title-word to "Moline." From that time the growing capacity of the shops has nearly always been behind orders. Railroad track scales, all kinds of wagon scales, stock and hay scales, and a variety of portable and dormant scales are manufactured.

MALLEABLE IRON WORKS.

There are two of these establishments, both very extensive — among the largest of their kind in the west. The Union Malleable Iron Company and the Moline Malleable Iron Works together have a capital invested of \$200,000.00. They give employment to 325 hands, and pay yearly in wages \$160,000.00. The aggregate of sales for 1887 reaches \$400,000.00. Over 6,000 tons of malleable iron castings have been made in the past twelve months, and it is used all over the northwest, though the Moline manufacturers consume the greater portion of the product. This business has grown to its present proportions since 1870.

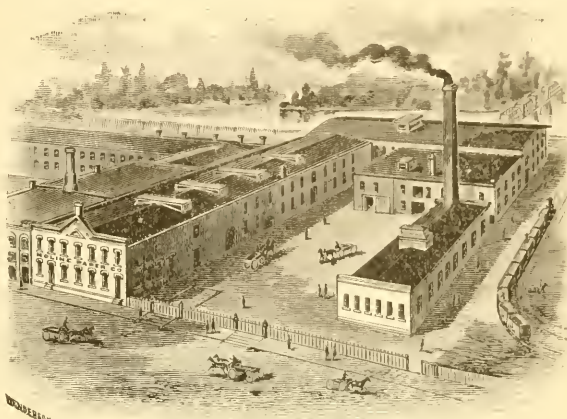
BOILER WORKS.

There are two important boiler shops in Moline, those of Thomas Trumble and M. Schillinger. Moline boilers, as well as Moline engines, are favorably known at home and abroad.

MOLINE PAPER COMPANY.

Moline paper finds its way not only into every state and territory of the union, but into the home of nearly every family composing the more than 60,000,000 people.

For its paper-mill, as for other of its most successful enterprises, Moline is indebted to S. W. Wheelock, a man of large and varied business experience and tact; one who has had from the first firm confidence in the city's future, and one who has spent his best power and money in developing its manufacturing interests and resources. Mr. Wheelock came to Moline in May, 1851, and bought the present site of the paper-mill. A one-story frame building, 30 by 75 feet, answered for the inception. Two



MOLINE PAPER COMPANY'S MILLS.

forces of men are employed, and the nature of the process requires the mills to be run the year around. Such newspapers as the Chicago Tribune, Inter-Ocean, Staats Zeitung, the St. Louis dailies, and scores of journals in cities of the second class, like Peoria, Quincy, Dubuque, Des Moines, and Burlington, get their supplies of paper here. During 1887 over 2,000 tons of print and wrapping-paper were manufactured. The capital invested is nearly \$100,000.00. Sixty employes are engaged.

MOLINE BUGGY COMPANY.

This enterprise is one of the comparatively new industries, yet it is one that has made a high mark. It occupies buildings adapted to its objects, and during 1887 kept fifty mechanics busy. All kinds of buggies, spring wagons, phaetons, road-carts, and buck-boards are manufactured, the number for the past season being over 1,500.

PRINTING-HOUSES.

The Porter Printing Company is unexcelled in the east or west in its reputation for fine printing. Moline products may be correctly judged by the character of their advertising, which is always all that art and skill can produce, backed by uncramped facilities. J. H. Porter is the head of this house.

The Plowman Publishing Company of Warr & Kuhn does a very large business in the way of class-papers and publications.

UNION MANUFACTURING COMPANY.

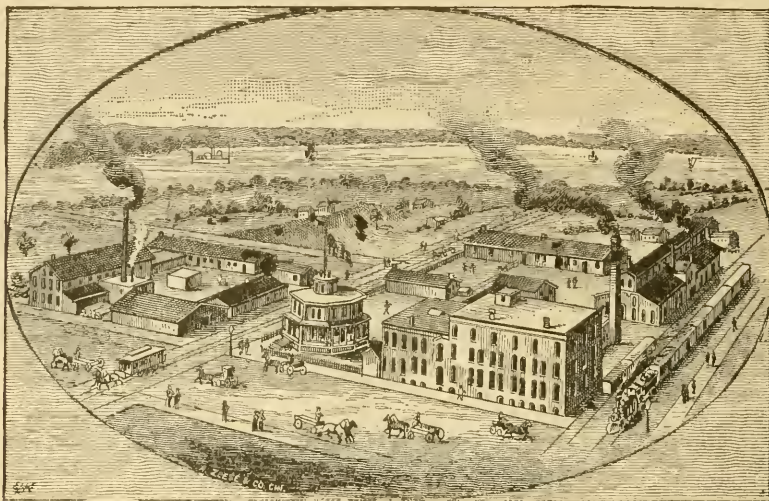
This is a new company, or rather an old one which has been drawn to Moline from Iowa City, Iowa, by the superior business inducements offered here. It manufactures the "New Method" combined hot water and air furnace.

OTHER ENTERPRISES.

This book does not profess to notice in detail all the industrial enterprises of Moline, but it aims to present those which show the variety and the extent of the business. Among the remaining industries are the following: The Moline Elevator Works; several wagon shops; a brass foundry; four large brick-yards; four cigar manufactories; two furniture factories; the Moline Cabinet-Organ Company; L. H. Barker's pump works; the Moline Screw Company; the Moline Stove Company.

MOLINE PUMPS.

Plows, planters, and pails by the ten thousand, paper by the thousand tons, so there are pumps almost without number. The Moline Pump Company, whose extensive works are shown by the illustration, has made for itself and its goods a wide and enviable reputation. It has been expanding since 1866, when the senior member of the company began manufacturing pumps on the island. The first year's work



MOLINE PUMP COMPANY'S FACTORY.

amounted to 1,100 pumps; the second, 2,000; the fourth, 5,000; the seventh, 15,000, and the increase has been in that ratio ever since. In 1887 the company gave employment to seventy-five hands.

The Moline Pump Works, of the Huntoon Brothers, is a growing institution, and demonstrates that Moline is becoming a pump as well as a plow center. It is a much younger institution.

BANKS, POST-OFFICE, ETC.

FINANCIAL INSTITUTIONS.

First National Bank.—This institution was organized November 16th, 1863, and began business on the following 22d day of December. Its officers are: J. M. Gould, President; J. T. Browning, Vice-President; J. S. Gillmore, Cashier. It has a capital of \$150,000.00, and a surplus of \$30,000.00. At the time of its last statement its resources were \$638,129.99.

Moline National Bank.—This bank began business April 1st, 1872, as the successor of the Manufacturers Bank. Its officers are: S. W. Wheelock, President; Porter Skinner, Vice-President; Charles F. Hemenway, Cashier. It has a capital of \$100,000.00, and a surplus of \$20,000.00. At the time of its last statement its resources were \$255,463.48.

Moline Savings Bank.—This is the only chartered savings bank in Rock Island county. Its officers are: S. W. Wheelock, President; Porter Skinner, Vice-President; Charles F. Hemenway, Cashier. It has over 1,200 depositors, and more than \$280,000.00 in deposits. That this number of workingmen should have savings-bank accounts is good evidence of their frugality and thrift.

THE POST-OFFICE.

The accompanying cut shows that the Moline post-office occupies for its home one of the handsomest buildings of any post-office in the United States. The block was built with the special view of meeting the wants of the postal-service. It is a three-story stone structure, in the very center of the city. The income from this office during the year 1887 was over \$17,000.00. The domestic money-order business increase



MOLINE POST-OFFICE BUILDING.

during the year was a little over twenty-five per cent, and during the same time the international money-order business increased a little over thirty-three and one-third per cent. Moline, like all first-class cities, has the free-delivery service, which, with the general service, is very efficient. D. W. Gould is Postmaster.

BUILDING, SAVINGS, AND LOAN ASSOCIATION.

Another evidence of the prosperity of the laboring classes of this city is found in the number of patrons of the Moline Building, Savings, and Loan Association. The current series of stock is the thirtieth, and the total number of \$100.00 shares issued is 1,802. The gain on the first series has been \$22.47, equal to an interest of thirteen per cent per year from the date of the organization, in June, 1880. The rate of gain in 1887 was considerably above the average — seventeen and one-half per cent, against ten and one-half per cent in 1886. The assets amount to \$76,338.23, of which \$64,977.00 is in real estate loans, and the rest in cash, notes, and interest. The fact that the association has not had a single foreclosure since it was organized is evidence of the good judgment that has marked the business management. The officers for 1888 are: P. C. Simmon, President; E. E. Wheelock, Vice-President; J. W. Warr, Secretary; W. W. Bearby, Treasurer; W. J. Entrikin, Attorney. Auditing Committee: L. B. Kuhn, W. S. Mack, C. E. Kneberg. The Secretary in his last report says: "I feel proud of the association's healthy growth, and of the fact that no questionable methods of business have stained its record. I am glad that the policy of the Board of Directors has been to make it the friend of deserving men, rather than as a means of showing great gains at the expense of those who are struggling to make better men of themselves and better citizens of the community, by becoming owners of homes."

THE BUILDING RECORD.

A SPLENDID SHOWING.

The building season has not been "boomed," yet a quarter of a million dollars has been expended on new factories, additions to old ones, and in more than a hundred neat homes for workingmen. Moline, always progressive, has never gone forward with such a rush that backward steps had to be taken.

THE GRANT SCHOOL.

This is one of the handsomest, and at the same time one of the best-arranged, school structures in Illinois. It was built during the year 1887 at a cost of \$25,000.00. In the basement are a boys' and a girls' room, and two corresponding rooms for other purposes around the ample corridor. The first floor has four class-rooms, each 26 by 26 feet, with two cloak-rooms out of each. The second floor has the Superintendent's office in addition. Important changes have been made in the interior of the high school building during the past season. (See illustration of Grant school building on page 104).

B. C. KEATOR'S RESIDENCE.

This occupies one of the most commanding sites on the central bluffs, and overlooks not only all of Moline and part of Rock Island, but affords a grand stretch of up-river view and the city of Davenport, across the Mississippi river. Its cost is \$12,000.00.

NEW PLANING-MILL.

As mentioned in the notice of the Keator Lumber Company, this firm has added a brick planing-mill, 60 by 130 feet in size, at an expense of \$10,000.00.

FACTORY EXTENSIONS.

The Moline Plow Company has erected a three-story brick, 30 by 48 feet, and a second addition, also three-stories, 64 by 87 feet.

ELECTRIC LIGHT PLANT.

The Merchants Electric Light Company, spoken of more in detail elsewhere, have put up a building which, with general plant, cost \$20,000.00.

BUSINESS BLOCKS.

Several new business blocks have helped to supply the demand for more room. Among them are the Chase block on Fifteenth street, and the fine three-story stone building on Sixteenth street by Swensson & Bortner.

OTHER BUILDINGS.

The Baptist Church Society has just erected one of the handsomest temples of worship in the state. J. E. Poole is building a \$3,000.00 residence on Fifth Avenue. And in the way of dwellings, not less than one hundred, costing from \$2,000.00 downward, have been erected.

MOLINE BUSINESS ASSOCIATION.

THE OBJECTS AND OFFICERS.

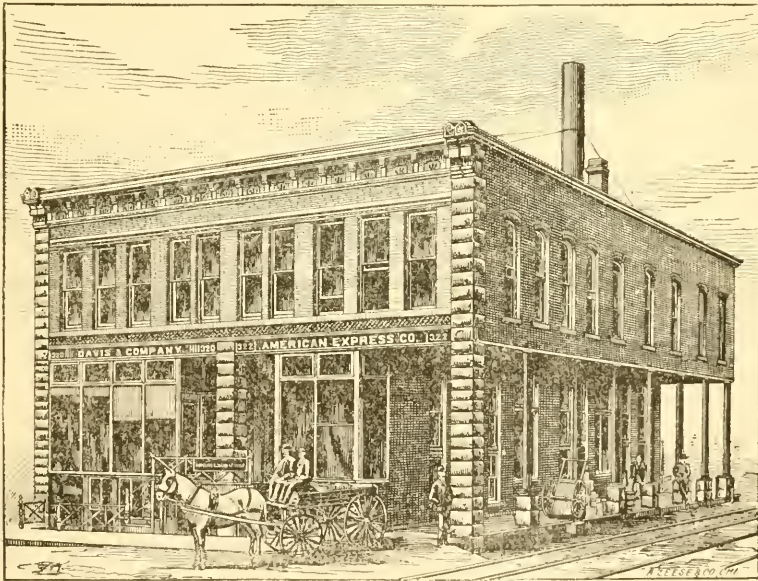
Organized action is well-directed, harmonious action. The various interests of Moline unite in working together to promote the common good through the Business Association. It has a large and representative membership, and permanent quarters at 305 Sixteenth street. The officers are: Charles H. Deere, President; William C. Bennett, First Vice-President; Eugene Lewis, Second Vice-President; L. E. Fish,

Secretary; J. W. Atkinson, Corresponding Secretary; G. H. Sohrbeck, Treasurer. The Board of Directors is composed of C. H. Deere, J. S. Gillmore, J. W. Atkinson, C. F. Grantz, William C. Bennett, R. A. Smith, Eugene Lewis, G. H. Sohrbeck, and Gustaf Swensson. The association is at all times, and in all ways, ready to help any project the object of which is to advance Moline's material and general interests. New manufacturing enterprises about to engage in business, and those already established desirous of changing their locations, will be enlightened, and perhaps benefited, by opening correspondence with the Moline Business Association. Plans for river improvement, questions of transportation, and all others affecting the city's business, are given careful consideration. Any desired information about the city, its advantages, factories, schools, and prospects, will be furnished.

LIGHT AND HEAT.

AN IMPORTANT IMPROVEMENT.

The Peoples Light and Fuel Manufacturing Company is a corporation of which Moline, as a city, and its patrons have no right to grumble. Its proprietors are energetic citizens, who have exhibited their faith in the city by their works many times. Davis & Company, who form the controlling spirit, are a firm of which a



DAVIS & COMPANY'S OFFICE BUILDING.

larger place might well be proud. It was they who, in 1883, built, as a private enterprise, the complete water-works which the city now owns, and operated the same nearly three years, proving completely the capacity of the works for actual service, and at the same time their ability, as engineers. The Peoples Light and Fuel Company own the lighting facilities of the city, and since the gas plant was placed in their hands they have largely improved the output of gas. The price ranges from twenty to forty per cent cheaper than in other cities of Moline's size. The

progressive spirit of these gentlemen caused the erection, during the past season, of the plant of the Merchants Electric Light Company in the western part of the city — a location specially favorable, for two reasons: It enables the company to avail themselves of the excellent water-power, and to occupy a central position from which they can furnish electric light to the cities of Rock Island and Moline, the heart of either not being two miles distant in a direct line. This it is proposed to do: To utilize the great water-power of the Mississippi river by applying it to the generation of electricity for the complete lighting of the three cities. The main building to serve this purpose is 40 by 76 feet. It has a boiler and pump-room 37 by 52 feet. The company have the exclusive use of the water-power for this purpose, using six wheels, which will furnish 600 horse-power of water. This power, in case of accident, is reinforced by two steam engines and a battery of four boilers, capable of generating an additional 400 horse-power when wanted. The plant is thoroughly equipped with electrical appliances — dynamos. The company is prepared not only to supply light and heat, but it is ready to negotiate for electric motors in all parts of Davenport, Rock Island, and Moline, for all uses. Moline's sources of light, in addition to the gas works, consist of 100 arc and 200 incandescent lights. The improvements described approximate an outlay of \$20,000.00.

OTHER INSTITUTIONS.

THE MOLINE PRESS.

Moline has two daily papers and two weeklies. The Evening Dispatch, now in its tenth year, represents the daily Chimes, which it absorbed a year ago, and in its weekly issue the Review, with which it was consolidated some seven years since. The Moline Evening Dispatch is a seven-column folio sheet which is a credit to the city and loyal to its every interest. P. S. McGlynn is Editor, and J. K. Groom Business Manager. The Dispatch is republican in politics.

The Moline Republican issues evening, Sunday morning, and weekly editions. The paper is now in its sixth year. It is a seven-column, vigorous, well-edited journal that is jealous of Moline's good name, and its earnest advocate. It is published by the Republican Company. Ezra Eastman is Manager.

The Western Plowman, which has lately lengthened its name and enlarged its usefulness by joining the South and West to its force, is a monthly agricultural journal of thirty-two pages. That it is the best of its class is proved by its large circulation — now more than 30,000 and rapidly growing — among the most progressive farmers of the west. It is meritorious and original on every page; thoroughly practical, and what is not common among agricultural papers, it is always readable and suggestive. It has an intelligent and appreciative constituency. J. W. Warr is Editor, and L. B. Kuhn Business Manager. From the Plowman office several educational publications are issued.

FREE PUBLIC LIBRARY.

The Moline public library was started in 1872 by a public subscription of \$5,576.00, and opened June 6th, 1873. It occupies permanent and commodious rooms in a fine brick building donated forever for library uses by Hon. S. W. Wheelock and wife. It contains nearly 8,000 volumes of the best books, besides most of the current newspapers and periodicals. It is a growing monument attesting the intelligence of the people of the City of Mills. The annual revenue for the maintenance of the library is derived from municipal tax, rents, and subscriptions. The institution is freely patronized, the yearly circulation of books being about 20,000, and the average monthly attendance over 2,000.

CHURCHES.

Moline has ten church buildings, some of them being costly structures. The denominations are represented by two Baptist houses, one Congregational, one Catholic, two Lutheran, three Methodist, and one Unitarian.

SOCIETIES, ETC.

The Young Men's Christian Association is a live organization, which is doing much good. During the past winter an excellent course of lectures has been given under its auspices. The Associated Charities is another moral agency which has contributed largely to the help of the distressed. The various orders and fraternities, as the Masons, Ancient Order United Workmen, Modern Woodmen, Good Templars, Druids, Odd Fellows, the Grand Army of the Republic, and the Illinois National Guard, are all strongly represented.

STREET-CARS.

There are three street-car lines, two of which run the length of the city east and west, and one from the river to and over the bluffs. The street-car system is complete, not only for Moline, but in connection with the Rock Island and Milan lines.

THE KEATOR HOUSE.

The leading hotel of Moline is the Keator House. It is a four-story brick 100 by 125 feet, in the center of the city, having accommodations for 150 guests. The service is first-class, and the appointments and table altogether creditable. Col. J. B. Snyder, the landlord, is now in his third year of increasing business.

OPERA HOUSE.

Wagner's opera house was opened in 1882. It is a complete theatre, seating 900 persons; it has opera-chairs, and is well supplied with scenery. The best dramatic, musical, and literary attractions regularly visit Moline.

THE LATERAL CANAL.

THE ROCK ISLAND RAPIDS.

The series of rapids of the Mississippi river, extending from a point near the foot of the Island of Rock Island just above the government bridge to Davenport, to Le Claire, Iowa, and Rapids City, Ill., a distance of over fourteen miles are called the Rock Island rapids. This stretch of river—since the completion of the lateral canal, about nine miles in length, at Keokuk, by which the Des Moines rapids are avoided during low stages of water—remains the most troublesome between St. Paul and St. Louis.

A PLAN OF IMPROVEMENT.

To overcome the difficulties of the upper or Rock Island rapids, the engineers adopted a different plan. Here the river falls 20 239-1,000 feet in about fourteen miles. These rapids at low water consisted of a succession of pools of various depths, encased in a hard limestone rock, connected by narrow, crooked channels worn down into the rocky bed, with a depth, in most cases, of several feet, while the bed of the main river at low water was almost uncovered. The plan of connecting these pools by widening and straightening the tortuous channels was decided upon, and some \$1,300,000.00 has been expended within the past twenty years for this purpose, with the result to give a continuous channel, having a width of 200 feet in its narrowest parts, and a depth of nearly or quite four feet at low water. Of necessity this channel is far from straight, and the current remains in places swift and dangerous. This renders their passage at low water very difficult, and also expensive, as additional insurance is demanded on account of the hazard to loaded steamers, beside special pilotage.

A LATER PLAN.

A full and interesting statement of what it is sought to accomplish for the river interest by the proposed lateral canal has been made by Eugene Lewis, Esq., of Moline, who has given the subject much care and study. It is as follows:

"The engineer corps in charge of the river improvements have for some time past been striving for a continuous channel at low water, six feet in depth, from St. Paul to St. Louis, and have, as it is understood, substantially accomplished this from St. Paul to the mouth of the St. Croix, at Prescott, Wis., and will doubtless be able, within the next few years, to obtain a continuous channel, with from five to six feet, from St. Paul to St. Louis, except the stretch of fourteen and a half miles across the Rock Island rapids, if their efforts are seconded with the necessary appropriations. If a continuous channel can be secured, then better lines of steamers can be put on (the present steamers are fully as good as the business justifies), greater speed can be attained, regular time-tables adopted, and delays avoided. With such a channel, a better day will dawn for upper Mississippi navigation. The south is rapidly recovering from the impoverishing effects of the war. The great development which the south has had during the last decade has already brought wealth into the possession of many of her people, and more and more every succeeding year will they be found seeking summer homes in the north. The next twenty years will witness a wonderful transformation. From northern Iowa to St. Paul those beautiful hills will be crowned with villas and summer cottages. Around Lake Pepin will be clustered a large summer population, and the now silent shores of the upper river, scarcely showing more traces of civilization for many a long stretch of shore than when the red man was the sole occupant of this great valley, will swarm with a population fleeing from the fierce tropical summer of the lower river, thus calling for lines of swift steamers, stopping only at principal points, and lines of packets, stopping wherever they can pick up a passenger or a little freight. This passenger travel, with the business developed between the Crescent City and the great cities of the north and all the intermediate points by regular and prompt transmission and delivery of freight, will call for an enormously-increased river tonnage. Antedeluvian methods of handling freight and transacting business will be entirely discarded. As you descend the river from St. Paul to St. Louis you are confronted by one, and but one, serious obstacle to this deeper channel. At Le Claire, Iowa, you find the Rock Island rapids, abounding in rocky reefs, and an occasional interesting relic of the glacial age in the shape of a huge boulder, which, though lying outside of the narrow, swift channel, is liable at any time, by the action of high water or ice, to be rolled into it, and to result in the wreck of the ill-fated craft that first discovers it—by stranding upon it. Here, at low water, you find scarcely four feet of water, barely equivalent to three feet to a boat ascending the stream. To-day you find a steamer requiring a five-foot channel may be able, at some risk, to cross this fourteen-mile stretch. A few days later, by a fall in the river, she may find herself imprisoned above for months, perhaps, compelled to shift her passengers by some light craft fourteen miles below, to take there such a boat as they can find, and to transfer her freight in the same way. But why not cut a wider, straighter, and deeper channel, so as to give a depth of six feet the whole distance?

"An approximate estimate of the cost of doing this work, made by Maj. Mackenzie, of the United States Engineer Corps, stationed at Rock Island, Ill., and having charge of the improvement of the upper river, in response to a resolution of congress, fixed the cost at \$3,491,000.00. It is not understood that this estimate was made from actual surveys made for the purpose, but that it was based upon the best obtainable data in the office at that time, and may be very far inside the actual cost.

"Nor is it to be presumed that any engineer will say that you can get six feet of water across the rapids for the whole fourteen and a half miles, with a channel 400 feet wide, by an expenditure of \$4,000,000.00. Besides, a straight, smooth channel 400 feet wide, and with a depth of six feet at shallowest points, fourteen miles long, having a fall of over twenty feet in the fourteen miles, would seem much better fitted for a mill-race than a steamboat channel. And yet will not all cutting hereafter be in the direction of a straighter, smoother channel than the present, with greater velocity of current? And where your quantity of water is limited, great velocity means shallower water. In fact, so many undetermined elements enter into the computation that we can well believe that no engineer who has a reputation would be willing to risk it by predicting, with any claim of precision, the effect upon the depth of the channel over the Rock Island rapids that would follow the expenditure of a given number of millions in widening, deepening, and straightening the present channel. Why not attempt a canal as at Keokuk?

"The engineer corps made an examination with that view twenty years ago, but found that to cut a canal, or construct one by building into the river so as to be able to obtain six feet of water at low water, would entail such an enormous expense that they abandoned the idea as impracticable. Thus the matter rested until the Hennepin Canal surveys and levels of 1885 were made.

"An examination of the surveys and levels of what is termed the Watertown route of the Hennepin Canal, via Penny's slough, disclosed the fact that the level of the proposed canal at Watertown, four miles above Moline, Ill., was nearly twenty feet above the low-water level of the Mississippi at the foot of Campbell's island, just below Watertown. This fact suggested a com-

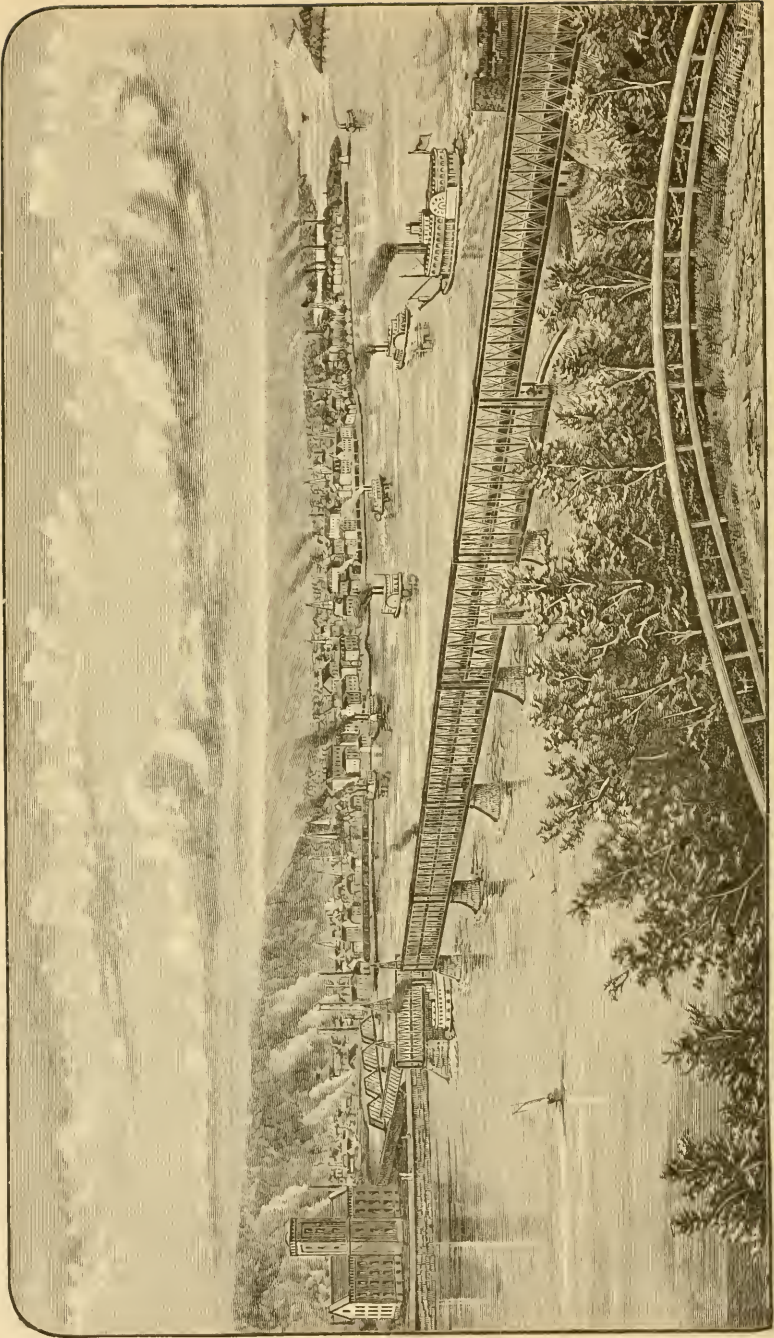
parison of the level of the canal with the surface of the Mississippi at the head of the Rock Island rapids opposite Le Claire, and between Rapids City and Port Byron, Ill., from which it was found that this level of the canal was nearly twelve feet higher. This fact suggested the feeding of a lateral canal from Rock Island by building a canal like the proposed Hennepin Canal from Rock river below Penny's slough to the lateral canal at Watertown. It was found upon examination of the estimates of the Hennepin canal that the cost of such a feeder would be, in round numbers, \$468,000. By the use of this feeder it was believed that a lateral canal could be built largely on the surface, thus avoiding the enormous expense of rock-cutting required to sink the canal 11 8-10 feet for almost the entire distance of ten and a half miles, from Rapids City to the government water-power pool at Moline. The matter was brought before the Moline Business Association, and after careful consideration, believing that the importance of the matter would justify them in undertaking to have a preliminary survey made of the line from Rapids City to Moline, they employed Mr. G. A. Marr, a civil engineer, who has for a long time been employed by Maj. Mackenzie, of the Engineer Corps, U. S. A., on the improvement of the upper Mississippi, and was employed in the fall of 1886 by the Board of Engineers of the United States of America to examine the Portage Lake and Lake Superior ship canal, with a view of determining whether the United States should purchase the canal, to take charge of the work, with H. G. Paddock, a civil engineer of experience, and other assistants. The survey was begun the last of September, 1887, and the estimates and maps are now completed, at an expense to the association of about \$900.00. The estimates have been made for a canal seven feet in depth, and of an average width of about 200 feet, and with locks of sufficient capacity for the largest steamboats running on the upper river, viz.: 350 feet long, 80 feet wide, and 7 feet above the mitre sills. The line from Rapids City to Moline, ten and a half miles, was found an unusually favorable one, both for the construction and maintenance of a canal.

"There are three locks in the main line of the canal, one at Rapids City, the head of the rapids, which is both a guard and lift-lock. When the river is over 11 8-10 feet above extreme low water, the canal would be fed entirely from the Mississippi; when below 4 8-10 feet, it must be fed entirely from Rock river.

"The second lock is at the entrance of the canal into the Mississippi at Moline; thence the line is down the government water-power pool, which supplies water-power for the great Rock Island Arsenal, and thence about 2,500 yards along the south shore of Rock Island to the lower or west end thereof, where it descends into the deep water of the Mississippi, between the cities of Rock Island, Ill., and Davenport, Iowa, by the third lock. The estimates are as follows:

| | |
|---|----------------|
| For three locks | \$1,335,000 00 |
| Constructing canal from Rapids City to Moline, ten and a half miles,..... | 671,701 10 |
| Constructing canal from Moline to Rock Island, three miles | 364,475 50 |
| Feeder, twelve miles, Rock river to Watertown..... | 426,395 27 |
| | <hr/> |
| Total..... | \$2,797,571 87 |
| To this add ten per cent for contingencies..... | 279,757 19 |
| | <hr/> |
| Total..... | \$3,077,329 06 |

"This would give a perfectly secure method of passing the rapids by night or day, with between six and seven feet of slack water—sufficient for the largest craft that ever passes Cairo, Ill. A trifling sum compared with amounts already expended on the improvement of this great natural water-way, which with its main channel alone almost bisects our national domain. Can the residents of this great valley allow the navigation of this, one of the great inland water-ways of the world, to be so greatly impeded by this break of fourteen miles, cutting in twain the navigation of the upper Mississippi? Is there a town or hamlet upon the line of this great river or its navigable tributaries that will not favor this enterprise? Is there one that can afford to sit by and not lend its aid in securing this great and much-needed improvement?"



CITY OF ROCK ISLAND — VIEWED FROM THE NORTHEAST.

ROCK ISLAND.

THE CITY'S NAME.

KNOWN EVERYWHERE.



ROCK ISLAND! The name is known everywhere. No city in Illinois, Chicago alone excepted, is so well advertised. It has become famed for its beautiful location, for its business, and for its diversified attractions. It is not a city which has been built in a day to die in a night. It has existed long enough to prove that its foundations do not rest upon sand. And yet it is not old enough to retire from the race of competing cities up and down the Mississippi Valley, and between the lakes and the western mountains. Rock Island is in the early prime of a vigorous life, as life is measured in the new, now developing, central west. It is not located in one corner of the continent, but in the center, and what always must be the center of population. The blizzard of the north does not paralyze its energies in the winter, nor the heat of the south enervate its activities in the summer. It knows nothing of the arid drouth that parches the western plains and spreads famine over the adventurous settler, nor is it subject to the industrial troubles and the financial panics of the over-crowded east. Resting on the banks of the greatest of rivers, and in the richest region of what a famous traveler has called "the most magnificent dwelling-place prepared by God for man's abode," it has advantages beyond rival cities, and is destined, by virtue of these superiorities, to be a prosperous commercial and manufacturing center when the mushroom-towns now boasting of their spongy importance have passed into inevitable decay.

"Rock Island!" The name designates the fairest island in the greatest river in America. More strangers are drawn to it during any given year than to any other single attraction in the state. Here the government has located not only its largest manufacturing arsenal, but what is designed to be the most comprehensive and valuable plant of the kind in the world. In time of war this arsenal will afford work to 20,000 men, and arm and equip 750,000 soldiers.

"Rock Island!" The name is used to distinguish one of the longest and oldest of western railroads. The Rock Island Route connects the cities of Chicago, St. Paul, Omaha, Kansas City, Wichita, and will soon furnish a continuous rail from Lake Michigan to the Gulf of Mexico and the Pacific Ocean. It is also borne by other railroads, which carry it far and wide.

"Rock Island!" The name marks a county which has an annual coal-producing capacity of more than half a million tons—which is a veritable coal-bed throughout its length and breadth. Rock Island county is one of the most populous in the entire west, and one of the richest.

"Rock Island!" It is a trade-mark which is stamped upon plows and agricultural implements; upon glass and stoves; upon lumber and its manufactured products; upon soaps and scissors; upon saws and steamboats, and a hundred other articles of trade, and gives them a commercial value of the highest importance.

It is to this widely-known city that attention is invited, while some of its more salient resources and advantages are presented for the careful investigation of investors, manufacturers, and business men generally. It is a solid city, without the glare and glitter of newer towns puffed up by a little brief notoriety. It will bear examination, and the most rigid inquiry.

GENERAL FEATURES.

LOCATION.

A glance at any map will settle the question of geography. Beginning at St. Louis, and following the Mississippi river northward for 729 miles, there is no equal to the circle, whose diameter is six miles, and which has Rock Island for its center. At this point the river is divided by two of the largest islands to be found in its entire length. One of these is opposite the upper or eastern part of the city, and takes the name of the city itself. The other is just below the western or lower limits of the city, and is known as Offerman's or Credit Island. It is the picnic-grounds of hundreds of excursionists, and one of the several pleasure resorts which the resident has to choose from. The distance by river to St. Louis is 332 miles; to St. Paul 397 miles. By the shortest railroad line the distance to Chicago is 168 miles; but by the line most frequently traveled, 181 miles. Milwaukee is 197 miles away; Kansas City 339 miles; Omaha 316 miles. Three miles below Rock Island, after turning the wheels of flour and paper-mills, and affording a valuable, though as yet but partially developed, water-power, the winding and beautiful Rock river loses itself in the Mississippi. South of the level plain upon which the city rests the scene is broken by wooded bluffs, affording many a sloping lawn. Southwesterly, and following the line of bluffs, are many slightly residences, and building opportunities for more, which for eligibility and scenery are beyond duplication along the river.

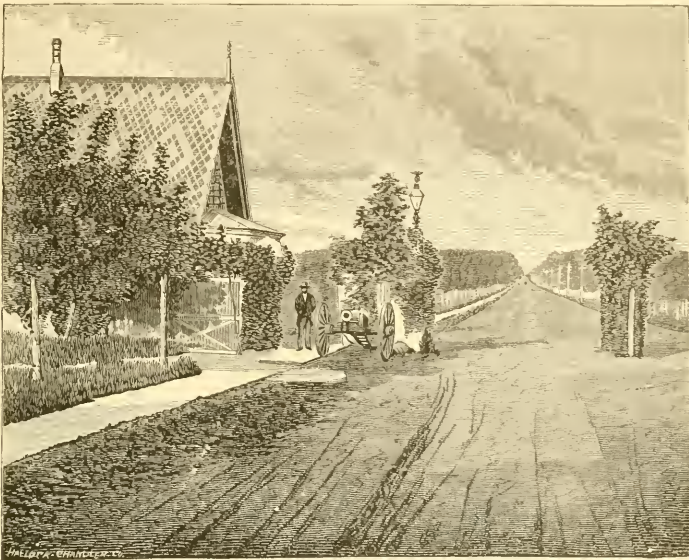
A TRAVELER'S VIEWS.

Captain Willard Glazier, the author of seven books of travel; one who has visited every American city of any note; who has made a horseback-ride from the Atlantic Ocean to the Pacific, and who five years ago paddled his canoe from the source of the Mississippi river to the sea, stopping at every point of interest, is a competent judge and a disinterested witness. He writes, pages 265-268, "Down the Great River:"

"The city of Rock Island is situated on the main-land at the extremity of Rock Island Arsenal, on the Illinois or left bank of the river. On its southern side are some very picturesque bluffs, stretching away to the sheltered valley of the Rock river, and including scenery of unrivalled beauty. Comfortable residences dot the sides of these hills, amid clumps of trees and miniature forests that afford shelter and shade to the well-to-do residents. Rock Island is about midway between St. Louis and St. Paul, and immediately opposite the city of Davenport, Iowa. It is connected with the latter city by an elegant and substantial iron bridge, owned by the government, and open to the public free of toll. The famous water-power produced by the upper rapids has contributed largely to the marvelous growth of this city as well as of Moline, the city of factories, within an easy walk or horse-car ride of Rock Island city. Here is to be the terminus of the projected Hennepin canal, by which it is proposed to solve the problem of cheap transportation between the Atlantic Ocean and the Mississippi, through the intervening great lakes. Recently a deep interest has been manifested in the construction of this canal, the accomplishment of which will doubtless be of vast benefit to the people of the northwest, as well as to the public generally.

"In Rock Island city we found numerous flourishing establishments for the manufacture of plows, cultivators, and other agricultural appliances; of wagons and carriages, together with foundries and machine-shops. At night the streets are brilliant with the Brush electric lights; the sidewalks are well paved and clean. Rock Island has a well organized police force; a fire department, water-works, street-cars, and a flourishing public library, a free-postal delivery, churches, public schools, and a commerce and trade second to no city of its size in the union. In the interest of the growth of a city the transportation problem is perhaps the most important question for the consideration of the citizens, and Rock Island is very favorably situated in this respect, owing to her position as the center of a system of railroads. Several lines pass through here, and give the city a busy aspect at all times. It is on the line of the great transcontinental highway. The Chicago, Rock Island & Pacific railroad passing through Rock Island connects the eastern trunk lines with the Union Pacific at Omaha; and here also are depots of the Chicago, Milwaukee &

St. Paul; the Chicago, Burlington & Quincy; the Rock Island & Peoria, and the Rock Island & Mercer County railroads. The population of this enterprising city is at present about 16,000. The private residences have a neat and thrifty appearance, while many afford evidence of the wealth and taste of their owners. The shrubbery



ROCK ISLAND ENTRANCE TO ARSENAL.

and flowers which cluster about the doorways of even the humblest residences are indications of the comfort and thriving condition of the tenants.”

A CONVENTION CITY.

The facilities of travel by both river and rail, combined with the hospitality of the citizens, the natural attractions, and the many objects of interest, make Rock Island a popular place for holding conventions of all kinds. The annual reunion of the Army of the Tennessee, lately held here, evidenced the fact that Detroit, St. Louis, Cincinnati, and Chicago, older and larger cities, lose in favor when comparisons are made. For state meetings Rock Island is the favorite from one end of Illinois to the other. Travelers across the continent and tourists up and down the river are certain to make a halt here, and to be well rewarded for their pains.

MANUFACTURING ADVANTAGES.

THE CENTRAL LOCATION.

For several years to come Rock Island must be very near the heart of the nation. It must remain the center of a great producing region and of a consuming people. Describing a circle with this locality as a center, with a radius of 330 miles, what territory does it embrace, and what is its wealth? The circle will cut eight states; pass through Cairo, at the mouth of the Ohio river, embrace St. Louis, Indianapolis, Milwaukee, St. Paul, Minneapolis, Omaha, Kansas City, Chicago, and scores of

smaller but still very important cities. It has a population of more than 12,000,000, or one-fifth the population of the United States and territories. In soils it is the richest in the world. In farm products it offers almost every variety of the temperate zone. In timber lands it is marvellously rich. In minerals inexhaustible quantities of coal, iron, copper, lead, and zinc exist. What a field for the manufacturer! All this vast population must be clothed and supplied with the implements of industry. What harvests of wealth will be realized in supplying this great and growing want, augmented as it will be by the progress of civilization and the demands of luxury. The farms of Illinois and Iowa cannot be transferred to New England or to the south, but the cotton-mills of the one section, and the cotton of the other, may and must be brought to this region, where the manufacturer will be better paid, the cost of living diminished, and the fabricated goods cheapened.

AN ARGUMENT ILLUSTRATED.

To illustrate the tendencies of manufacturers, and of what has been said, let us take the case of manufactured cotton goods, and see if we may not even be sanguine enough to hope to have this great King Cotton among us some day. Starting at Memphis, one of the largest cotton-markets, cotton is now taken by river to New Orleans, thence by vessel to New York, then to Boston, then to Lowell. At New Orleans it passes through the hands of two or three middle-men, and the same in New York. Besides the commissions of these middle-men, the wastage from sampling (it might sometimes be dignified with the name of stealing) is considerable. We then haul bread and meat from Illinois and Iowa to Lowell to feed the operatives. They manufacture the cotton into goods, and again it starts on its perilous journey amongst the middle-men through Boston, New York, Chicago, to Rock Island. The average number of middle-men who have taken toll from the much-picked cotton between Memphis and Chicago is no less than seventeen. When we add the percentages and profits of all these gentlemen to the cost of this long, tortuous journey, and freight on the bread and meat, it foots up quite a respectable bill of *extras*. Now, in comparison with this, let us estimate the saving of bringing this cotton direct from Memphis to this point, without middle-men, and selling it direct from the boat into the warehouse of a mill, where it finds a water-power and cheap food for the operatives who are to spin it. When made up, it need go no further than Chicago to be sold; and though sold in Chicago, it can remain in the mill warehouse till shipped westward. With all these advantages, in these times of sharp competition, is it unreasonable or audacious to expect that cotton and many other manufactories, if once started, might come here and demand a water-power? If they get it, they will succeed, as others here have already done.

A DEMONSTRATION.

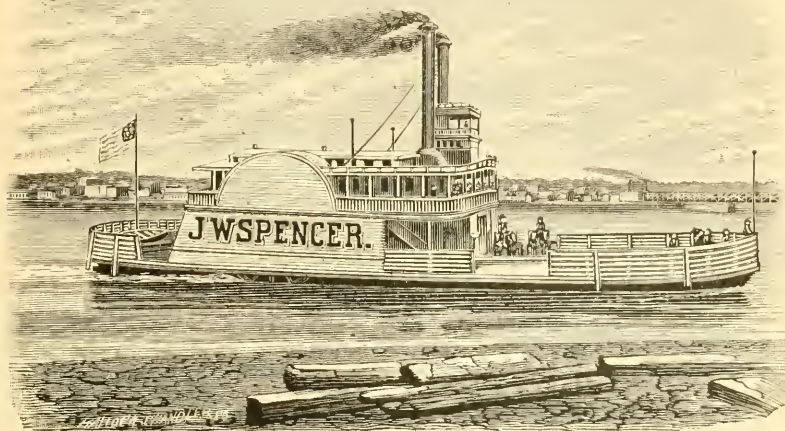
There is nothing visionary about the foregoing. Rock Island Arsenal is to-day manufacturing many articles used by the different wings of the army at a smaller cost than they can be fabricated at eastern arsenals, and as a result, the manufacture of more and more of these articles is being transferred to this point each year by the war department. The diversified establishments which have been prospering here for years prove conclusively the necessity of keeping the consumer and the producer together.

TRANSPORTATION FACILITIES.

A NATURAL HIGHWAY.

To complete the manufacturing advantages there must be adequate distributing facilities. These Rock Island enjoys immeasurably beyond places like Indianapolis, Kansas City, Wichita, and other interior cities. The Mississippi river is open from March to December—eight months. During this two-thirds of the year more than one hundred steamboats are engaged in towing rafts of lumber and logs to and below this point; in transporting the pine from Arkansas; in carrying the iron and coal

and sugar from the mines and plantations to this manufacturing market, and in distributing the agricultural implements and other manufactured articles from St. Paul to New Orleans. The river not only affords a natural and unobstructed means of communication, travel, and trade, but it furnishes a competition and reduces railroad rates. Were it not for the river this locality would be deprived of nearly one-third of its business. By means of this great natural water-way rafts of logs and lumber from the pineries are floated to Rock Island which equal 90,000 loaded cars annually. The river gives Rock Island each year, putting the fact in another form, about twenty times the raw material for manufacturing purposes that the railroads do. In



ROCK ISLAND FERRY.

this statement Rock Island does not include the neighboring cities of Moline and Davenport, which also present enormous figures of indebtedness to the river. And it should be borne in mind here that the value of the Mississippi river is not confined to the matter of transportation. For sanitary and fire purposes, for its water-power, and for its other uses it is invaluable.

THE RAILROAD SYSTEM.

Seventy-two passenger trains depart from and arrive at Rock Island every twenty-four hours. A passenger train goes or comes every twenty minutes, night and day.

Thirty-six passenger trains leave Rock Island every twenty-four hours — one every forty minutes — north, south, east, or west. Every one of the thirty-six arriving trains brings persons who come to trade.

Three hundred loaded freight cars daily carry the goods of the jobbing and manufacturing houses of Rock Island far and near in all directions during each of the 313 working days of the year. Fifteen freight trains of twenty cars each are required every day to distribute the wares made and sold in Rock Island.

The territory covered, and the iron arteries which reach it, are correctly shown by the railroad map on the outside cover-page of this book. The evidence is there presented of the far-reaching railroad system of this business center.

CHICAGO, ROCK ISLAND & PACIFIC.

This line was the pioneer of western railroads in reaching the Mississippi river, the date of its coming being February 22d, 1854. It has practically four divisions, from as many directions, meeting here. The main double-track line runs to Chicago eastward, and to the Missouri river westward; the Albert Lea line reaches Minneapolis and St. Paul, and the Southwestern division, Leavenworth, Topeka, Kansas City, Atchison, St. Joseph, Wichita, and points beyond. This system, during the past two years,

has been pushing its extensions through southwestern Kansas to the cattle-fields of the Indian territory, to the very gateway of the republic of Mexico. Its northwestern line runs through the northwestern part of the state of Kansas into and through the central and western parts of Nebraska. The avowed purpose of the Rock Island is evidently to push its southwestern system to the Gulf of Mexico and the Pacific coast.

CHICAGO, MILWAUKEE & ST. PAUL.

This railroad has a mileage of its own of 5,500 miles—the largest of any single corporation in the world. It covers with its network of roads northern Illinois, much of Iowa, Wisconsin, Minnesota, and extends into Nebraska and Dakota. It is a strong competitor for business, and a car loaded in this locality will reach its destination over this road at not hundreds but thousands of points.

CHICAGO, BURLINGTON & QUINCY.

This is another of the great trunk lines, known all over the world, and one that makes Rock Island the headquarters of two of its important divisions—the Rock Island and St. Louis and the Rock Island and St. Paul lines. It opens a vast territory not reached by any other road, and competes with all of them for business to common points.

ROCK ISLAND & PEORIA.

This is a short, direct line connecting the western systems with those of the southeast and east. It is a strong link in a chain of roads which connect Rock Island with Springfield, Indianapolis, and Cincinnati.

OTHER RAILROADS.

The Coal Valley Mining Company's line, and that of the Rock Island & Mercer County reach valuable and exhaustless beds of coal within forty miles, much of it within less than half that distance, which have been developed to a great extent.

All these railroads have large switching and side-track facilities in Rock Island. They also connect with every railroad, great and small, throughout the west.

ROCK ISLAND INDUSTRIES.

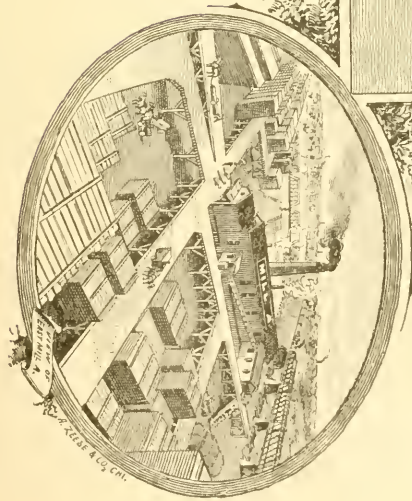
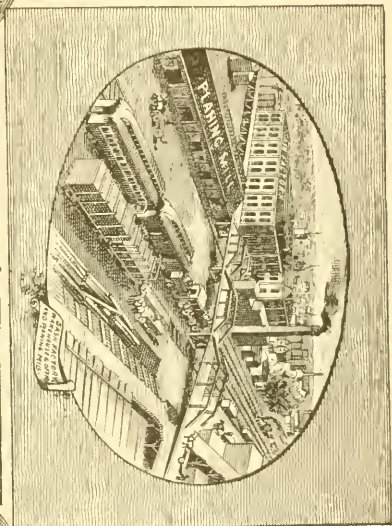
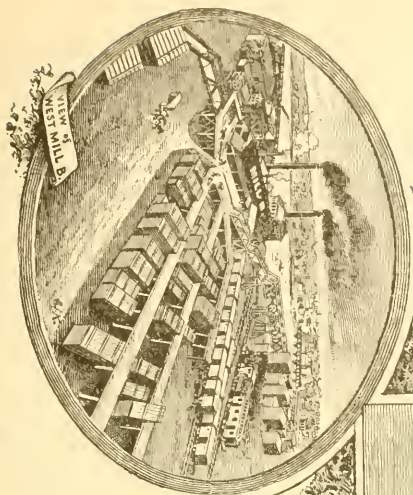
FIGURES OF BUSINESS.

It has been conclusively shown in the last two chapters that Rock Island has "manufacturing advantages" and "transportation facilities." It will now be proved that they are appreciated and turned to profitable account. The city has twenty-five important manufactories, beside several smaller ones, with an invested capital of over \$4,000,000.00. During the year 1887 employment was given by these industries to more than 2,000 hands, who received in wages nearly \$1,000,000.00, and whose aggregate business was more than \$5,000,000.00. Some of these interests will be noted:

THE LUMBER INTEREST.

The saw and planing-mills of the Rock Island Lumber and Manufacturing Company and Weyerhaeuser & Denkmann are among the very largest of their kind in the lumber-making region of the northwest. They represent an invested capital of \$1,000,000.00; give employment to 805 persons, whose yearly wages amount to \$300,000.00, and their transactions for the year 1887 reached \$2,000,000.00. They sawed 73,000,000 feet of logs; made 18,500,000 lath, 14,250,000 shingles, and 350,000 pickets. They manufactured 100,000 doors, 125,000 windows, 50,000 pairs of blinds, and 3,500,000 feet of moulding. Their shipments by rail amounted to 85,000 carloads. The planing-mill of John Volk & Co. adds materially to these figures.

THE ROCK ISLAND LUMBER AND MANUFACTURING COMPANY'S MILLS AND YARDS.



GLASS.

The Rock Island Glass Company employs ninety persons, and does a business of \$100,000.00. Its plant is both extensive and complete. The company's prosperity demonstrates that window-glass can be manufactured as advantageously at Rock Island as at Pittsburg.

STOVES.

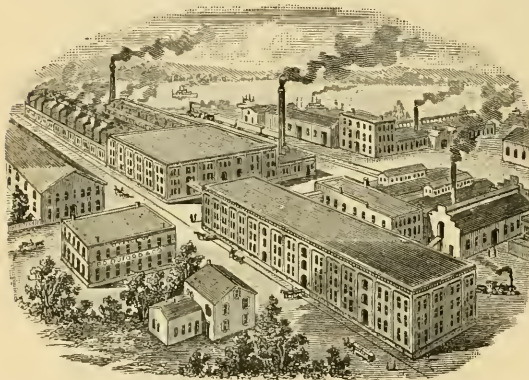
The business for 1887 of the Rock Island Stove Company was the best it has ever known. It manufactures all kinds of cook-stoves and ranges, as well as a general variety of heating stoves. The company affords employment to eighty persons.

SOAPS.

The house of Warnock & Ralston makes a line of toilet and laundry soaps which are demanded by a large western trade. Its established business, extending through several years, shows the advantages of Rock Island for different kinds of manufacturing.

AGRICULTURAL IMPLEMENTS.

The Rock Island Plow Company is one of the large agricultural implement houses of the country. The illustration conveys to the reader a good idea of the



ROCK ISLAND PLOW WORKS.

extent and character of this leading manufacturing enterprise. This locality is known all over the world for the excellence of its agricultural implements, and not a small part of this fame is due to this factory. Its plows, harrows, cultivators, stalk-cutters, cotton-planters, wheeled walking-plows, listers, and drills vie with the sunshine, the rain, and the fertility of the soil in the growth of the rich crops of the agricultural states of the union, and even beyond it. During 1887 this company gave employment to 250 hands, and its sales will reach \$500,000.00.

BREWING AND BOTTLING.

There are five houses in Rock Island for the brewing and bottling of beer, ale, and mineral water. They have invested in the business \$450,000.00; employ ninety hands, to whom they paid for the last year's work \$46,000.00 in wages; they did a business of \$352,000.00. These firms are: George Wagner, I. Huber, Raible & Stengel, Carse & Ohlweiler, and J. Junge. The first three are breweries, and during the year they made 47,000 barrels of beer. George Wagner's establishment combines both brewing and bottling. It contains a thirty-five-ton ice-machine, which keeps at an even temperature 22,000 cubic feet of air, doing the work of 8,000 tons of ice.

CRACKERS.

The cracker and biscuit factory of J. M. Christy has a capacity of 125 barrels daily, and employs twenty-five hands. Mr. Christy has a branch factory at Des Moines of equal capacity, the outgrowth of his Rock Island business.

SAWS.

The saw factory of D. Donaldson is a flourishing industry, with a large home market and increasing general trade.

HORSE-COLLARS AND SADDLERY.

J. & M. Rosenfield and J. C. McConnell & Son do a manufacturing business in horse-collars and saddles running up to nearly \$100,000.00.

BUGGIES, CARRIAGES, AND WAGONS.

The Rock Island Children's Carriage Company employ fifty hands most of the year, and do a large as well as a prosperous business. Wall & Ill manufacture a line of buggies, carriages, and phaetons. There are four smaller shops in the wagon-making line.

BOAT-WAYS.

Kahlke Bros., proprietors of the Rock Island boat-ways, build and repair steam-boats, having the only boat-ways between Le Claire and Quincy. Employment is given to forty men.

OTHER FACTORIES.

Among the other industries worthy of note are: Noftsker & Havenhill, cornices; William Farrell, bone-factory, the only one of its proportions between the lakes and the Missouri river; Crampton & Co., blank-books; William Gray, boxes; John Mager, brass-foundry; Atkinson & Oloff, J. W. Graham, William Lyon, and B. H. Redecker, brick-yards; and the Rock Island Iron Works and Foundry of George Downing, Jr.

NEW INDUSTRIES.

ROCK ISLAND'S ADVANTAGES.

The superior shipping facilities possessed by Rock Island, together with other evident advantages, have drawn to this city within a few months two manufactories, which add to the variety of work done here.

THE KNIFE AND SHEAR COMPANY.

This flourishing business was recently transferred from Rockford, Ill., to Rock Island, where its opportunities and facilities have been greatly enlarged. The company manufacture knives, shears, and scissors, tailors' shears, tanners' snips, razors, and table and pocket cutlery. This city is the furthestest-west point having such a factory. In the points of material, finish, and cutting qualities, these goods are superior to any now in the market, as nothing is used but the very best of Wardlow's English steel. Skilled and high-priced labor is employed, and a warranty accompanies every piece. The company offers to the western trade the advantage of accessibility, the quick-filling of orders, and dealing with first hands. The officers are: D. F. McLarty, President; W. B. Ferguson, Vice-President; W. M. Prentice, Secretary.

PLATING WORKS.

The Rock Island Plating Works is a new addition to the industries of this city, coming from Galesburg, Ill. It is fast developing into one of the important institutions.

THE WHOLESALE TRADE.

ITS EXTENT AND VARIETY.

While second in extent to the manufacturing business, the jobbing trade of Rock Island is of heavy proportions. The volume of business for 1887 is in excess of \$3,000,000.00.

LINES OF GOODS SOLD.

The wholesale grocery and provision house of Henry Dart's Sons is one of the largest in Illinois outside of Chicago, doing a business of over \$1,000,000.00 yearly. The steady increase of sales by this firm is evidence of the desirable location.

The establishment of George A. Fleming & Co., dealers in California evaporated dried fruits, covers the entire country in its business. It receives, on the average, one full carload of California dried fruits daily throughout the year. This keeps a

force of forty hands busy packing and preparing for shipment. There is nothing of the kind, on even a smaller scale, between Denver and Chicago. The business is in its third year, and rapidly expanding.

Hartz & Bahnsen do a large trade in drugs and medicines.

Stewart & Montgomery represent the wholesale hardware branch of business. This house is one of the city's solid institutions, and it is favorably known over a wide territory.

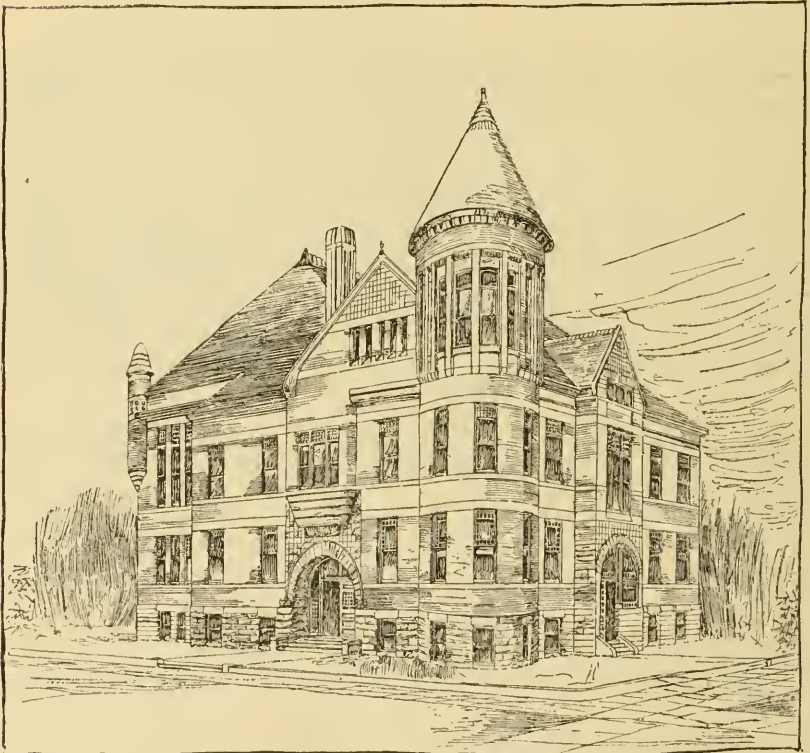
Mention has been made of the manufacturing department of J. & M. Rosenfield and of J. C. McConnell & Son. Both of these houses do a jobbing business in leather and findings.

J. S. Gilmore does a heavy pork-packing and salt-meat business. During the season just closed he slaughtered 10,000 hogs.

There are three wholesale liquor houses and rectifying establishments—Peter Fries & Co., Kohn & Adler, and C. Tegeler & Co.

EDUCATIONAL INSTITUTIONS.

THE PUBLIC SCHOOLS.



THE NEW ROCK ISLAND HIGH SCHOOL.

Eight large school-houses testify to the appreciation in which the Rock Island public school system is held. The Superintendent, S. S. Kemble, has been identified with the cause of education here for fourteen years. Forty-five regular teachers are engaged, and one special teacher of vocal music. The school census gives the num-

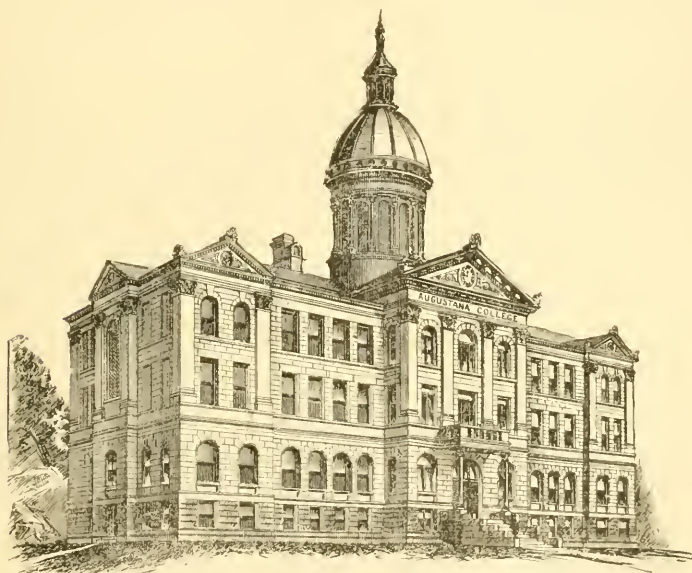
ber of children between the ages of six and twenty-one years as 3,825. The most convenient, and what is claimed as one of the most elegant, high school buildings in the state has just been completed, at a cost of \$28,000.00. It was dedicated November 1st. The cost of tuition for each pupil enrolled is \$11.12, and few cities show as good return for the money expended. The annual cost of the public schools is about \$50,000.00.

THE PUBLIC LIBRARY.

Owing to the free and truly public character of the city library it must be regarded as one of the educational institutions, and one which exercises a grand influence. It was founded and is supported by the city, whose people appreciate it and its reading-rooms at their full worth. There are upon the shelves about 10,000 volumes. The number of books drawn during the last twelve months was 22,362, and the total attendance was 41,562 during the same period.

AUGUSTANA COLLEGE.

This is the largest and oldest college of the Swedish-American Synod of the Evangelical Lutheran Church. It was founded in 1860, and removed from Paxton to Rock Island in 1876. The site occupied is one of the most sightly on the upper Mississippi river. It overlooks not only Rock Island and Moline, being located



AUGUSTANA COLLEGE—NEW BUILDING.

almost midway between the two cities, but Davenport, the National Arsenal and Armory, and a picturesque sweep of the river. The institution embraces the following departments: (1) The college, with its classical and scientific courses, each of four years; (2) the preparatory school, with its three years' course; (3) the conservatory of music, three years; (4) theological seminary, two years. More than \$150,000.00 have been expended on the buildings and grounds. The library consists of 8,000 bound volumes and 5,000 pamphlets. There are thirteen professors, three instructors, and over 200 students. The accompanying engraving shows the new college building, now nearly completed. It is 168 feet long, the central part 76 feet wide, and the wings 64 feet, four stories high, including the basement. The cost of this building is \$75,000.00. Architecturally it is an imposing structure, to which its lofty location materially adds. The architect was E. S. Hammatt.

BANKS, POST-OFFICE, ETC.

FINANCIAL INSTITUTIONS.

There are four banking-houses in Rock Island, three of which are national institutions, and one, that of Mitchell & Lynde, a private bank. The amount of exchange sold during the last year was over \$10,000,000.00. The resources of the three national banks, as shown by the last statement for 1887, were \$1,208,638.25. These institutions are officered as follows:

Rock Island National.—T. J. Robinson, President; J. H. Wilson, Vice-President; J. F. Robinson, Cashier. The capital is \$100,000.00; surplus \$50,000.00, and undivided profits \$46,500.00.

Peoples National.—Bailey Davenport, President; Joseph Rosenfield, Vice-President; John Peetz, Cashier. The capital is \$100,000.00; surplus \$35,000.00.

First National.—P. L. Mitchell, President; G. H. Loosley, Cashier. The capital is \$100,000.00; surplus \$50,000.00.

THE POST-OFFICE.

Rock Island has the carrier-service and mail facilities of the best kind. During the year just ended the total receipts of the office, except the money-order business, were \$18,765.78, divided as follows: Sale of stamps, \$12,510.10; envelopes, \$4,737.04; newspaper postage, \$594.16; box rents, \$924.48.

BUILDING, LOAN, AND SAVINGS ASSOCIATION.

The Rock Island Mutual Building, Loan, and Savings Association is in its eighth year. At its last report the assets were \$144,556.00. It has issued twenty series of shares, representing an investment of nearly \$100,000.00. The association has proved itself a friend of the homeless, enabling many of limited means to own the comfortable homes which they occupy.

REAL ESTATE AND BUILDING.

STEADY GROWTH.

Rock Island is not a city blanketed with mortgages. There has been no "boom," as the word is commonly understood; which means wild speculation, inflated prices, and real estate transfers on paper. Therefore no day of reckoning, with its blight and ruin, is to come. But there has been a steady advance in values, an appreciation of property of all kinds. Nearly 500 building lots have found purchasers, and several new additions have been laid out to accommodate the natural demand. Mechanics and working men have been busy the year around and prosperous. They have invested their earnings in homes, and in lots upon which to build homes. The population is surely gaining. All this shows growth of the substantial and enduring kind. It must continue. Money placed in Rock Island real estate, will prove a certain investment, and one returning regular dividends.

BUILDING OPERATIONS.

More than a quarter of a million dollars has been put into homes, business blocks, schools and colleges, and manufactories during the last twelve months. This can be seen by looking at Augustana College, the new high school, the new Swedish Lutheran Church, the three-story brick warehouse of the Rock Island Lumber and Manufacturing Company, P. L. Mitchell's brick block, O. J. Dimick's row of store-rooms, the Bortner and Hull blocks, Porter Skiuner's block, John Volk & Co.'s warehouse, at Wagner's brewery, the Rock Island Glass Works, and in more than 100 residences and cottages, ranging in cost from \$3,000.00 to \$500.00.

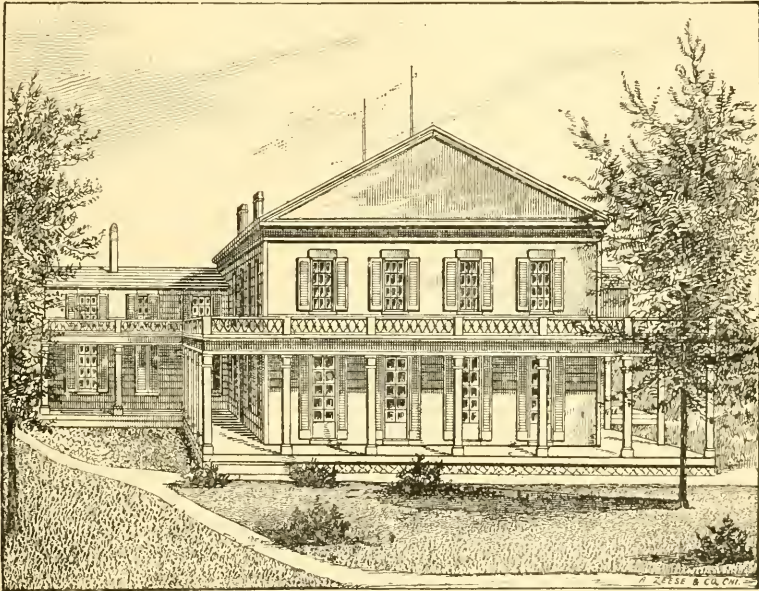
MEANS OF COMMUNICATION.

HINTS TO STRANGERS.

The thousands of strangers who visit this locality in quest of pleasure or in search of business opportunities have at their command several means of transit and communication between places of interest. The railroads supply a quick way of reaching Moline, Davenport, and Milan, and are nearly always available. For a more leisurely means of enjoyment a carriage and driver may be called. A week can be profitably passed in visiting the Arsenal Island, Black Hawk's Watch-Tower, and in the great number of favorite drives which a guide is able to point out, to say nothing of the immense factories.

THE STREET-CAR SYSTEM.

A cheap and satisfactory way of making a tour of observation is by use of the street-cars. The Moline & Rock Island line, of five miles, extends from lower Rock



RESIDENCE OF HON. BAILEY DAVENPORT.

Island to upper Moline, running through the business parts of both cities. The Union or Motor line climbs the bluffs, and is also five miles long. It connects with the north and south or bluff line in Moline. The Rock Island & Milan Motor line runs from the river five miles south, reaching Milan and Black Hawk's Watch-Tower. There are fifteen-minute cars on all these lines. One of the handsomest ferry-boats on the river, an illustration of which is given elsewhere, plies the river constantly between Rock Island and Davenport.

THE TELEPHONE EXCHANGE.

A complete telephone system, with perfect service at all hours of the day and night, brings all parts—business and residence—of Rock Island, Davenport, and Moline within easy speaking distance of each other. The exchange has a central office in each city, at which connections may not only be made with more than a thousand offices and residences, hotels, depots, steamboat-landings, and newspapers, but also with more than 300 surrounding cities and towns within a range of 200 miles. A

partial alphabetical list in Iowa includes Ackley, Albion, Alpha, Allison, Amber, Anamosa, Andrew, Atalissa, Auburn, Baldwin, Bassett, Belle Plaine, Bellevue, Bennett, Bernard, Blairstown, Brandon, Bristow, Brooklyn, Brush Creek, Buffalo, Butler Center, Calamus, Calmar, Camanche, Cascade, Castalia, Cedar Bluff, Cedar Falls, Cedar Rapids, Center Junction, Center Point, Charles City, Chester, Chickasaw, Clarence, Clarksville, Clayton, Clear Lake, Clermont, Clinton, Cold Spring, Colesburg, Conover, Conroy, Coralville, Cottonville, Decorah, Delaware, Delhi, Delmar, Denver, De Witt, Dixon, Downey, Dubuque, Durant, Dyersville, Earlville, Edgewood, Eldora, Eldorado, Elgin, Elkader, Elvira, Eli, Elwood, Epworth, Farley, Fayette, Fillmore, Fredericksburg, Frestina, Froleich, Fort Atkinson, Fulton, Garnavillo, Garrison, Garryowen, Gilman, Grand Mound, Greeley, Greene, Grinnell, Guttenberg, Hawkeye, Homestead, Hopkinton, Hurst, Independence, Ionia, Iowa City, Iowa Falls, Janesville, Jesup, Kellogg, Keystone, Ladora, La Motte, Langworthy, La Porte, Le Claire, La Grand, Lynn Junction, Lisbon, Liscombe, Long Grove, Lost Nation, Lowden, Low Moor, Luxemburg, Luzerne, Lyons, Malcom, Malvern, Manchester, Maquoketa, Marble Rock, Marengo, Marion, Marshalltown, Mason City, Masonville, Maxfield, Maynard, McGregor, Mechanicsville, Miles, Millersburg, Monona, Montezuma, Monticello, Morse, Moscow, Mt. Auburn, Mt. Vernon, Muscatine, Nashua, National, Nelson, Newberg, New Hampton, Newton, New Vienna, Nora Springs, North English, North Washington, Olewein, Onslow, Osborn, Ossian, Otter Creek, Oxford, Oxford Junction, Paris, Parkersburg, Parnell, Petersburg, Pleasant Prairie, Postville, Prairieburg, Prairie City, Preston, Princeton, Quasqueton, Reasnor, Rochester, Rockford, Rowley, Sabula, Shell Rock, Shellsburg, Sherrill's Mound, Solon, South Amana, Spillville, Springdale, Springville, Stanwood, State Center, Steamboat Rock, Sterling, St. Lucas, Stockton, Stone City, Strawberry Point, Sumner, Sweetland Center, Tiffin, Tipton, Tripoli, Union, Urbana, Valaria, Van Horn, Victor, Vinton, Walcott, Walker, Washburn, Waterloo, Waubeck, Waucoma, Waucon, Waverly, Welton, West Branch, West Liberty, West Union, Wheatland, Williamsburg, Williamstown, Wilton, Windsor, Winthrop, Worthington, Wyoming, Zwingle. In Wisconsin, Prairie du Chien. And in Illinois, Albany, Brookville, Cambridge, Coal Valley, Coleta, Cordova, Dame, Dixon, Dutehtown, Elizabeth, Erie, Fenton Center, Fulton, Fremont, Galena, Gault, Hampton, Hanover, Lanark, Lyndon, Milledgeville, Morrison, Mt. Carroll, Port Byron, Prairie Center, Prophetstown, Rapids City, Rock Falls, Rock Island Junction, Round Grove, Savanna, Shannon, Sterling, Toledo.

BUSINESS ASSOCIATION.

ROCK ISLAND BUSINESS MEN.

This association is composed of representative, enterprising merchants, manufacturers, and professional men, the men who make cities grow. Its objects are to collect and record such local and general statistical information relating to commerce and manufacturing as may promote and advance the welfare of the city of Rock Island and its interests. The officers are: W. B. Ferguson, President; L. S. McCabe, Vice-President; J. F. Robinson, Secretary; John Peetz, Treasurer. The Finance Committee is composed of A. C. Dart, Henry Carse, H. C. McConnell, J. T. Noftsker. All information concerning the city, its advantages, and the inducements offered new business enterprises will be supplied correspondents.

SUN ACCIDENT ASSOCIATION.

This has shown itself to be an important business gain to Rock Island. Its officers attest its trustworthiness, and vouch for its correct and successful management. They are as follows: T. J. Robinson, President; Fred Weyerhaeuser and J. M. Gould, Vice-Presidents; J. F. Robinson, Treasurer; William Jackson, Counselor; W. C. Bennett, Auditor; O. B. Blackburn, Secretary and General Manager; W. W. Stafford, Assistant Secretary. Any man between the ages of eighteen and sixty-five years, of

sound mind and body, and of temperate habits, is eligible to membership. The members are classified in divisions, according to the hazard of occupation. The association offers the advantage of not only carrying the insurance and indemnity together, but either one alone, according to the rate of assessment paid. Indemnity is allowed for a period of fifty-two weeks, while the ordinary limit in other companies is twenty-six weeks. More advantages are offered by this company than any other in the United States.

SEAR'S PARK.

A company has been incorporated, with a capital of \$20,000.00, for the purpose of establishing a first-class pleasure resort. The site selected is a beautiful one, on the Rock river heights, directly west of Black Hawk's Watch-Tower. It is easy of access, contains thirty acres, and will be supplied for early use with hotel, cottages, an electric light plant run by water-power, and various amusements. The view, near and distant, is grand, taking in the city of Davenport, across the Mississippi river, six miles away, Muscatine, twenty-five miles, Buffalo, and other towns.

MUNICIPAL AND GENERAL.

ROCK ISLAND WATER-WORKS.

The original Holly system of water-works was first used in 1871, but the following decade showed that the works, to keep pace with the city's growth, must be enlarged. In 1881 the present works were built, and to their construction and relocation Hon. P. L. Cable contributed \$25,000.00. A twenty-four-inch inlet-pipe, 2,200 feet in length, takes the water in its purity from the channel of the Mississippi river, and conveys it, for sanitary uses, to a settling-basin, from which it is pumped. In case of fire the water is pumped directly from the river. The works have two Holly pumps, with a capacity of 3,000,000 gallons every twenty-four hours. There are seventeen miles of water-mains, and over 1,000 consumers.

THE FIRE PROTECTION.

The water-works has over 100 hydrants distributed throughout the city. It is believed that the fire protection thus furnished with a never-failing supply of water, and a pressure adequate to any emergency, is all that could be desired. There are seven fire companies of twenty men each — one for each of the seven wards.

COUNCIL AND FINANCES.

The municipal affairs are administered by a council of fourteen alderman and the Mayor, each being elected for two years. The financial condition of Rock Island is healthy, a low rate of taxation and the ordinary licenses affording the necessary revenue.

THE PRESS.

Rock Island is well represented by its daily press, the Union, published by the Union Printing Company, being the leading republican morning paper, and the Argus, of which J. W. Potter is editor and proprietor, the evening democratic journal. Both issue weekly editions. There are also the Rock Islander, weekly, and the Volks-Zeitung, semi-weekly.

HOTELS AND OPERA HOUSE.

The hotel accommodations of any city afford a trustworthy means of measuring its enterprise and public spirit. It is to the hotel that the stranger goes on his arrival, and his impressions of the place are formed very quickly without his ever seeing the business blocks, the manufacturing enterprises, or before he knows anything of the general advantages offered. The thousands of visitors who have stopped at the Harper House annually for the last fifteen years, have been convinced that Rock Island is not lacking in first-class hotel facilities. Hon. Ben. Harper, to whom the city

is indebted for much of its prosperity, builded wisely in this great monument of his liberality, to which he gave his personal supervision until his death — about one year ago. The Harper House enjoys the reputation of being the best hotel, in all respects, in Illinois, outside of Chicago. Its proprietor is Mr. Homer J. Lowrey, whose per-



HARPER HOUSE.

sonal attention is given to the management of the house. Its business is large, its cuisine first-class, and its furnishings elegant. There is no hotel in the world that is safer against fire. Every room has a mercury alarm, which at 110° of heat notifies the office; and all other means known to science are employed to insure the safety of guests.

The Rock Island, Taylor, and Commercial Houses will prove satisfactory to visitors content with comfort at less expense.

Harper's Theatre is the parlor opera house of the state. It seats 1,200, and has complete and splendid scenery and commodious dressing-rooms. It is supplied with upholstered opera-chairs, and is attractively furnished.

ENGINEER'S OFFICE.

The United States Engineer's office, under the charge of Captain A. Mackenzie, is located in Rock Island. The office has the direction of the Mississippi river improvements from St. Paul to the mouth of the Illinois river. The annual appropriation for this work for several years past has reached \$1,000,000.00.

IN GENERAL.

Rock Island is not without its fine church buildings, one of which is the Broadway Presbyterian, representing a cost of \$35,000.00. There are three Baptist, two Catholic, one Christian, one Episcopal, two Lutheran, three Methodist, and four Presbyterian churches.

The city is well lighted by both gas and electric light plants.

It has a full representation of all the military, benevolent, and civic societies, such as the Masons, Odd Fellows, Grand Army of the Republic, Ancient Order of United Workmen, Young Men's Christian Association, etc.

THE HENNEPIN CANAL.

CERTAIN TO BE BUILT.

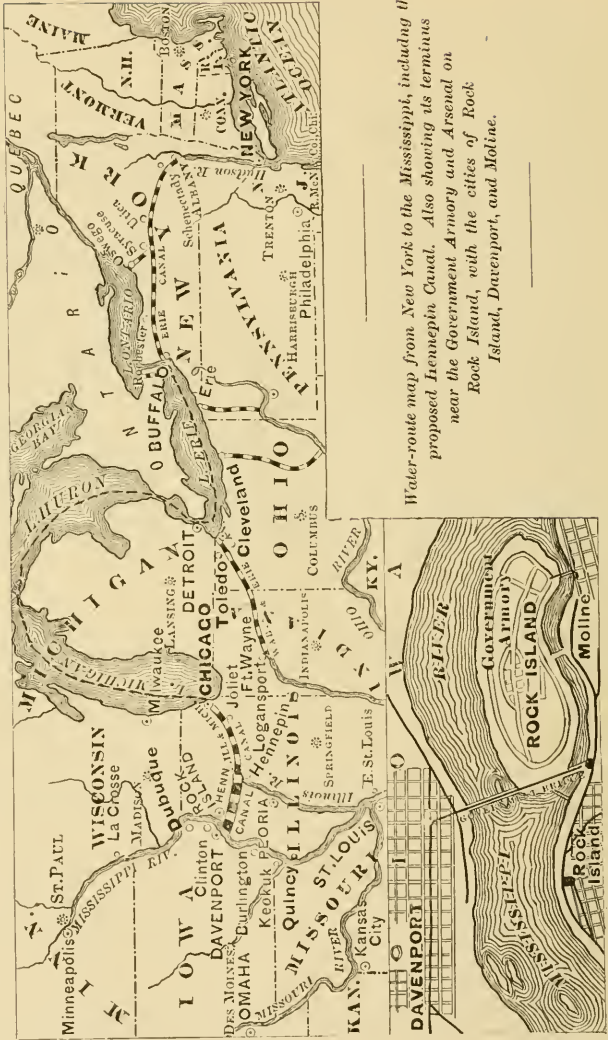
This favorably-known link of water communication between the Mississippi river and Lake Michigan, thereby affording an all-water-route to the seaboard, is an improvement of national importance, and it has been so recognized by several congresses. Both the house and senate of the forty-ninth congress passed the river and harbor bill containing a large appropriation for this work. The building of this canal will prove the solution, in a large measure, of the cheap transportation problem.

By the action of the general assembly, sanctioned by the popular vote of Illinois, the Illinois and Michigan Canal, extending from Chicago to Hennepin, has been ceded to the United States. This has been done with the understanding that the general government will accept the grant and complete the canal (for which the surveys have been made) to a point on the river at or near Rock Island. The length of the unbuilt link is only sixty-five miles. With this water-route open to boats, the farmers and merchants, mechanics and manufacturers, of the whole northwest will be the gainers. This locality will not only share the common good fortune, but it will reap, inevitably, local benefits of no mean proportions.

The map on the next page conveys the whole subject to the eye at a glance. By an act of congress, passed August 12th, 1882, an appropriation of \$30,000.00 was made for surveys of three practical routes for the canal between Hennepin and the Mississippi river. This work was completed by Major W. H. H. Benyaurd, and estimates furnished. It is stated that the cost of construction of the Rock Island route, the most desirable, including feeders and the right of way, will be \$6,672,800.00. This amount covers the estimated cost of the canal and feeder from Rock river to the summit line of the canal, each eighty feet in width at the water-line and seven feet deep, including locks 170 feet in length and thirty feet in width, with a capacity for vessels of at least 280 tons burden.

The practicability of the canal construction here contemplated has been thoroughly investigated, and that by the best of engineering talent. At the instance of citizens of Illinois and Iowa, Colonel J. O. Hudnutt, a civil engineer of eminence, who is quoted in the "Report of the Select Committee on Transportation Routes to the Seaboard," presented to the senate of the United States on April 24th, 1874, made the first survey of the Hennepin Canal route. In his report of that survey, rendered with estimates in 1866, Colonel Hudnutt so unequivocally endorsed the project as one of easy accomplishment, that he asserted that "*this would be the cheapest canal constructed in the United States.*" His estimates, however, were for a canal of only 60 feet in width and 6 feet deep, with locks of 150 by 21 feet, to cost \$4,500,000.00. The first survey by the United States was that of Gorham P. Low, in 1870. It was made for a "ship-canal," and placed his cost at \$12,479,693.00. But a "ship-canal" has never been desired by the intelligent advocates of the Hennepin Canal, since a canal for commercial purposes is alone what is required. In 1874 the United States engineers made estimates for a commercial canal based on the survey of Mr. Low, which placed the cost at \$4,541,000.00. It was objected in the senate of the forty-seventh congress, however, that the Low survey did not actually locate the route, and that the estimates made did not include cost of right of way and fencing. Therefore that congress appropriated \$30,000.00 for a new survey and complete estimates, both as to the Hennepin Canal and the enlargement of the Illinois and Michigan Canal. The report of Major Benyaurd is the result, as heretofore quoted.

The Hennepin Canal is the grandest national work ever undertaken in the interest of cheap transportation. The seven northwestern states whose commerce it will cheapen produced, in 1879 (according to the United States census), in round numbers, 1,300,000,000 bushels, or 70,000,000 tons, of grain alone. The saving of two cents a bushel on one-half this amount would net \$13,000,000.00 in one year, or enough to build two such canals.



Water-route map from New York to the Mississippi, including the proposed Hennepin Canal. Also showing its terminus near the Government Armory and Arsenal on Rock Island, with the cities of Rock Island, Davenport, and Moline.

MILAN AND VICINITY.

THE ROCK RIVER WATER-POWER.

The incorporated town of Milan, an important factor from every point of view in the quartette of cities, is located three miles south of the city of Rock Island, on Rock river, near the confluence with the Mississippi. The chief feature of the place is its great water-power, which in volume is some three times that of the Merrimac river at Lowell. It includes all the water of Rock river. The fall is twelve feet, and may be increased to fourteen feet. The bed and shores of the river are, as the name suggests, of solid rock. The river frontage, suitable for mill-sites and the use of water, is one and one-half miles, and may be extended to almost any desired extent. It is so planned as to accommodate mills and factories with side-tracks. Extensive coal-mines are worked along the river banks, and south and also west of the town at different points, from one to twenty miles. Combined with an unlimited water-power, the place offers the inducements of cheap coal and both railway and river transportation facilities. The north side of Rock river is designated as Sears, in honor of one of the most enterprising citizens of the state.

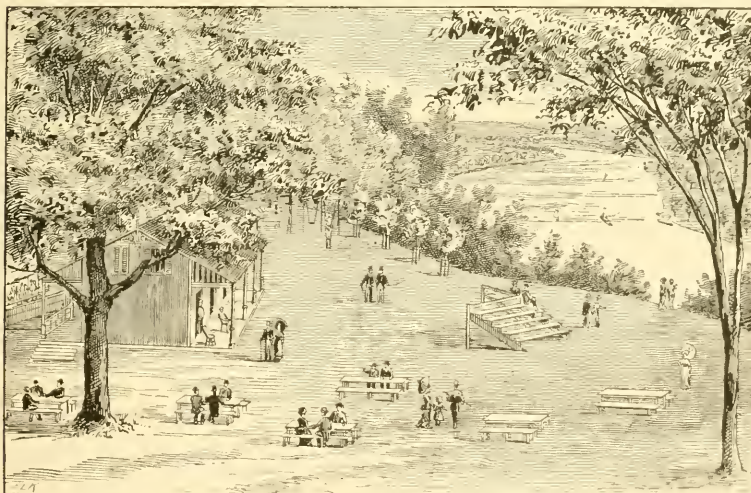
THE TOURISTS' PARADISE.

One of the chief attractions to visitors is Black Hawk's Watch-Tower, illustrated and described in the following chapter. In addition there are several beautiful islands in the vicinity, offering every inducement of camp-life—fishing, boating, etc.

Milan is on the line of three railroads—the Rock Island & Peoria, the Rock Island & Mercer County, and the Coal Valley Mining Company—and within easy reach of the trunk lines centering at or passing through Rock Island. The Rock Island & Milan Street-Railway affords prompt means of communication with the tri-cities at all times.

BLACK HAWK'S WATCH-TOWER.

A FAMOUS LOOKOUT.



BLACK HAWK'S WATCH-TOWER, LOOKING EAST.

This historic spot, the subject of two illustrations, was the resort of the Indian chief Black Hawk. It is situated three miles south of the city of Rock Island, on the highest bank of Rock river, and was selected by the great Sac's father as a lookout at the first building of the tribe's village. From its commanding summit an unobstructed view is had up and down the valley of the winding river for many

miles, and across the low-lands to the south. For the last half a century the tower has been the admiration of thousands, and now that the street-car carries the visitor to the very peak, it is the popular resort of resident and tourist. The owner, Hon. Bailey Davenport, has erected a summer-house at the most charming point of view, which is open to all.

Black Hawk, in his autobiography, which was dictated to Antoine Le Claire in 1833, and which has recently been published by Colonel J. B. Patterson, says of this interesting place: "This tower, to which my name has been applied, was a favorite resort, and was frequently visited by me alone, where I could sit and smoke my pipe, and look with wonder and pleasure at the grand scenes that were presented by the sun's rays, even across the mighty water [the Mississippi]. On one occasion, a Frenchman who had been making his home in our village brought his violin with him to the tower, to play and dance for the amusement of our people, who had assembled there, and, while dancing with his back to the cliff, accidentally fell over it and was killed by the fall. The Indians say that always, at the same time of the year, soft strains of the violin can be heard near that spot."



BLACK HAWK'S WATCH-TOWER — FRONT VIEW.

Another legend is related by Black Hawk. In 1827, a young Sioux Indian who was lost in a snow-storm found his way into a camp of the Sacs. While there he fell in love with a beautiful maiden, and, upon leaving for his own country, promised to return during the approaching summer and claim his bride. He did so, secreting himself in the woods until he met the object of his love. A heavy thunder-storm was coming on at the time. The lovers hastened to and took shelter under a cliff of rocks on the south side of the tower. Soon after they had done so, a loud peal of thunder was heard, the cliff of rocks was shattered into a thousand pieces, and the lovers buried beneath them. "This," writes Black Hawk, "their unexpected tomb, still remains undisturbed."

BLACK HAWK.

THE CHIEF OF THE SACS AND FOXES.

The following account, from "Patterson's Life of Black Hawk," will answer many inquiries:

"The great chieftain, after whom this noted promontory was named, was more than an ordinary man and warrior. He was born in 1767, in the village of the Sac Indians, at the foot of the bluffs on the north side of Rock river, about one mile from its junction with the Mississippi. In 1786 his father was killed in a battle with the Cherokees near the Merrimac, and at the age of nineteen years Black Hawk succeeded to be chief of the Sac and Fox Indians—the Fox tribe having, at Green Bay, some years previously, given up their separate organization, and joined the Sacs. These united tribes were very war-like and numerous. The Sac village on Rock river contained over 10,000 inhabitants, and the Fox village, situated from about Twentieth street, Rock Island, to near Wagner's brewery on Moline avenue, and between the bluffs and the river, had a population of over 5,000. The whole face of the country from the Mississippi to some distance back from the crest of the bluffs, except that occupied by the lodges, was one vast corn-field. All the higher points back of the hills, where the forest was permitted to grow, were 'lookouts,'



BLACK HAWK.

or points where a sentry was posted to prevent a surprise. The point known as 'Black Hawk's Watch-Tower' was covered with stately trees, from the tops of which the whole country for miles around was visible. From this 'lookout' a sentry was constantly on the watch, guarding the village on the low-land near its base.

"It was under these stately trees that Black Hawk would assemble his advisers and hold council. The hill-top just west of this 'tower' or 'lookout' was made sacred and dear by the ashes of his loved dead for many years. On the western slope of the tower itself Black Hawk had tenderly and affectionately laid to their last rest the remains of his father, a noble brave. When at last he himself was compelled to leave this loved home of his youth for the reservation on the Des Moines river, after the disastrous battle at Bad Axe, Wis., in August, 1832, he asked of the pale-faces one favor, and only one, and that was that the graves of his ancestors and his tribe be spared from desecration; that the tiller's plow should leave untouched the heaving turf above his sleeping dead. No nobler, braver, or truer man than this old chieftain ever trod our native soil; and when we look upon the lovely hills, the fertile valleys, the splendid water-courses, and consider the abundance of all kinds of game and fish then available, we do not wonder at his love for his favored home. After his defeat in 1832 he was held a prisoner, with his two sons, at Fortress Monroe for nearly a year, after which he went to his tribe on the Skunk river, west of Ft. Madison, Iowa. He died in Davis county, Iowa, a county on the Missouri line, about 100 miles west of Burlington, October 3d, 1838, and was buried there. He was sick only fourteen days. The only mound over the grave was some puncheons, split out and set over his grave and sodded over with blue-grass, making a ridge about four feet high. A flag-staff, some twenty feet high, was planted at the head, on which was a silk flag, which hung there until the wind wore it out. He was buried right where he sat the year before when in council with the Iowa Indians, and was buried in a suit of military clothes, made to order and given to him at Washington city, by General Jackson, with hat, sword, gold epaulets, tassels, etc. His body laid on a board, his feet about fifteen inches below the surface of the ground, and his head raised about three feet above the ground. A strong picket-fence, twelve feet high, enclosed the ground. His body remained there until 1839, when it was carried off by a certain Dr. Turner, then living at Lexington, Van Buren county, Iowa. The bones were afterward taken to Alton, Ill., and mounted with wire. Afterwards they were carried to Warsaw, Ill., but Black Hawk's sons, when they heard of the desecration of their father's grave, complained to Governor Lucas, of Iowa Territory, and he caused the bones to be brought back to Burlington, in the fall of 1839 or spring of 1840. The bones were subsequently placed in the collection of the Burlington Geological and Historical Society, and perished in the fire which destroyed the building and all the society's collections, in 1855."

COLONEL GEORGE DAVENPORT.

SKETCH OF A USEFUL LIFE.

Colonel George Davenport was the first white man to make a permanent settlement in what is now Rock Island county, arriving here in the spring of 1816. He was a native of England, born in Lincolnshire, in 1783. At the age of seventeen he enlisted as a sailor on a merchant-vessel, and for the next three years he visited France, Spain, and Portugal. After a remarkable experience on the high-seas, Davenport enlisted in the regular (American) army in 1805. In the spring of the next year he went with his regiment to New Orleans. For ten years he served his adopted country as a soldier, principally against the Indians.

ARRIVAL AT ROCK ISLAND.

On receiving his discharge in 1815, he was employed by Colonel William Morrison, of Kentucky, government contractor, to supply the troops with provisions. Going to St. Louis, he took charge of several keel-boats loaded with provisions. A large drove of cattle were also purchased and driven through the country. They started up the river, and arrived at the mouth of the Des Moines river late in the fall, and concluded to stop there for the winter.

In the spring of 1816, in company with Colonel Lawrence, in command of the Eighth Regiment, United States infantry, they again embarked on boats, and proceeded up the river. Arriving at the mouth of Rock river, they examined the country for a site for a fort, resulting in the selection of the lower end of Rock Island as the most suitable point. They landed on Rock Island, May 10th, 1816, and here Mr. Davenport made his home until his death. His residence, a double log-cabin, was near the foot of the island, where he subsequently erected a large two-story frame house, a fine sketch of which is shown in this work.



COLONEL GEORGE DAVENPORT.

AS AN INDIAN-TRADER.

The Indians at that time were not very friendly to the Americans, but soon took a fancy to Mr. Davenport, giving him the name of Sag-a-nosh, meaning "an Englishman." During the second year, with what little money he had saved, he purchased a stock of goods, and

began trading with the Indians. As an Indian-trader he was remarkably successful, securing and retaining their good-will and confidence, although for a time he had more or less trouble with the Winnebagoes, at one time narrowly escaping being massacred. In 1823 the first steamboat—the Virginia—arrived at the island, loaded with provisions for Prairie du Chien, and Mr. Davenport was called upon to pilot her over the rapids. In 1825 a post-office was established upon the island, with Mr. Davenport as postmaster. He held the office until its removal to the main-land, on the organization of the county. In 1827 he visited his native land, after an absence of twenty-three years, returning in 1828.

HIS INFLUENCE WITH THE INDIANS.

During this year the first settlements were made in this vicinity. As they were poor, Mr. Davenport furnished many of them with provisions and groceries until they could raise a crop. When the Indians returned in the spring of 1829, Mr. Davenport used all his influence to induce them to remove to the west side of the Mississippi river, and partially succeeded. Waupello removed his village to Muscatine slough, and Keokuk, with part of the Sacs, to the Iowa river; but Black Hawk and

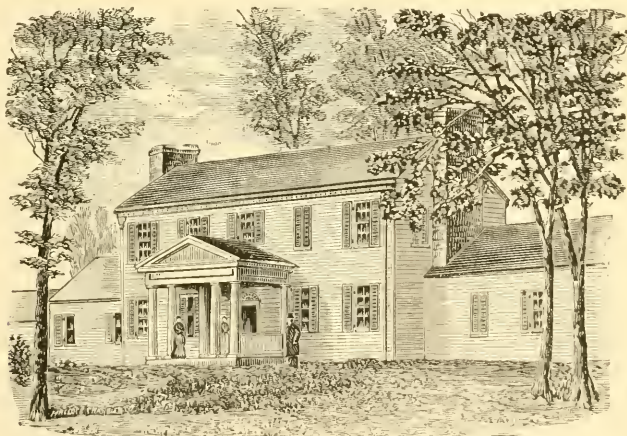
the remainder of the Sacs refused to go, claiming that they had never sold their land. During the Black Hawk war that followed Mr. Davenport was appointed Quartermaster-General, with the rank of Colonel.

AS A TREATY-MAKER.

On the organization of the county, Colonel Davenport was elected one of the first county commissioners, and served some two or three years. In the fall of 1835, in company with several others, he purchased a claim of Antoine Le Claire, across the river, in Iowa, and proceeded to lay out a town. To this town was given the name of "Davenport," in his honor. In the fall of 1837 he visited Washington city, in company with a number of chiefs of the Sac and Fox nations, and aided the government in the purchase of a large portion of Iowa. In 1842 Governor Chambers made another treaty with the Sacs and Foxes. He told the chiefs to select any of their white friends they might choose to assist them in making a treaty. They selected Colonel Davenport as one of four. By this treaty the Indians sold all of their lands within the state of Iowa. Shortly after this Colonel Davenport withdrew from the Indian trade, and devoted the remainder of his life to the improvement of his property in Davenport and Rock Island.

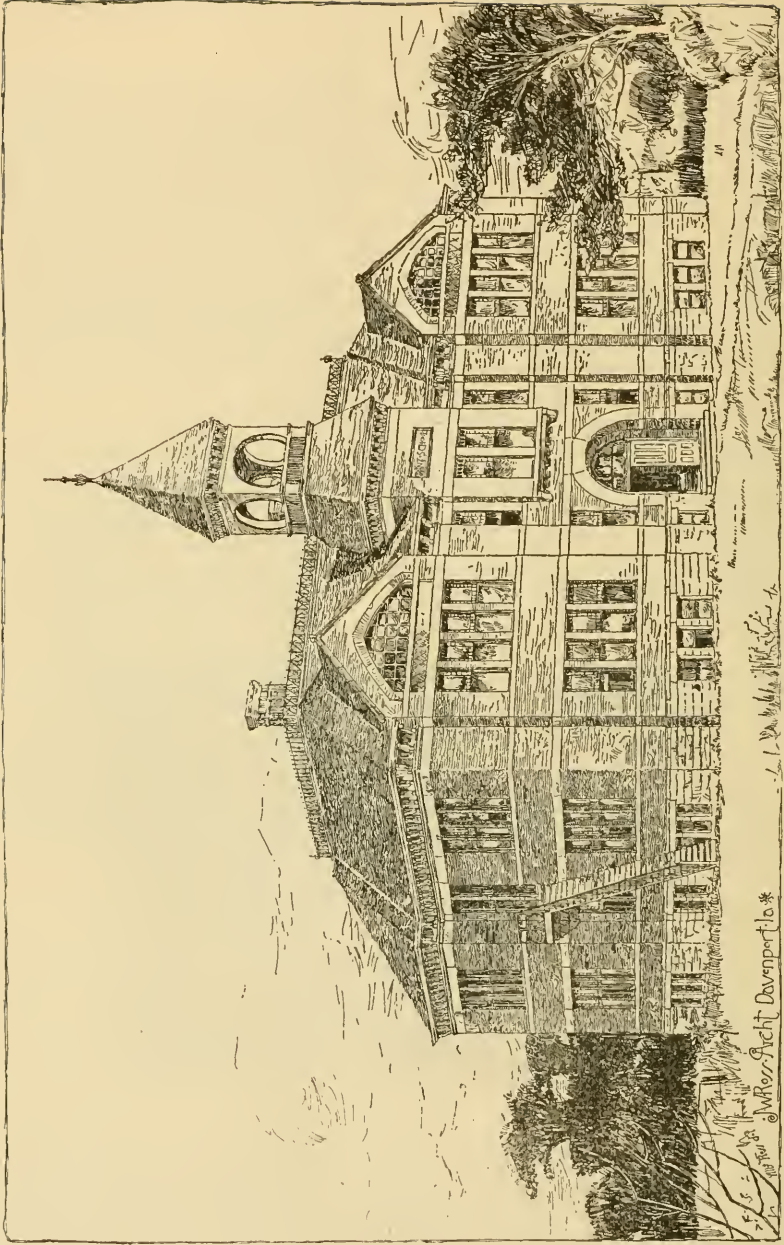
HIS PERSONAL CHARACTERISTICS.

"Colonel Davenport," said a well-known writer, "was of a very free and generous disposition—very jovial and fond of company. After retiring from the Indian trade he spent the winters generally in St. Louis or Washington. Whether traveling on a steamboat or stopping at a hotel, he would always have a crowd around him listening to his stories and anecdotes. He never sued any one in his life, and could not bear to see any one in distress without trying to relieve him. He enjoyed excellent health and spirits, and had the prospect of living many years to enjoy the comfort for which he had toiled so hard, but was struck down by one of a band of robbers, in his own house, on the 4th of July, 1845. He died aged sixty-two."



COLONEL DAVENPORT'S HOUSE IN 1860.

The life of Colonel Davenport was a long and active one. "Although of trans-Atlantic extraction," says the writer already quoted from, "he was a true type of the American, possessing indomitable resolution, a restless desire to progress, with an invincible determination to overcome obstacles and achieve success. Much as his courage, perseverance, enterprise, and ability demand admiration, there is still something more than these commanding our respect and honor; something which is more lustrous than wealth, better than position or title; it was his humanity."



GRANT SCHOOL BUILDING, MOLINE.

W. Res. Ficht Davenport Ia.*

THE ARSENAL.

THE ISLAND OF ROCK ISLAND.

A MAGNIFICENT PARK.



THE MOST beautiful of the many islands which divide the waters of the Mississippi river, from its source to its mouth, is Rock Island. It is the object of attention and praise from the thousands of tourists who go up and down the river from May to October. Viewed from the deck of a steamboat, it is a picture of grandeur which dwells upon the vision, while many a traveler by rail stops here for a day to enjoy its shady drives and broad avenues. It is a magnificent national park — one which the public is always free to enjoy. Its location is fortunate — almost midway between the head of navigation and the largest river city. It derives its name from the nature of its formation. The Island rests upon a bed of rock, consisting mainly of gray magnesian limestone, which in places crops out on the surface, but is generally covered with from one to eight feet of earth, principally loam and clay, though sometimes sand or gravel. The limestone is hard, strong, and durable, though it is never found in strata suitable for quarrying purposes.

AREA OF THE ISLAND.

The length of the Island is nearly two and three-fourths miles, and its width varies from one-fourth to three-fourths of a mile. It contains, above low-water mark, 970 acres. The course of the Mississippi, for some six miles, is nearly with the sun, and lengthwise the Island lies east and west. The surface of the Island is waving, yet not to any marked extent, and it is covered generally with sparse timber. On much of it the first growth of timber has been removed, and is replaced by a second growth, mixed with some large old trees that remain. The native trees are principally oak, elm, ash, bass-wood, hickory, and walnut. The highest part of the Island is that occupied by the shops, all of it being from 17 to 23 feet above the highest stage of water. The other high grounds are generally from 14 to 20 feet above high water.

THE BLACK HAWK WAR.

The United States acquired its title to Rock Island through a treaty which was made by William Henry Harrison, Governor and Superintendent of Indian Affairs for the Indian Territory and District of Louisiana, with certain chiefs of the Sac and Fox tribes of Indians, at St. Louis, Mo., in November, 1804. Black Hawk, the famous Indian hero of the Black Hawk war, was the principal chief of the Sacs, and did not sign the treaty, but held, during the war of 1812 and the Black Hawk war, that the treaty was not binding. Various other treaties were signed by other chiefs and warriors, but it is doubted if Black Hawk wrote his name to any of these, though the records conflict.

The Island of Rock Island was not occupied by white men, and appears to have had no history, until the breaking out of the war with Great Britain, in 1812. The Indians occupied it unmolested, and it was their favorite hunting and fishing-ground, and its beautiful scenery and rich woods made it a favorite resort for feasts and for the performance of religious and other ceremonies.

FORT ARMSTRONG.

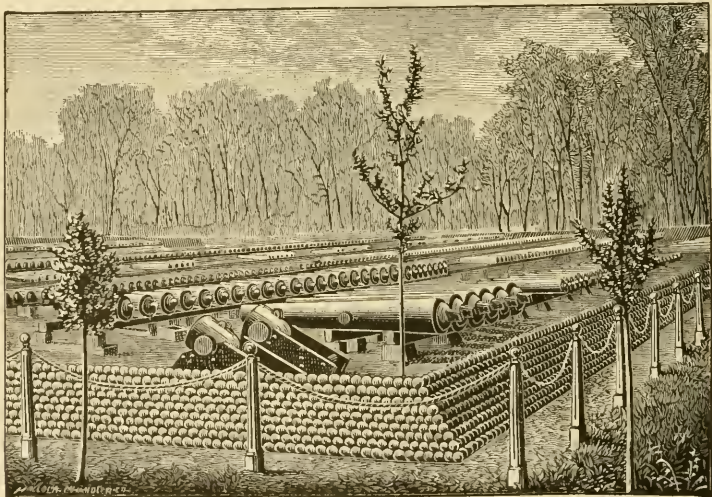
In September, 1815, the Eighth United States Infantry was sent from St. Louis to establish a fort upon the Island. Owing to the difficulties of travel, the troops first landed on the Island May 10th, 1816. Soon after was commenced the construction of the fort, named Fort Armstrong, in honor of the Secretary of War. Its location was the extreme northwest corner of the Island. The fort had an interior of 400 feet square. The lower half of the walls was of stone, and the upper half of hewn timber. The fort was completed in 1817, and from that time to the breaking out of the Black Hawk war, in 1831, no unusual event is connected with it.

After the close of the war there were no further hostilities with Indians. A garrison was maintained at Fort Armstrong till May 4th, 1836, when the fort was evacuated. General Street, Indian Agent, had charge of the Island until 1838, when Colonel George Davenport succeeded him, remaining in charge two years. In 1840 an ordnance depot was established at the fort, of which Captain Shoemaker had charge until 1845, when the stores were removed to St. Louis Arsenal. From 1845 till the act for establishing the Rock Island Arsenal was passed, in 1862, the Island was in charge of a civil agent or custodian employed by the war department, out of the control of which it never passed.

THE COMMANDANTS.

GENERAL THOMAS J. RODMAN.

The act of congress locating the National Arsenal on Rock Island was approved July 11th, 1862, and it appropriated for the purpose \$100,000.00. This was the first action of congress looking definitely to the construction of the Arsenal. Ground for the first building—that now seen at the extreme west end of the Island—was



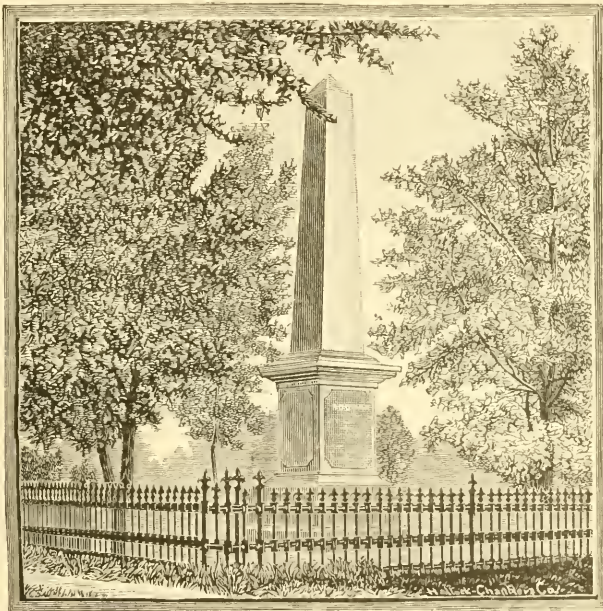
THE ARSENAL GUN-YARD ON MAIN AVENUE.

broken September 1st, 1863. The corner-stone was laid April 20th, 1864. The tower of this building is supplied with one of the best clocks in the United States. It has a dial twelve feet in diameter on each of the four sides of the tower, and a striking bell weighing 3,500 pounds. The dials can be easily read from the cities of Davenport and Rock Island. General Thomas J. Rodman, the inventor of the famous gun bearing his name, was assigned to the command of the Arsenal in June, 1865, succeed-

ing Major Kingsbury, who was the first ordnance officer in command. General Rodman assumed his duties August 3d, 1865, and his command continued until his death, June 7th, 1871.

It was on February 7th, 1866, that General Rodman submitted plans to the Chief of Ordnance, comprehending ten great shops, in two rows of five shops each, those on the north being designed for the Armory, and those on the south for the Arsenal. These plans were approved, and General Rodman began the execution of his mighty work.

An act of congress approved March 3d, 1869, appropriated \$500,000.00 for the construction of the bridge across the Mississippi. Upon this work of engineering General Rodman bestowed a great deal of time, labor, and trouble; and to him belongs the honor of completing the plans. He lived to see his plans for the Arsenal materialized in the construction of two of the great shops and the quarters for the commanding officer.



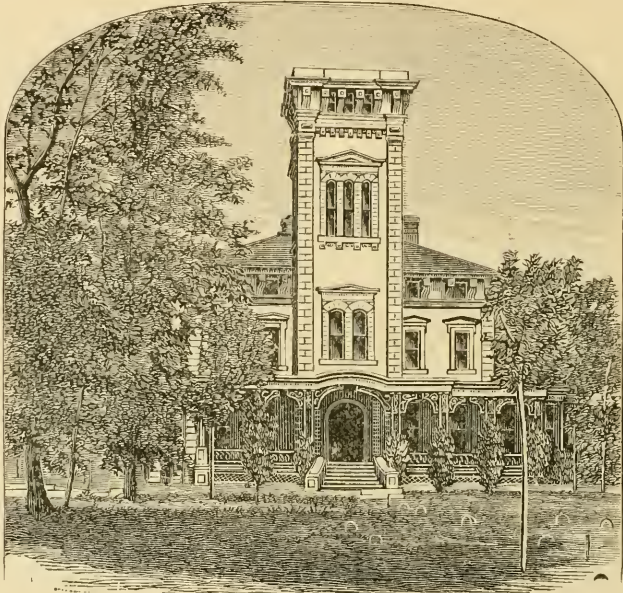
GENERAL RODMAN'S TOMB.

General Rodman died at his quarters at the Arsenal, June 7th, 1871. At the request of the Chief of Ordnance, he was buried upon the Island, in a lot of ground set apart for that purpose, near the national cemetery, at the east end of the Island. There a modest shaft, bearing the honored name of "RODMAN," marks the last resting-place of the illustrious soldier and noble citizen.

COLONEL D. W. FLAGLER.

Colonel D. W. Flagler was placed in command of the Arsenal by an order issued from the Adjutant-General's office, June 15th, 1871. He at once comprehended the importance of the great work placed in his charge, and to it, for fifteen years, he gave his time, careful attention, and profound study. The plans, as he received them, were imperfect in the details, compared with the elaborate work that developed from them, with the numerous changes and improvements that have been made. The progress of construction was supplemented by the manufacture of stores for the army to the extent of \$150,000.00 annually for several years. In this way Colonel Flagler proved that ordnance stores can be manufactured here and distributed to the

army cheaper than they can be fabricated in the east and brought west. He superintended the building of the great shops, the water-power machinery, the officers' quarters, the soldiers' barracks, a complete system of sewers, the Moline bridge, the roads, streets, and avenues about the Island, the system for transmitting power, the grading and ornamentation of grounds. Colonel Flagler was transferred to Frankford Arsenal, Philadelphia, in the summer of 1886.



THE COMMANDANT'S RESIDENCE.

COLONEL THOMAS G. BAYLOR,

The present commandant, graduated from West Point with the class of 1857. He served as Second Lieutenant at Fortress Monroe from July, 1858, to July, 1861. Later he was commandant at Fort Monroe Arsenal, serving in that capacity from August 15th, 1861, to October 20th, 1863, when, having been promoted to the rank of Captain, he was appointed Chief of Ordnance for the Army of the Cumberland. His war record was gallant, and his responsibilities many. In June, 1865, he was reappointed commandant of Fort Monroe Arsenal, and remained there till 1876, when he was transferred to the command of the New York Arsenal. After ten years' service at that Arsenal, he was transferred to Rock Island in 1886, having been promoted to the full rank of Colonel.

ARSENAL AND ARMORY SHOPS.

THEIR EXTENT AND CHARACTER.

The row of five shops south of the main avenue are for the Arsenal, and the five north of the same avenue are for the Armory. The center shop in the row is the forging-shop and foundry of the Arsenal, and the other four are designed for finishing — wood, leather, and metal-working shops of all kinds for the manufacture of all the material of war. The center shop of the north row is the rolling-mill and forging

shop for the Armory, and the two on either side of it are finishing and wood-working, or "stocking," shops for the manufacture of all kinds of small arms. The center shop in each row is only one-story high, and the other four have a basement and three stories. The ground-plans of all the ten shops are alike. Each building consists of two parallel wings, 60 by 300 feet, 90 feet apart. This leaves an interior



PARTIAL VIEW OF ARMORY SHOPS.

court 90 by 238 feet. The porticoes at the sides project twelve feet, and are 60 feet wide; and those in front project two feet, and are also 60 feet wide. The total area of each shop, including thickness of walls, is 44,280 square feet—a little more than one acre.

The walls of all these buildings are entirely of stone. The exterior or face-stones are heavy ashlar, laid in courses, jointed, and having a squarely-broken face, without tool-marks. The backing is rubble, laid also in courses, and has its face, which forms the interior of the wall, well pointed. The average thickness of the walls is as follows: First story, three feet four

inches; second story, two feet ten inches; third story, two feet four inches. The amount of material entering into the construction of one of these buildings is enormous. In shop A, the first built, for instance, there are 30,115,800 pounds of rock; 26,000 of copper; 362,500 of slate; 1,331,500 of lumber; 2,199,646 of iron; 3,132,800 of brick; 200,000 of plaster.

ARSENAL NOTES.

A BRIDGE TO EACH OF THE THREE CITIES.

The Island is connected with the Iowa side of the river by one bridge, and with the Illinois side by three bridges. The main bridge is at the extreme northwest corner of the Island. This spans the main channel of the Mississippi river. The total length of the bridge is 1,550 feet 6 inches, divided into five spans and one draw—the latter having a total length of 368 feet. The north shore span is 197 feet in length, and the one on the south or Island end is 100 feet 8 inches, making the total length, including shore spans, 1,848 feet 2 inches. The draw is double, rests on a center pier, and gives, when open, clear water-ways between the draw-pier and the adjacent north pier 162 feet, and the same on the south side. The bridge is double-decked, the wagon-road being on the lower, and the railroad on the upper deck. The cost of this bridge was \$1,000,000.00. The wagon bridge leading to Rock Island

is 600 feet in length, of four equal spans; there is an iron railroad bridge also leading to Rock Island. At the upper end of the Island there is a bridge thrown across Sylvan water connecting with Moline. This bridge is 711 feet long, of five equal spans.

THE DESIGN.

The design of the Arsenal is evident—the ordnance department supplies the army with every article used by the soldier for offensive and defensive purposes. It is proposed by the government to make this Arsenal the Arsenal for the whole Mississippi Valley. When completed, if crowded to its full capacity in time of war, it will be sufficient to arm, equip, and supply an army of 750,000 men.



SOLDIERS' BARRICKS.

THE ISLAND DURING THE WAR.

During the Civil war, Rock Island was transformed into a military prison. From 1863 until the close of the war there were upwards of twelve thousand Confederate soldiers confined as prisoners there. During that period the number of deaths was 1,961, all the interments being made on the Island. The city of the dead so populated is no longer pointed out by the small mound or leaning head-stone. These have all been leveled, and suggestions of the prison days are undisclosed.

THE NATIONAL CEMETERY.

In the national cemetery, at the upper end of the Island, lie the remains of about 400 Union soldiers. The grounds are scrupulously cared for, and with each recurring 30th of May the graves are strewn with wreaths of flowers.

THE ARSENAL WATER-POWER.

On the south side of the Island, almost midway between the cities of Rock Island and Moline, the United States has constructed a water-power of nearly 4,000-horse-power. This is, however, small in comparison with the water-power yet to be utilized. But it suffices to do the work of the Arsenal shops at the present time.

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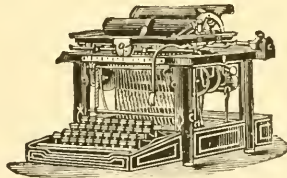


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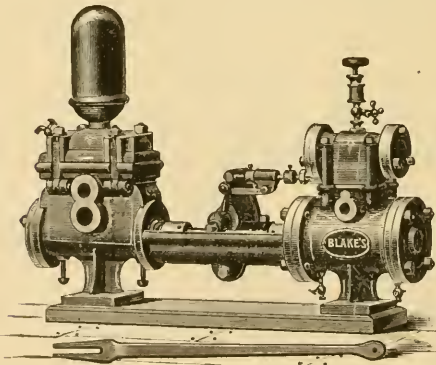
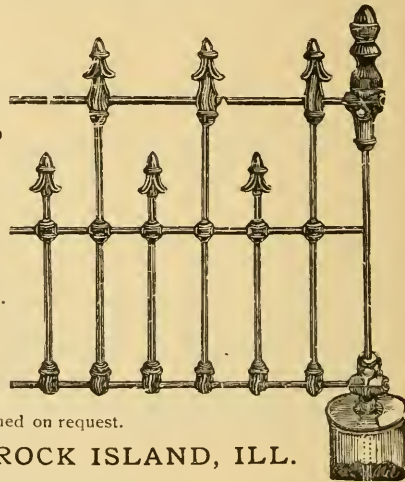
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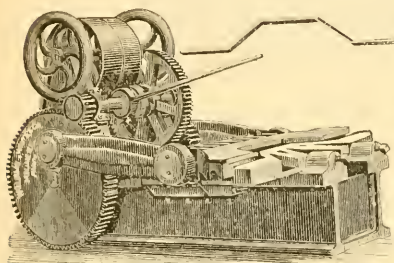
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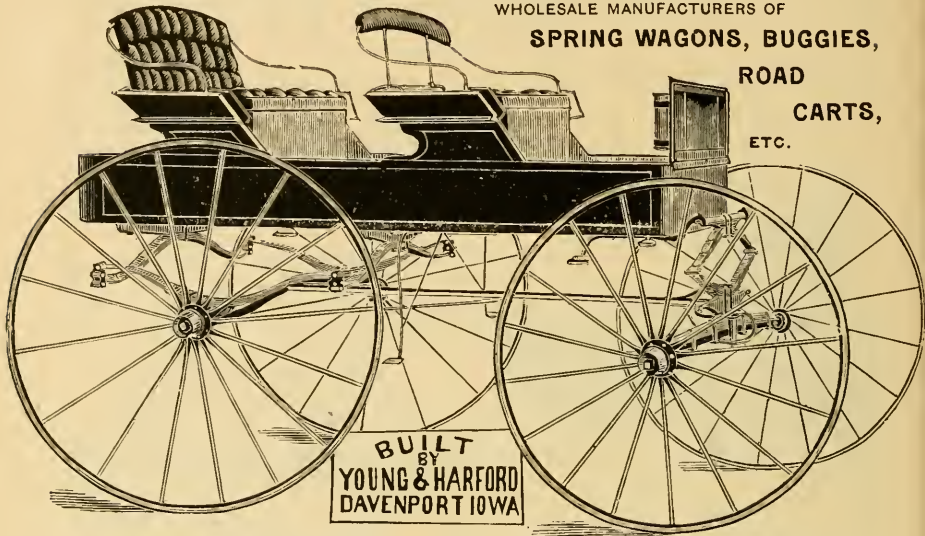
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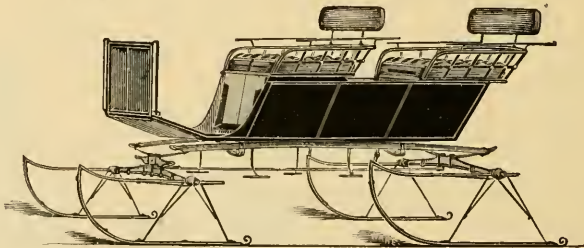
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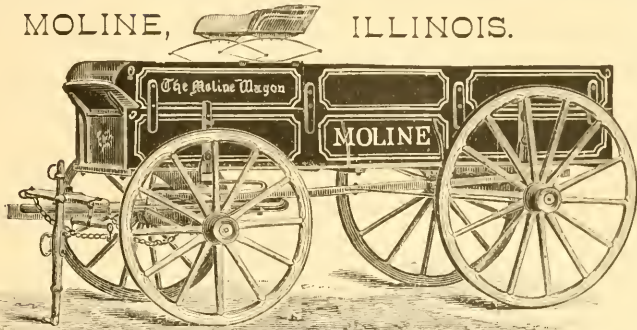
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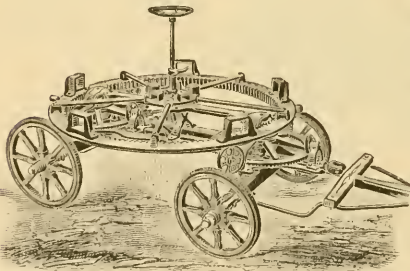


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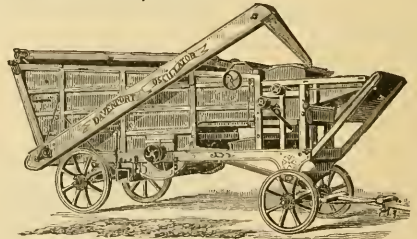
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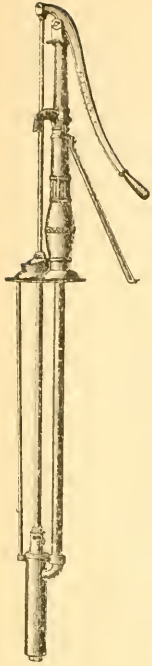


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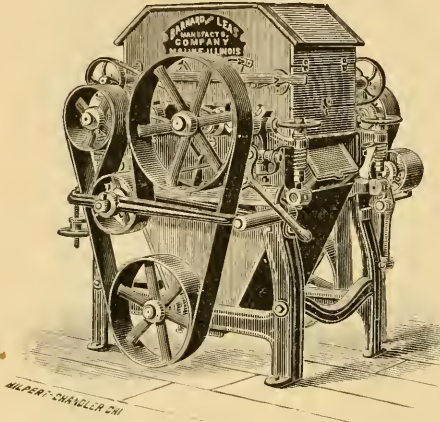
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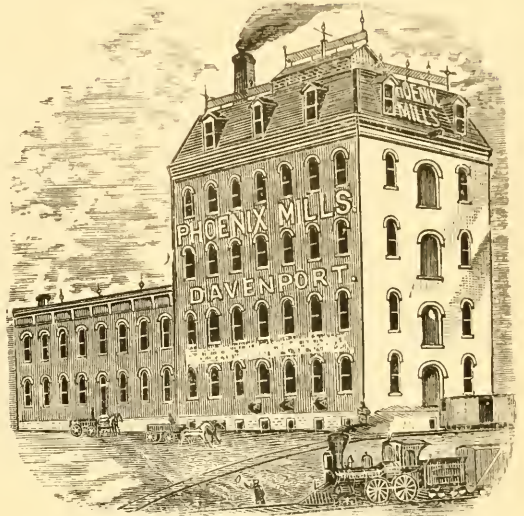
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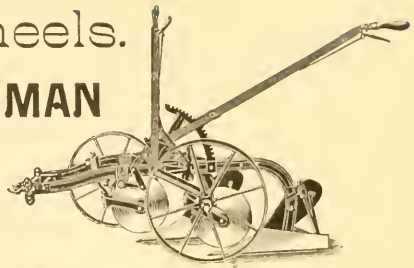
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Its Superiority Covers the following Points of Excellence:

It is Perfectly Balanced on the Wheels, affording perfect support to the plow, and avoids dragging at the corners.

It can be Levelled Instantly, while team is in motion, preventing landside and bottom friction, and insuring light draft.

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The Land Axle has Spring Connecting it with leveling power, which prevents plow from being too rigid, and insures an even depth of furrow when passing over dead furrows, corn rows, or uneven ground.

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It can be Carried Conveniently on the wheels for transportation from field to field or on the road.

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The Original and Famous Three-Wheeled Plow, which for Lightness of Draft and Working Qualities is the Conceded Champion of the Whole Plowed World.

POINTS OF SUPERIORITY.

It runs lighter than any other plow made, because by means of the perfect support afforded by three wheels the plow is carried, not dragged.

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The rear furrow wheel is locked when plowing straight ahead, but unlocked by foot-trip when necessary to turn. After the corner is turned it locks itself automatically.

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The front furrow wheel is at point of plow, insuring a uniform depth when crossing dead furrows or ditches.

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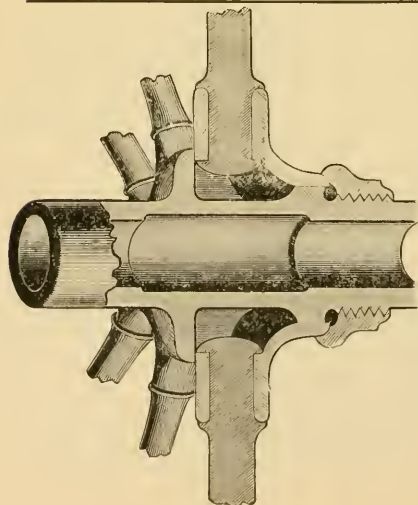
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For agricultural machinery mostly. We are furnishing our Wheels to many of the principal manufacturers of such machinery from the Atlantic to the Pacific coast.

All Wheels made by us are made under our own patents. We print a cut showing how our spokes are perfectly secured in the hub.

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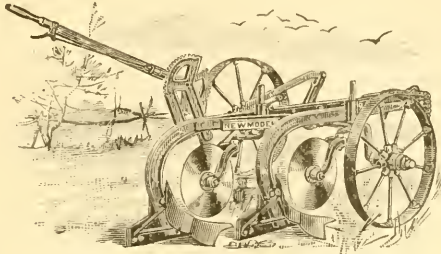
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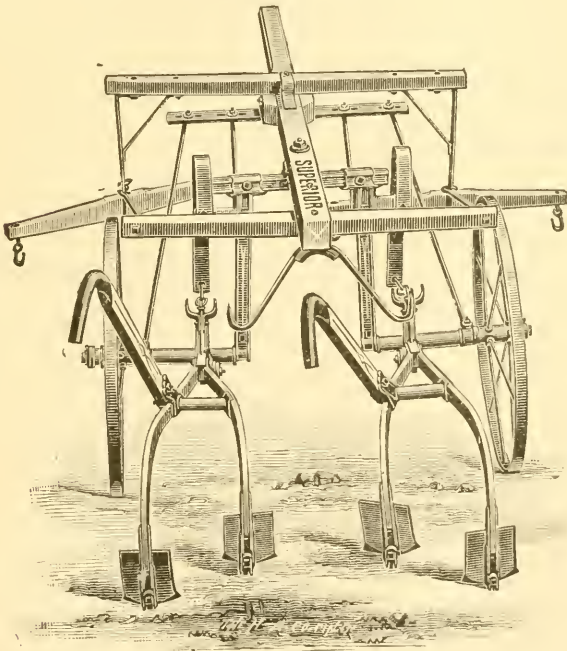


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Wheel-Landside Sulky Plows, Gang Plows,
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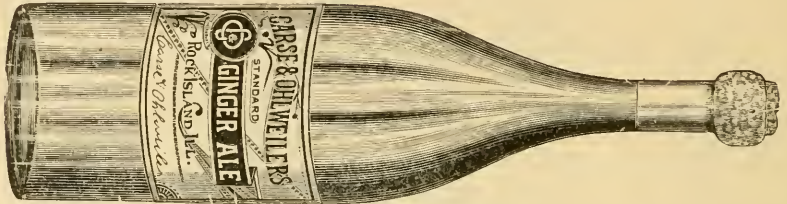
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| Soda and Potash..... | .3,329 | Sulphuric acid | .1,545 |
| Lime | 1.6,769 | Silica..... | .0,991 |
| Magnesia | .8,869 | Iron oxide and alumina..... | .0,258 |
| Chlorine | .4,357 | Volatile matter..... | .3,855 |

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2 FAST TRAINS DAILY
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CLOSE CONNECTIONS IN UNION DEPOT, PEORIA,

WITH ALL ROADS DIVERGING.

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CHICAGO, ROCK ISLAND & PACIFIC RAILWAY.

This universally popular railway was the FIRST to construct a through line to Rock Island, and the FIRST to connect the "three cities"—by the erection of a magnificent bridge across the Mississippi river at that point. It has been the chief instrumentality in the encouragement and expansion of those cities to metropolitan greatness, and the industries they represent to mammoth proportions. For many years after the completion of its line to Council Bluff, to a close identification with what was for a long time the main transcontinental thoroughfare to the Pacific, it was satisfied to restrict its business operations to a field which it had conquered for its own legitimate traffic, and over which it held an almost undisputed sway. When its vast and growing business, and the rapid development of Kansas made an outlet via Atchison and Kansas City necessary, it built its Southwestern Division, making those two cities and Leavenworth its terminal points. Subsequently it obtained control of the Burlington, Cedar Rapids & Northern and Minn. & St. Louis lines and extensions in Iowa, Minnesota, and Dakota, establishing the FAMOUS ALBERT LEA ROUTE, which, from the day of its opening to the public as a through line for traffic and trade, has commanded the lion's share of business between Kansas City and Chicago (and intermediate points) and Minneapolis and St. Paul. Within the past year—driven to this course by the fierce competition of rival and hostile lines which were attacking its business at Missouri river points and depleting its sources of revenue—it determined on a bolder and more aggressive policy than that hitherto pursued. After carefully formulating its plans, and raising all the capital necessary to accomplish its purposes, it suddenly and boldly struck out into "pastures new;" and the indomitable energy displayed in the construction of its numerous extensions west and southwest of St. Joseph and Kansas City into southern Nebraska and Kansas, has been unexampled in the history of railroad building. The network of lines now constituting the CHICAGO, KANSAS & NEBRASKA RAILWAY (so far as completed) furnish ample testimony to the intelligent direction and indomitable executive force which have accomplished, in a time so short, results so amazing.

Starting at St. Joseph, Mo., it will be seen (by reference to the map of route in this issue) that the CHICAGO, KANSAS & NEBRASKA RAILWAY divides into five distinct main lines—one west, through southern Nebraska, one through northern Kansas, one southwest and nearly south to the Indian Territory, one to the southwest corner of Kansas on the direct line to El Paso, and another extending through the interior heart of Kansas to an ultimate western terminus. By the conditions of a lease made with the UNION PACIFIC, this company also has the use of its track between Kansas City and Topeka, thus securing the best practicable route for through travel in a southwest direction between Chicago and the Pacific coast. The mileage of the different lines constructed thus far during the past year are as follows:

| | Miles. |
|---|------------|
| St. Joseph, Mo., southwest to Wellsford, Kas. (El Paso Line)..... | 340 |
| Herington, Kas., southwest to Caldwell, Kas. (Gulf Line)..... | 123 |
| Horton, Kas., northwest to Nelson, Neb. (Yellowstone Nat. Park Line)..... | 166 |
| Fairbury, Neb., southwest and west to Mankato, Kas. (Denver Line)..... | 70 |
| McFarland to Grant, Kas. (Clay Center Line)..... | 35 |
| Herington to Enterprise, Kas. (Salina Line)..... | 14 |
| Kansas City to Topeka (leased line)..... | 63 |
| Total mileage | 816 |

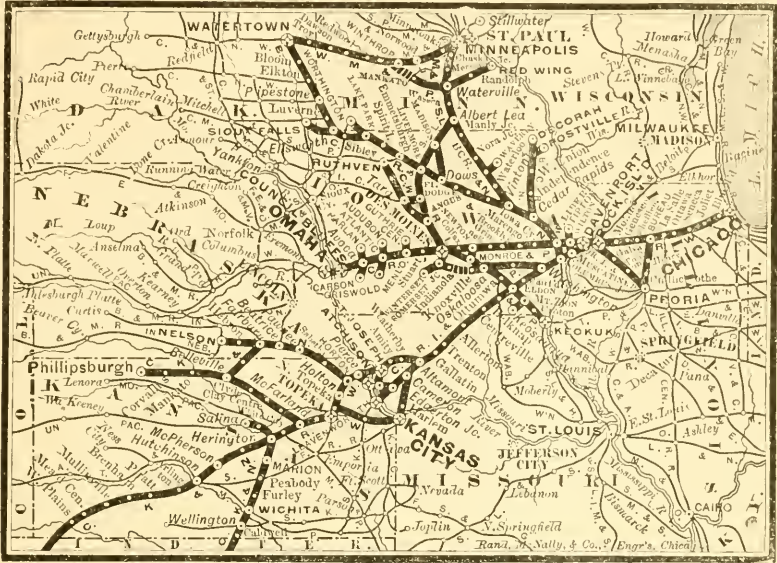
The foregoing mileage, all of which has been built within the past year, and nearly all of which is now in practical operation, is a record that shows a wonderful enterprise and energy. Many more miles will, it is believed, be added to the above aggregate before the close of the year, for grading and track-laying is still going on as fast as the ground can be put in shape and the rails laid. It should be borne in mind that the mileage above given by no means represents all that has been accomplished or the capital that has been expended. A vast system of machine and work shops have been established at favorable locations; numerous convenient and commodious stations erected, including the splendid official headquarters, hotel, and depot at Topeka; machinery plant purchased and put in place; locomotive engines finished and harnessed to trains; while the entire system has been splendidly equipped throughout—coaches of all kinds suited to modern travel and with the latest improvements—by the celebrated Pullman Palace Car Company, which fact is alone a sufficient guarantee of its superiority.

The ROCK ISLAND has taken a bound into the arena of competition which has already given it a prominent place among the few great railway systems of the world. The lines now composing it are substantially as follows:

| | Miles. |
|--|--------------|
| Chicago, Rock Island & Pacific | 1,384 |
| Burlington, Cedar Rapids & Northern | 1,039 |
| Minneapolis & St. Louis | 580 |
| Chicago, Kansas & Nebraska | 816 |
| Total mileage constructed and in operation..... | 3,819 |

A MAN

who is unacquainted with the geography of the country west northwest, and southwest of Chicago—that vast, highly-cultivated, thickly-populated, and prosperous section of the continent known as the "Middle-West"—will derive much important and useful information from a study of the following map of the



CHICAGO, ROCK ISLAND & PACIFIC RAILWAY.

It is a noticeable fact that the flourishing and opulent cities of Rock Island, Davenport, and Moline are the keys to the situation—the very centers of the system to which that railway offers the best possible facilities to all points (and in every conceivable direction) reached by its main lines, branches, and extensions. Going to Chicago, Peoria, St. Joseph, Atchison, Leavenworth, Kansas City, Des Moines, Council Bluffs, Omaha, Sioux Falls, Watertown, Minneapolis, and St. Paul, the "Great Rock Island," with—

THE FAMOUS ALBERT LEA ROUTE,

Constitutes the best, most direct, and universally popular line, or system of lines. Between all those points Daily Fast Express Trains run in either direction, consisting of fine Day Coaches, elegant Dining-Cars (serving delicious hot meals at 75 cents each), magnificent Pullman Palace Sleeping-Cars, and (to and from St. Joseph, Atchison, and Kansas City) restful Reclining-Chair-Cars, seats Free to holders of first-class tickets. The Rock Island is admirably and carefully managed, operating a double steel-track between the "Three Cities" and Chicago. It aims to give satisfaction to the traveling public, assuring its patrons safety, certainty, comfort, and luxury.

Fast Limited Express Trains daily each way, saving five hours time between Chicago and Council Bluffs and between Chicago and St. Joseph, Atchison, Leavenworth, and Kansas City. Connections with corresponding fast trains at these terminal points, going through to Los Angeles, Portland (Ore.), San Francisco, and all Pacific coast points. California excursions daily at lowest round-trip rates.

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THE SHORT AND POPULAR LINE

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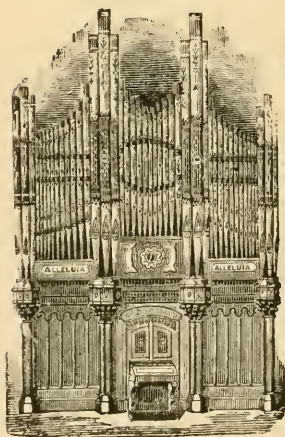
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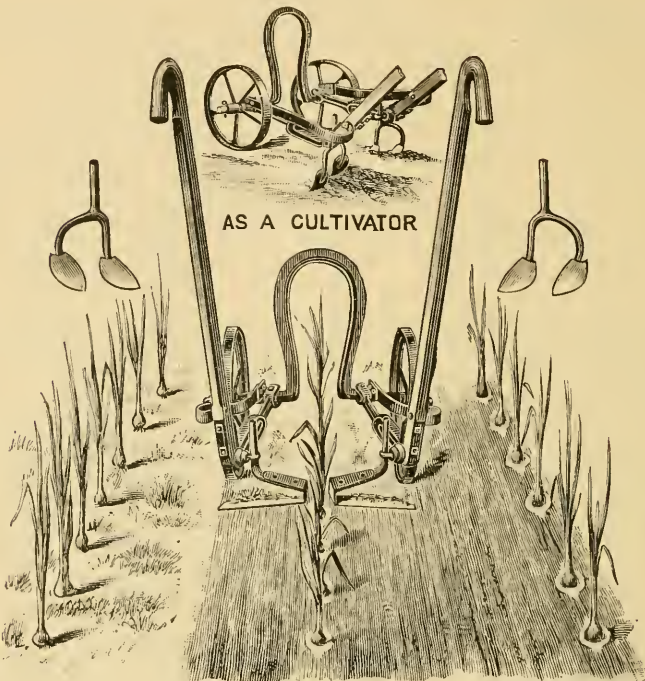
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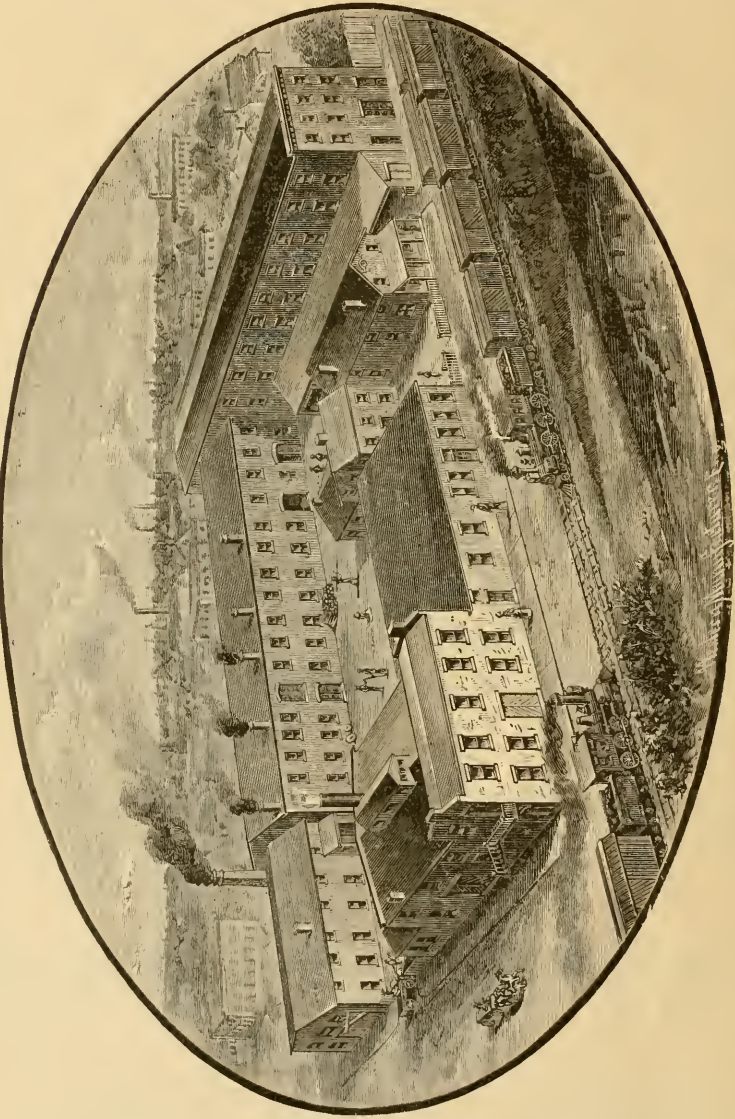
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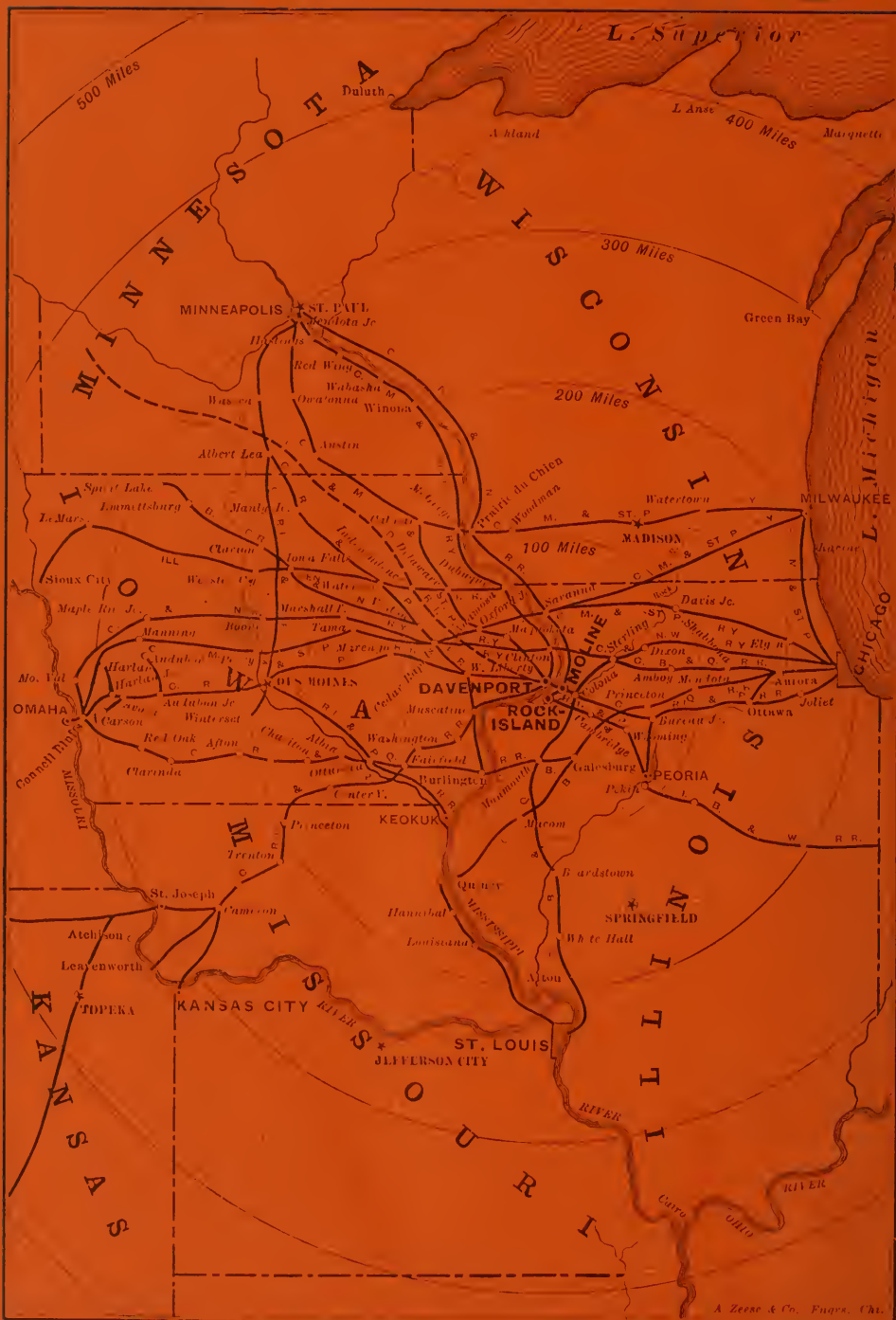
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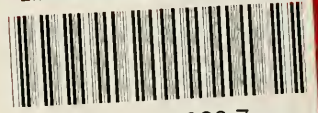
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Map showing the Railroad System of Davenport, Rock Island, and Moline, the Mississippi, Missouri, and Ohio rivers: the relative location to Chicago, St. Paul, Omaha, and Kansas City, and the Immediate Trade Territory of this Manufacturing, Mercantile, and Residence Center.

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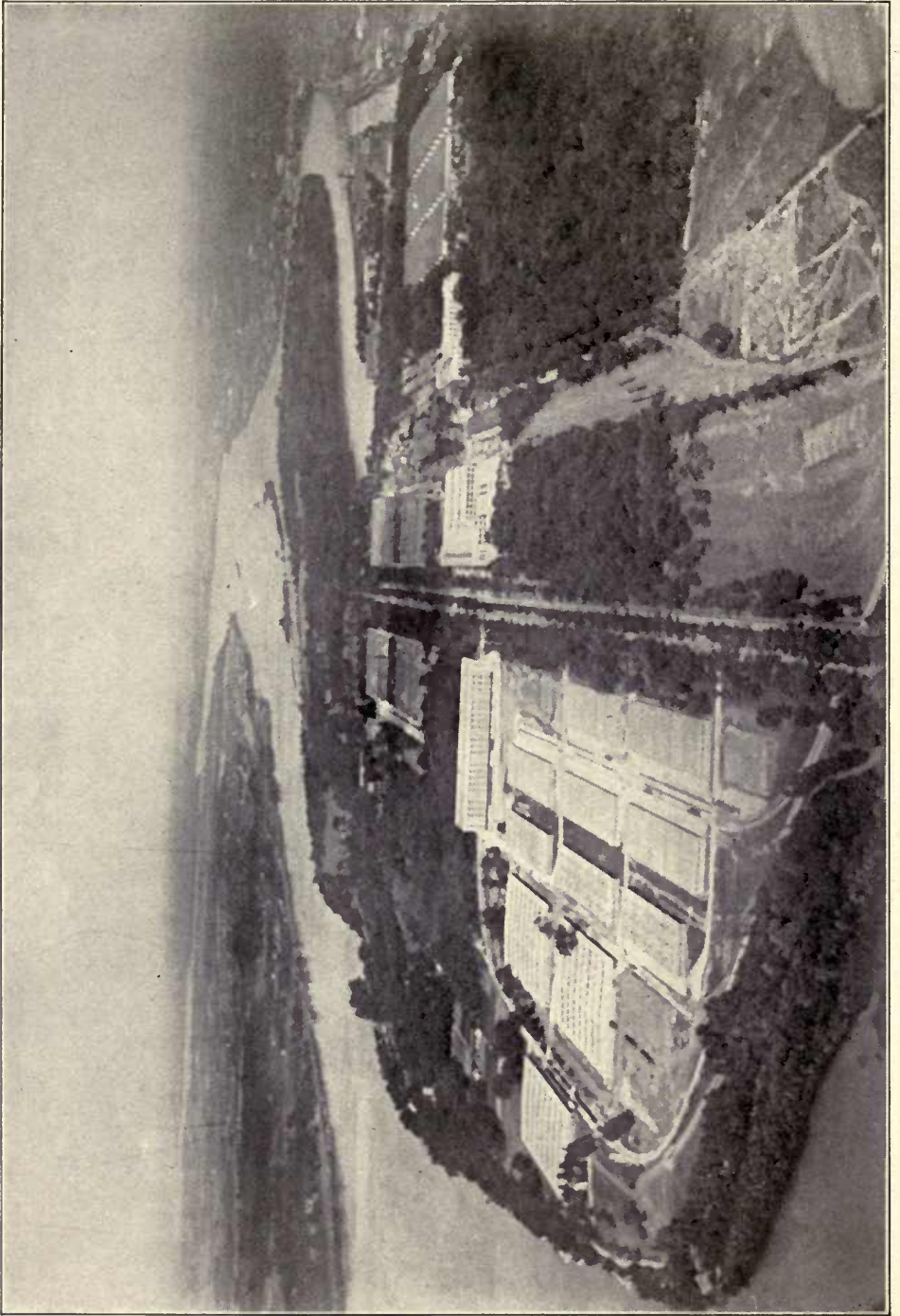


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Rock Island Arsenal viewed from the air. Roofs of new Artillery Vehicle Storehouses in foreground at left.

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ACKNOWLEDGMENT

The publishers of this work wish to make grateful acknowledgment to Col. D. M. King, Commandant at Rock Island Arsenal, to Col. Harry B. Jordan, his immediate predecessor, to Mr. H. L. Noth, administrative assistant at the Arsenal, to Mr. John H. Hauberg, author of the chapter on early Indian history, and to others, for invaluable co-operation and courtesies extended in connection with the collection of data and the preparation of material for publication, and also for the privilege of reference to Mr. B. F. Tillinghast's admirable work, "Rock Island Arsenal in Peace and War", and to Col. D. W. Flagler's historical records of the earlier days of the Arsenal.



Maj. Gen. C. C. Williams, Chief of Ordnance

Foreword

N LAYING the ground plan for this story of Rock Island Arsenal, the desire has been to weave into the fabric of material fact something of the spirit of romance which is so intimately connected with its history. So, in the background of the picture, as viewed through the long vista of the years, will be seen the Indian wigwams of a vanished people, the heroic figure of Chief Black Hawk, the grim outlines of old Fort Armstrong, on a strategic point of the Illinois shore, and glimpses of the Mississippi river, dotted with the war canoes of the Sacs and Foxes. It is true that these things relate to a time far remote, but they belong in the picture, nevertheless.

The building of Fort Armstrong in the year 1816, as a frontier post of the United States army, is very properly regarded as the starting point in the History of Rock Island Arsenal, and as the opening of the four periods in which its story may be told. Col. Lawrence superintended the fort's erection, and he was retained on the Island in command of the Eighth U. S. Infantry. This may be classed as the first epoch in the history of the Arsenal.

In the second period of Arsenal history—that of development—it made rapid strides under Gen. T. J. Rodman and Gen. D. W. Flagler, embracing the time covered by and immediately subsequent to the Civil War.

During the third period the Arsenal had its first real test of usefulness in the Spanish-American War, when Col. Stanhope E. Blunt was commandant, and justified every hope of its founders. Succeeding Col. Blunt was Col. Hobbs, now deceased.

Then came America's entrance into the World War, in early April, 1917, with the Arsenal during this period first in charge of Col. George W. Burr, and then of Col. Leroy T. Hillman. Its activity during this time, which may be called the fourth period in Arsenal development, is a matter of history that finds no parallel in the world's annals, and at the time the publication of this work was undertaken Rock Island Arsenal was the center of post-war activities under Col. Harry B. Jordan, as commandant of the Arsenal, later succeeded by Col. D. M. King in the same position.

As in modern journalism it is the custom to chronicle at the head of a story the big event, and to lead with it, although it may in reality come last in chronological order, so the publishers of this volume deem it proper to feature in the opening chapters the remarkable part played by Rock

Island Arsenal in the World War. In that struggle this great military establishment fully demonstrated to the nation its supreme importance in meeting the exigencies of armed conflict.

Briefly, then, this may be said to be the outline of the manner in which the history of Rock Island Arsenal is covered in the story here presented to the public. The results achieved for the nation in the face of the gravest crisis the world has ever seen are in themselves the best arguments for the continued support by congress of this great military plant. The matter of location alone gives the Arsenal that pre-eminence which was recognized by General Ramsey, United States Chief of Ordnance, in 1864, when in his report to the War Department he said:

“After a careful study of the question of location, there is no position which, to my mind, affords so many advantages, and at the same time presents so few objections, as Rock Island, in the Mississippi river.”

For many years its possibilities had been recognized by a few who foresaw the part that location, manufacturing resources, distributive facilities, and other factors might be made to play in a great national emergency. Only the stress of actual war, however, could bring it the general recognition that it always had deserved. When the gate of circumstance opened it was revealed as the key to the military strength of the United States, and its rapid development was promptly provided for. Not only was the manufacturing plant greatly expanded, but storage facilities were multiplied many times over, so that now, in time of peace, it is enabled to shelter complete equipment, immediately available, for an army greater than was even thought of before the World War.

Besides being always ready to resume manufacture of war material at full capacity within a few weeks, this Arsenal is supplied with standardized tools and patterns designed to quickly transform many privately-owned industrial plants from a peace to a war basis. Thus the foresight of the founders has been fully vindicated.

And so, in the telling of this story, the last shall be placed first, giving priority to that which transcends all that has gone before. The European struggle supplied the acid test of the great Arsenal established by the United States on the Mississippi river at Rock Island, Illinois, and opposite the city of Davenport, Iowa, in 1862, and therefore deserves first consideration in this volume.

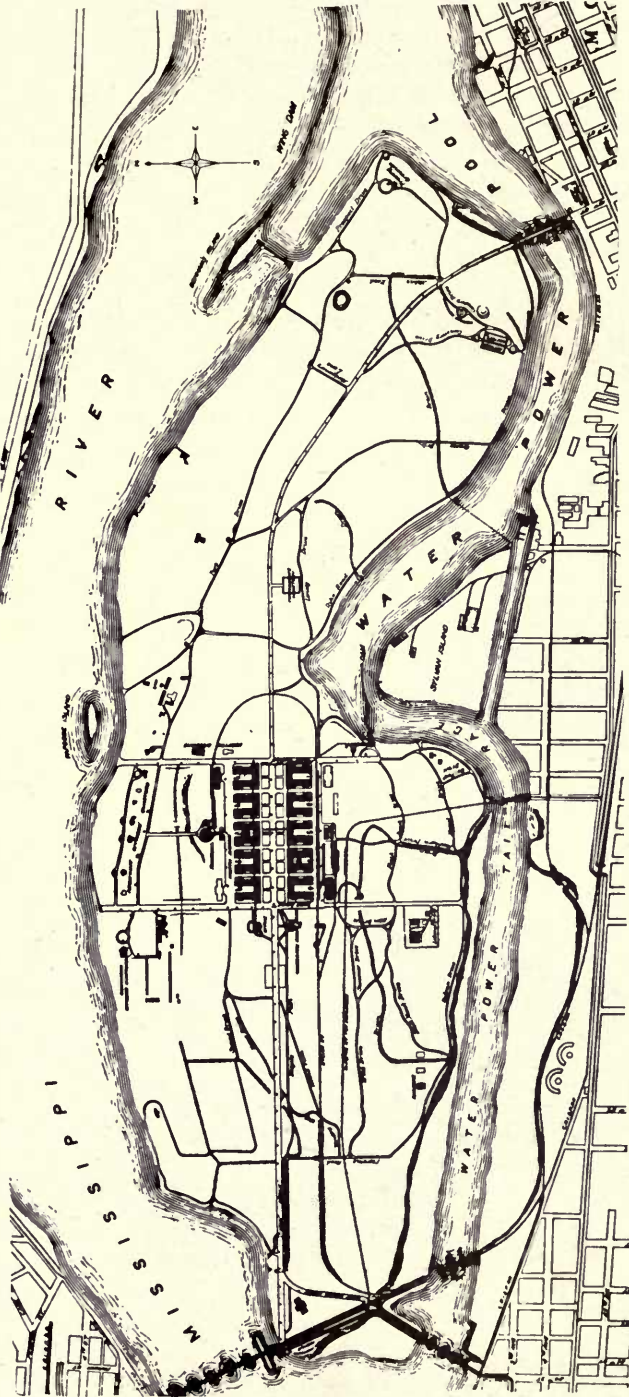
Indicative of and bearing out the importance of this mid-western military establishment, the official records show that from the day the United States entered the World War, on April 7, 1917, until the Armistice was signed, on November 11, 1918, the government authorized the expenditure at Rock

Island Arsenal of \$108,955,974.07. Of this amount, due to the cessation of hostilities, \$19,612,133.48 was revoked, leaving an actual expenditure of \$89,343,840.59 by the Arsenal during the period of the war. In the total expended in this period, \$66,526,540.31 was devoted to the manufacture of war materials and purchases for this purpose, this item also including \$17,120,515.51 for labor; increased facilities, new machinery, alterations and new buildings, \$17,341,487.69; storage, temporary barracks, guard houses, and other incidental buildings, \$3,915,812.59; and Savanna, Illinois, proving grounds, \$1,560,000.00.

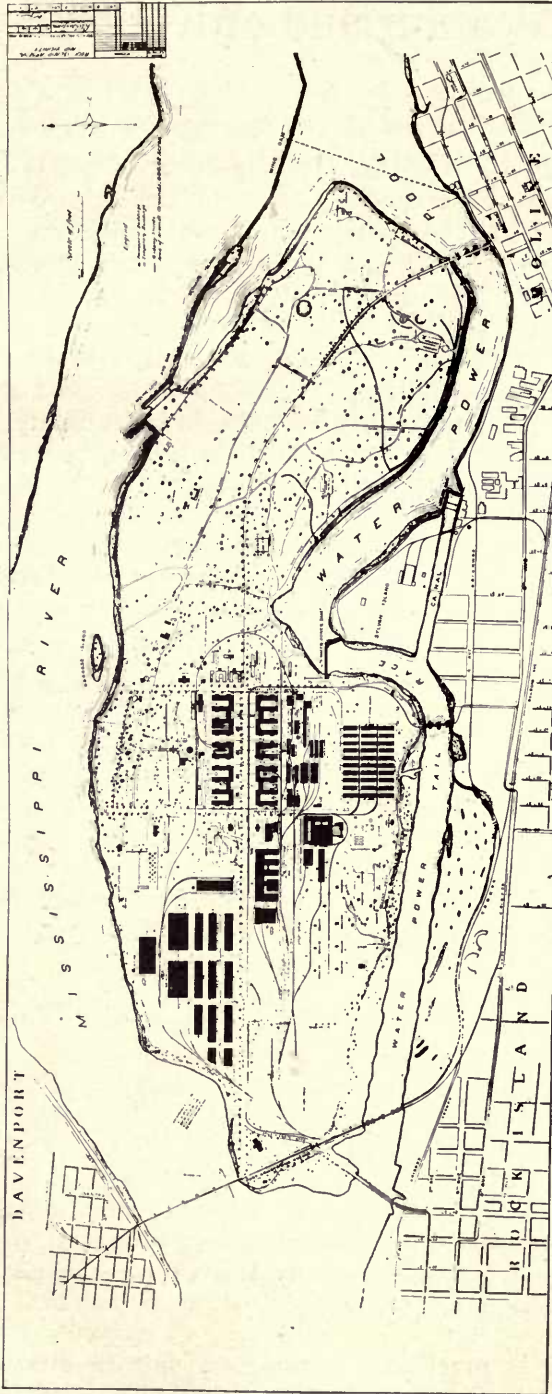
With the problem of reducing armament receiving the earnest consideration of the nations, and indications pointing to the ultimate adoption of a policy of material retrenchment in military expenditures, the question naturally arises as to the probable effect upon future activities at Rock Island Arsenal.



Main entrance gate at west end of Island.



MAP OF ROCK ISLAND ARSENAL.
Showing location of buildings at beginning of World War.



MAP OF ROCK ISLAND ARSENAL BROUGHT UP TO DATE.
Comparison of this map and the one on the preceding page reveals the immense expansion of buildings that took place during the World War.

Location and Advantages



ROCK ISLAND ARSENAL occupies an island in the Mississippi river lying on the Illinois side of the channel between Rock Island and Moline, Ill., and Davenport, Iowa. The tract comprises 896.62 acres of almost level land, all but a small part lying well above high water mark. The name was derived from the island's bed of limestone, into which the stream has cut on all sides, leaving projecting ledges exposed to view. This stone not only adds a picturesque effect, but lying near the surface, it furnishes an ideal foundation for the heavy construction required in an institution of this kind. The natural beauty of the spot has been commented upon from the days of the earliest white settlers. It is exceeded at but few points in the middle west.

Being located on an island used almost exclusively for its purposes and all owned and controlled by the War Department, the Arsenal is set apart by nature from the surrounding community and is easily guarded and singularly free of danger from machinations of enemy agents in time of war. Its central location is of the utmost strategic value, since it is practically inaccessible to an outside enemy from any possible point of invasion, and it is in position to forward military supplies with equal facility to all national frontiers, east, west, north, south. Its transportation resources include three great railroad systems that spread a network over the middle section of the country, with through service to the Pacific and direct connections to the Atlantic and Gulf coasts. These systems have several local branches and there are, in addition, lines tapping two other trans-continental systems crossing the river within a radius of 50 miles.

Water transportation facilities are exceptional, including the great Mississippi and its navigable branches, giving access to the Gulf of Mexico and much of the interior of the country, and canal connections, about to be much improved, opening the way to the Great Lakes and thence out to the sea.

Location of the Arsenal, in short, is such that manufacturing may be conducted and war equipment stored with a minimum risk, while, when need arises, supplies may be distributed to all parts of the country with a maximum of efficiency and speed.

The Arsenal is practically a complete unit in meeting the nation's military needs. Its storehouses contain everything, with a few exceptions, that the soldier uses in modern warfare, and its shops make the vast

majority of the articles included. At no other place in the country is the variety of production so broad and the output so extensive, when in full operation.

As far as it is practicable to make it, the Arsenal is independent of the civil community surrounding it. It has its own water power plant, which is sufficient for ordinary needs. In an emergency it can buy power in any quantity. There is also boiler capacity on the island sufficient to meet present requirements, and wanting only installation of engines and electrical equipment. Development of the water power has been largely incidental with the government project for the improving of the Rock Island rapids for purposes of navigation. The hydro-electric plant has a rated capacity of 4,400 horse-power, while the eight steam boilers are capable of developing 4,000 horse-power. The Arsenal has its own water and sewer systems and a complete and modern fire fighting equipment, manned by experts. Shipping facilities include no less than 15.6 miles of railroad track, covering the shop and storehouse districts and giving means of quick and economical handling of all materials. There are 23 miles of wagon roads, 9.4 miles of which are permanently improved. There are quarters for the housing of officers and enlisted men, a hospital, cafeteria and buildings for recreation and welfare work among both service men and civil employes.

Facilities for testing field equipment made and assembled at Rock Island Arsenal were made complete by the purchase and improvement of an extensive tract for proving grounds. These lie near Savanna, Ill., 60 miles north. The project was begun in 1917, and includes large storehouses, erected since the World War, and used for housing vast quantities of the heavier kinds of war material.

Rock Island, Illinois, is the Arsenal postoffice, and express, freight and telephone business is also handled through that city.

Valuations placed upon the Arsenal, its equipment, and material stored there run into large figures. Here are the latest estimates under the headings given:

| | |
|--|-------------------------|
| Permanent buildings | \$ 18,005,730.00 |
| Temporary buildings | 304,795.00 |
| Machinery and equipment | 19,627,709.00 |
| Railroad trackage (including bridges) | 3,571,500.00 |
| Roads and walks (including bridges other than railroad) | 300,000.00 |
| Grounds (including all fences and improvements) | 4,000,000.00 |
| Sewer and water distributing system | 1,301,600.00 |
| Light, heat and power distributing system..... | 1,457,000.00 |
| Military stores | 299,235,384.00 |
| Stored raw material | 11,485,132.00 |
| Total | \$359,288,850.00 |

Record During the World War



NO adequate idea of what Rock Island Arsenal accomplished during the World War can be gained from mere statistics. Neither can the record of any one department, nor, indeed, of several departments, be taken as indicative of the extent of the aid given the government in its military effort. To start with, the new methods of fighting and the vastly increased scope of activities involved—all coming with such surprising suddenness—found the Arsenal, like the rest of the country, laboring under the handicap of unpreparedness. New machinery and tools, new manufacturing specifications, were required, and new buildings were needed to meet the necessity of immediate expansion. Under the fearful pressure of a great emergency activities were begun or speeded up in a myriad of directions. With all possible haste the force of workers was increased, ultimately reaching ten times the number



Bottling destruction in the form of molten trinitrotoluol, which is being poured into howitzer shells.

employed normally before the war. Leaders were selected from among the experienced and skilled artisans already engaged in Arsenal production, and thus was created the nucleus of the augmented organization.

Supplies already on hand and constantly being received from various sources were distributed, experimental work conducted, standardized tools made and forwarded to private manufacturers to enable them to turn out war material, schools of instruction for workers in private factories and also for soldiers untaught in the use of modern weapons were organized, contracts let for a vast expansion of manufacturing and storage facilities at the Arsenal and a great deal of other work undertaken with the least possible delay.

Obviously, it was impossible for maximum shop production to be attained at once in all lines of work, and so the total output during the war of some varieties of finished work may seem small. That, however, is of minor importance. The significant fact is that the Arsenal was the key to a great part of the military production of the country, organizing and directing it and supplying its standards. Deprived of its aid, the country would have required much more time than it took to get on a war-producing basis. As a result of what was done during and immediately after the war, the Arsenal is relatively much better fitted than ever to cope with any similar situation that may develop in the future.

In the absence of anything more impressive to show how production was accelerated, it is necessary to resort to figures relating to expenditures and number of employes.

Analysis shows that during the period from August, 1914, when the European nations began fighting, until April, 1917, when the United States



Loaded shells in the shipping room, ready to be issued to the army.

entered the struggle, the total expenditures at Rock Island Arsenal was \$11,759,935.90, of which purchases amounted to \$7,115,849.53 and labor \$4,644,086.37. The average monthly expenditure during this period was \$222,370.29 for purchases and \$145,127.69 for labor, or a total average expenditure for each of the thirty-two months preceding the entry of the United States into the war of \$347,497.98.

But in striking contrast to these amounts are the figures for the period this country was in the war. The total amount then expended for purchases and labor was \$58,587,390.18, and this was divided thus: Purchases, \$42,466,874.67; labor, \$17,120,515.51. The average expenditure per month was \$3,077,861.05, and of this average \$2,193,536.91 was for purchases and

\$884,324.14 for labor. It must be understood, however, that these figures are for the manufacturing department of the Arsenal, and do not include the huge sums expended for labor and material by the construction companies at work there.

For some time prior to the outbreak of the World War in 1914, the employees at Rock Island Arsenal totaled approximately 1800 men and 175 women, the latter all office workers, typists and stenographers. From that time until the spring of 1916 there was little tendency to increase the number of workers, but the disturbance on the Mexican border started increased activities at the Arsenal, and by July 1, 1916, there had been added to the force about 100 men and 25 women, the latter still being confined to clerical positions. From then until the United States entered the war, employees were added at the rate of about 200 per month, and on April 6, 1917, there were employed 3,600 men with 300 women office workers.

High speed and maximum production then became the watchword, and employees were added at a rate close to 250 or 300 each month. On December 31, 1917, the total was 6,100 men, and 375 women office workers; and on May 31, 1918, this total was increased to 8,926 men, and 450 women office workers. As a new departure, about 100 women shop workers had also been employed. The first of these were taken on May 20, 1918, and when the Armistice was signed somewhere near 1,500 women were employed in the shops.

The following table shows the increase in the number of employees during the war period:

| | Men | Women |
|-----------------------|--------|-------|
| August, 1914 | 1,800 | 175 |
| July, 1916 | 1,900 | 200 |
| April, 1917 | 3,600 | 300 |
| January, 1918 | 6,100 | 376 |
| May, 1918 | 8,926 | 450 |
| July, 1918 | 10,268 | 572 |
| August, 1918 | 11,244 | 722 |
| September, 1918 | 11,899 | 902 |
| October, 1918 | 12,342 | 1,227 |
| November, 1918 | 13,361 | 1,417 |

Succeeding chapters deal in order with the detailed record of production during the war, the construction program made necessary by the war's demand, manner in which workers were found and trained, the military personnel and means taken to guard the Arsenal.

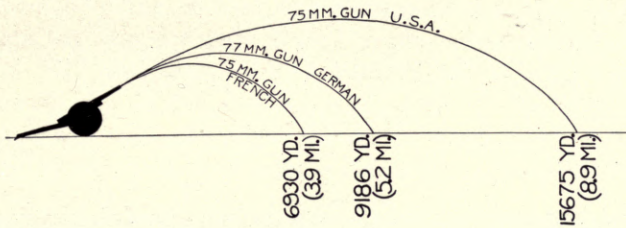
AMERICAN ARTILLERY THE MOST EFFECTIVE IN THE WORLD

Artillery developed by the United States Army Ordnance Corps, like the small arm, has no equal in range and effectiveness. This was true during

the World War, and it is true today. Comparisons that may be readily comprehended are presented in the accompanying diagrams. Range of guns of American, French and German make used during the war, and approximately equal in bore and weight of projectile, are shown in light, medium and howitzer types. Development of the American gun as represented in the 1920 4.7 model over the 1906 model, which was the best we had during the war, is also indicated. Carriages and other equipment for all the American guns included are made and assembled at Rock Island Arsenal.

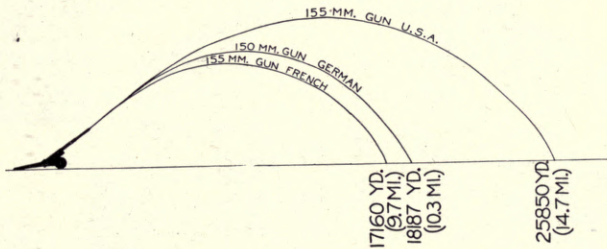
COMPARISON OF LIGHT FIELD ARTILLERY

Weight of projectile—U. S. gun, 15 pounds; French gun, 12.2 pounds; German gun, 14.96 pounds.



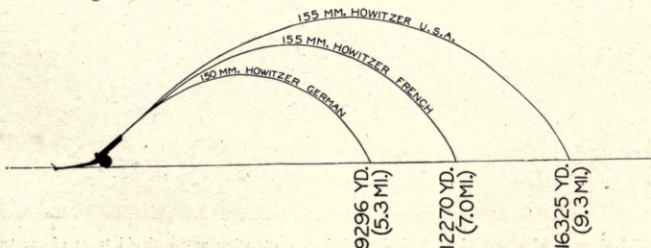
COMPARISON OF MEDIUM FIELD ARTILLERY

Weight of projectile—U. S. gun, 95 pounds; French gun, 95 pounds; German gun, 86.9 pounds.



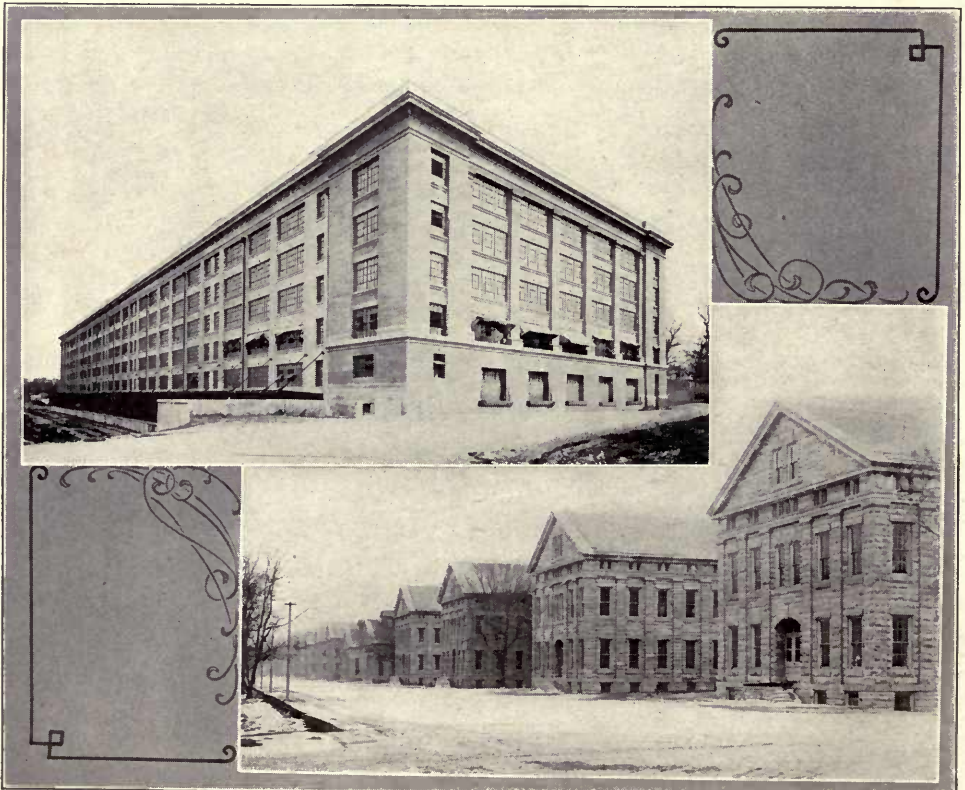
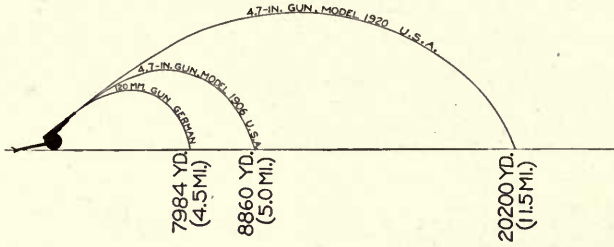
COMPARISON OF MEDIUM HOWITZERS

Weight of projectile—U. S. gun, 95 pounds; French gun, 95 pounds; German gun, 86.9 pounds.



DEVELOPMENT OF UNITED STATES FIELD GUN

Weight of projectile—U. S. model 1906, 45 pounds; U. S. model 1920, 50 pounds; German gun, 36 pounds.



Storehouse W-1 above, and group of original shops below, contrasting new and old types of construction.

Main Items of Production



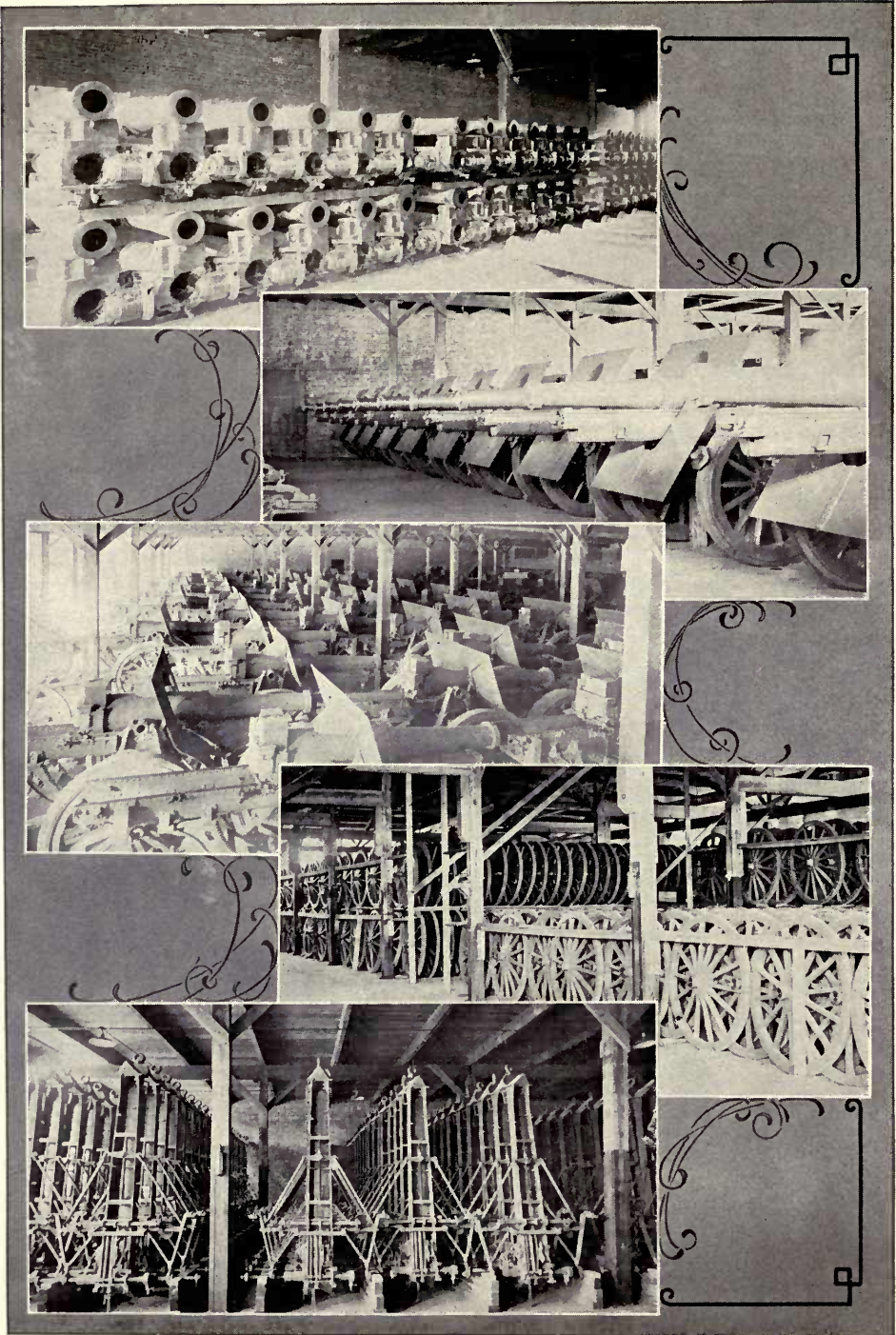
PRINCIPAL articles manufactured at the Arsenal during the war were artillery vehicles, recoil cylinders, artillery wheels, spoke shoes and spoke shoe plates, artillery harness, arm repair chests, rifles, loaded shells and personal equipment items, in addition to test tool sets furnished to other manufacturing firms throughout the country.

The harness manufacturing department was the greatest and most completely equipped in the world. Up to August 1, 1918, all the artillery harness supplied to the United States forces was manufactured here. Between April 6, 1917, and November 15, 1918, 24,212 sets of artillery harness were manufactured and 74,207 sets were assembled. In 1920 the harness department was taken out of the hands of the Ordnance Department and placed in charge of the Quartermaster's Department, making necessary its removal from this Arsenal. It was transferred to the depot at Jeffersonville, Indiana. With the coming of motorized artillery and transport, use of harness and saddles has come to play a relatively unimportant part in army equipment.

Manufacturing of rifles was one of the principal industries at the Arsenal. During practically the entire period in which this country was involved in hostilities 3,500 men and women were employed in the small arms plant. In that time there were manufactured or furnished as repair parts an equivalent of approximately 113,670 rifles, model of 1903. High water mark was reached in October, 1918, when parts sufficient to make 30,455 complete arms were made.

In round numbers, 790,000 complete sets of personal equipment for the soldier were produced during the period of hostilities. The largest single item was bacon cans, 1,512,190 of them. There were included 354,770 knives, 649,457 canteen covers, 858,344 haversacks and 400,256 pack carriers.

Among the larger items of production in heavier ordnance stores were 159 75mm. gun carriages. Unofficial reports also include 194 4.7-inch gun carriages, six 3-inch gun carriages and two 6-inch howitzer carriages. Gun caissons made numbered 121 and gun and forge limbers 446. There were also 255 battery and store wagons turned out. This Arsenal furnished to the Supply Department and to various other manufacturing concerns 264 4.7-inch recoil cylinders, complete. The supply division and outside contractors received from the Arsenal during this time 9,718 artillery wheels, all of which were manufactured here. The same disposition was made of 218,650 spoke shoe plates, also produced at this place.



Acres and acres of storehouses are packed with guns and carriages, the lighter parts being racked up in tiers several deep.

There were manufactured and assembled during the period of hostilities 13,241 arm repair chests, and 167,195 155mm. howitzer shells were loaded, without adapters and boosters.

In March, 1918, two 75mm. gun carriages were manufactured. The same number was turned out in April. In May production increased to sixteen, in June to twenty, with twenty-two in July, twenty-three in August, twenty-eight in September and forty-six in October. The 4.7-inch gun carriages reached maximum production in September, when fifty-eight were manufactured. Out of 194 which had been made at this Arsenal after the declaration of war, 183 were turned out after January, 1918.

A comparative statement of production at this Arsenal during the last year of the war indicates that at the time the armistice was signed the establishment was just reaching a point where maximum production could be attained.

Reduced to figures, the expenditures made at Rock Island Arsenal and the work done during the war may be summarized as follows:

| | |
|--|------------------|
| Appropriated for Arsenal..... | \$108,955,974.07 |
| Revoked | 19,612,133.48 |
| Spent at Arsenal during war..... | 89,343,840.59 |
| Purchases and making war materials..... | 66,526,540.31 |
| Paid to labor..... | 17,120,515.51 |
| New buildings, machinery, etc..... | 17,341,487.69 |
| Spent on Savanna Proving Grounds..... | 1,560,000.00 |
| Average monthly expenditure..... | 3,077,861.05 |
| Number of employees August, 1914..... | 1,975 |
| Number of employees, July, 1916..... | 2,100 |
| Number of employees November, 1918..... | 14,778 |
| Number of French 75mm. gun carriages made..... | 159 |
| Other gun carriages made..... | 202 |
| Forge limbers made..... | 446 |
| Battery and store wagons made..... | 255 |
| 4.7 recoil cylinders completed..... | 264 |
| Artillery wheels made..... | 9,718 |
| Spoke shoes and spoke shoe plates..... | 218,650 |
| Sets artillery harness made..... | 24,212 |
| Sets artillery harness assembled..... | 74,207 |
| Arm repair chests..... | 13,241 |
| Rifles, Model 1905, made..... | 113,670 |
| 155mm. howitzer shells loaded..... | 167,195 |
| Bacon cans made..... | 1,512,190 |
| Knives made..... | 354,770 |
| Canteen covers made..... | 649,457 |
| Haversacks made..... | 858,344 |
| Pack carriers made..... | 400,256 |
| Subscribed for bonds and war charities..... | \$4,000,000.00 |

In addition to the usual work of the Arsenal involving the manufacture and issue of stores, there devolved upon it at the outbreak of the war new duties in connection with the education of prospective bidders on ordnance

materials. The heavy demands made upon the government for equipment occasioned by the rapid mobilization of troops necessitated the placing with private manufacturers contracts for large quantities of personal and horse equipments, with the manufacture of which the great majority of contractors were unfamiliar. At the time the first contracts were placed over 600 persons, representing over 200 firms engaged in various activities, received information at the Arsenal in person pertaining to ordnance material. These firms were furnished over 1,000 samples and more than 20,000 drawings, route sheets, assembly charts, etc., to aid them in the manufacture of the equipment called for under their contracts.

Various schools, known as the Motor Instruction Section, Supply Section, American Ordnance Base Depot in France, and Machine Gun Section,



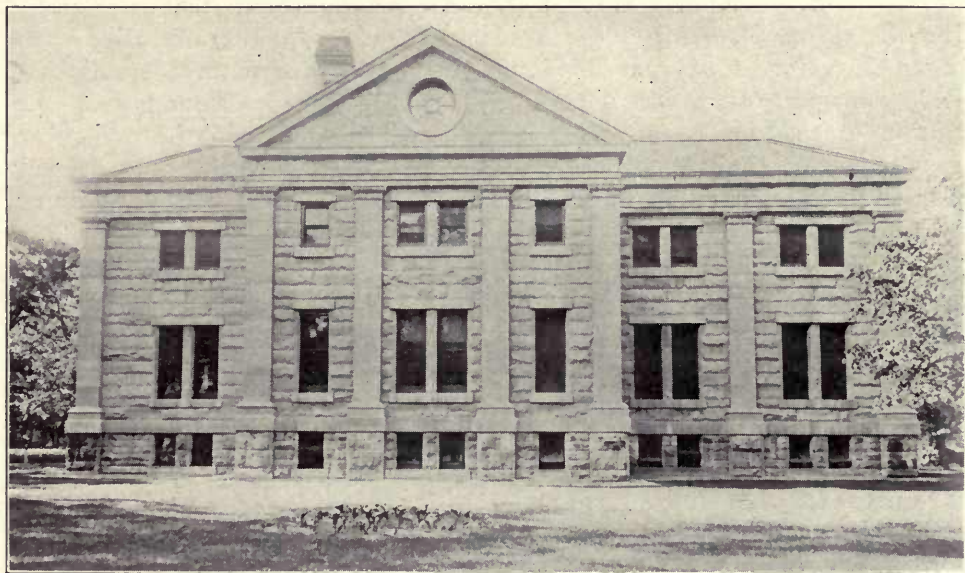
WALNUT FOR GUNSTOCKS IN STORAGE.

A survey was made by the War Department while hostilities were in progress to discover all available sources of supplies of walnut. Seasoned walnut in quantities sufficient to equip millions of rifles is now on hand at Rock Island Arsenal.

were established at the Arsenal, to which were assigned many officers and enlisted men for the purpose of receiving instruction in various duties to fit them for work in the field or at the front. The number assigned throughout the year varied, averaging, approximately, 1,200 enlisted men and 150 officers.

Aside from the actual work in the shops for the production of war material, employees of Rock Island Arsenal hung up a record for war

service that has not been surpassed by any manufacturing plant in the country in proportion to size. After the declaration of war they subscribed the enormous sum of \$4,000,000.00 to the various war charities and to the Liberty bond issues. The bonds, of course, constituted the principal investment of the workers, sales totaling \$3,050,000.00. The Red Cross campaigns netted more than \$11,000.00, the Salvation Army \$10,000.00 and the Allied war drive 20,000.00. The sale of War Savings and Thrift Stamps, of which no record has been kept, brings the total well over the four million mark.



Commandant's Headquarters.

Vast Program of Construction



ROCK ISLAND ARSENAL was literally transformed by construction projects undertaken immediately prior to, during, and just following the period in which this country was involved in the World War. One familiar with the premises before that conflict would scarcely recognize them after the work was completed. All construction was done under high pressure, but most of it was of a permanent character and detracts nothing from the impression of durability, as well as of architectural beauty and practical utility which the institution always has given the visitor.

Several months before this country actually declared war, congress, yielding to the urgent recommendations of the War Department, provided for some minor extensions of the Arsenal plant. This work was only fairly started when the country entered the struggle, and from that time until after the close of hostilities the Arsenal grounds were literally alive with construction forces of every description, and new structures sprang up as if by magic. Work was done under contract, some on a lump sum and some on a cost plus basis, with the exception of a number of storehouses built by the Arsenal organization after the close of hostilities and needed to shelter the immense quantity of war material returning from the armies in France and from the training camps in this country.

Much additional shop room was needed, and, all told, the additions to the plant amounted to more than one and one-half millions of feet of floor space, costing more than seven millions of dollars. Chief among the new structures built for manufacturing uses were the artillery vehicle plant and the artillery ammunition assembling plant. The former consists of a main erection shop 120 x 605 feet, with three wings, each 80 x 200 feet, and all four stories high. The latter is 360x400 feet, in three sections, one three stories, one two and the other one story in height. The ammunition assembling plant cost \$2,093,000 and the artillery vehicle plant \$2,225,000. Both are of reinforced concrete construction.

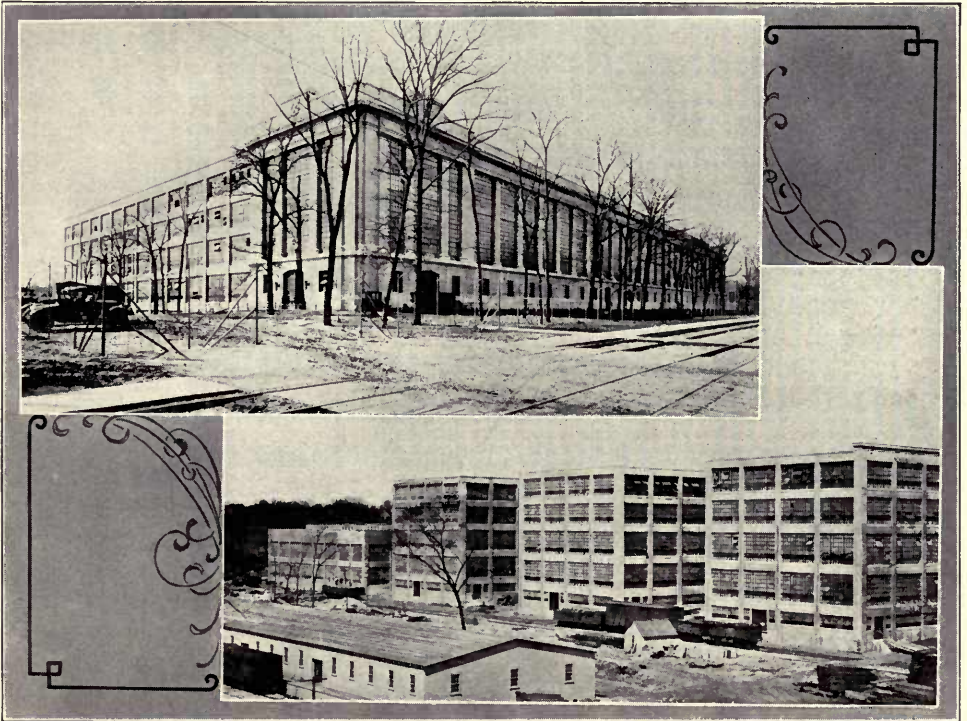
As output increased, storage space, both for raw material and completed goods, became totally inadequate, and steps were taken at once to supply the deficiency. All told, nearly one and one-half million feet of additional floor space were provided at a cost of more than three millions of dollars. Chief among these projects were thirty ammunition storehouses, each 50 x 200 feet, and costing together \$490,000; eight vehicle storage buildings aggregating 452,500 feet of space and costing \$865,000, and what is designated as Storage Building W-I, which is 140x540 feet, six stories high, and cost \$1,560,000.

Of course much miscellaneous construction was necessary. A central steam heating plant was built at a cost of \$610,000. The hydro-electric plant was enlarged and modernized at a cost of \$748,000. Additional barracks, offices, a cafeteria, hospital and other buildings, mostly of a temporary character, were provided.

The chronological order in which the various projects were undertaken, names of contractors and other information in connection with them are summarized in the following:

BUILDINGS AND PROJECTS SINCE 1916

In the fall of 1916 a high steel tank for the water supply of the Arsenal was started by the Rock Island Bridge and Iron Works, but little was accomplished before the next year, in February, when work was resumed. The tank was completed November 22, 1917, although its use began on September 25, 1917.



Shop M, one of the largest of the new buildings, viewed from front and rear.

January 8, 1917, a lump sum contract was awarded to the Heman Construction Company, of St. Louis, for the erection of seven nitrate and eight ammunition storehouses. These have stuccoed tile walls, steel trusses, slate roofs, concrete floor and platforms and also necessary trackage. Work

started February 12, 1917, and on February 1, 1918, it was turned over to the Stone & Webster Corporation, then engaged on other work on the Island. This work was completed June 12, 1918.

About this time a temporary wire fence was erected around the Arsenal shops, this work being installed by the Outside Department of the Arsenal.

January 6, 1917, a lump sum contract was awarded Lovell & Co., of Minneapolis, Minn., for the erection of one vehicle storehouse (now designated as Storehouse "I"), a concrete and steel construction building. This was completed November 23, 1917.

April 14, 1917, the St. Paul Foundry Co. started work on an addition to the steel lumber shed, let under a lump sum contract and completed December 5, 1917.

April 16, 1917, the Ammunition Assembling Plant (Shop "M"), a reinforced concrete structure, was started by the Westinghouse-Church-Kerr Company, New York, on a cost plus 10 per cent basis. This work included, also, 13 storehouses for explosives, a T. N. T. loading building, incinerator, railroad trackage and roads. These buildings were partially occupied on February 9, 1918, and beginning about February 15, 1918, a battalion of the Tenth U. S. Infantry was temporarily quartered in the ammunition assembling building, temporary plumbing having been installed in the same. Other buildings erected by the Westinghouse-Church-Kerr Company were:

| | |
|-----------------------------------|------------------------------------|
| Temporary Barracks "B"..... | begun 9-24-17, completed 11-27-17 |
| Temporary Barracks "C"..... | begun 12-17-17, completed 1-15-18 |
| Storehouse "BA"..... | begun 10-23-17, completed 11-30-17 |
| Dry Kiln (Wheel Stock)..... | begun 11- 5-17, completed 11-30-17 |
| Dry Kiln (Gun Stock)..... | begun 12-12-17, completed 7- 1-18 |
| Temporary Garage and Testing | |
| Labratory | begun 2-15-17, completed 4- 4-18 |
| Post Exchange and Y. M. C. A..... | begun 4- 1-18, completed 4-23-18 |

This firm also installed the plumbing in the present Shops "B", "D", and "F", which was completed August 10, 1918.

May 9, 1917, Henry Kohlsaet started work on a non-commissioned officers' quarters, of brick and wood.

The building of the assembling plant by the Westinghouse-Church-Kerr Company necessitated the relocation of the street car track by the Tri-City Railway Company, started June 12, 1917, completed October 31, 1917.

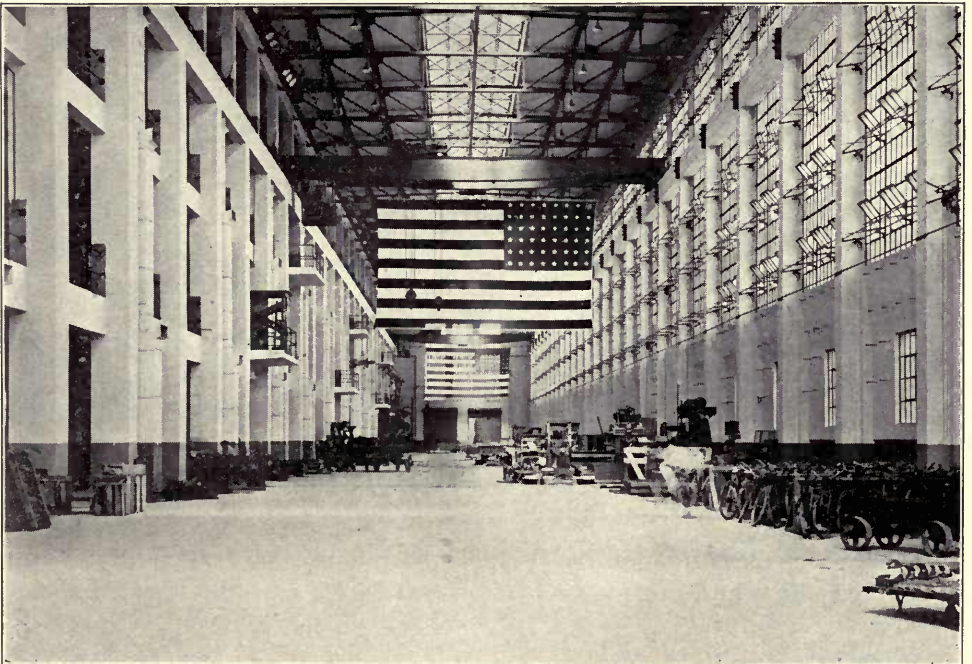
Barracks "A", started June 17, 1917, was completed July 17, 1917. This work was done by Arsenal forces. This building was later transformed into a hospital for enlisted men.

June 21, 1917, Stone & Webster started building operations for the Field and Siege Building (Shop "M"), a reinforced concrete structure, on

the cost plus 5 per cent basis, and made a record-breaking time in progress, completing the work August 15, 1918. The building was partially occupied December 19, 1917. This project includes a duct line from the old tunnel to building. Other buildings built by Stone & Webster are:

| | | | | |
|----------------------------|---------|-----------|-----------|---------|
| B-D Connection..... | Started | 7- 1-17, | completed | 5-24-18 |
| G-I Connection..... | Started | 9-17-17, | completed | 6- 1-18 |
| H-K Connection..... | Started | 10-24-17, | completed | 5-24-18 |
| A-C Connection..... | Started | 11-24-17, | completed | 7-14-18 |
| Central Heating Plant..... | Started | 7-21-17, | completed | 7-31-18 |
| Boilers placed | Started | 11-28-17, | completed | 7-31-18 |

All these buildings were fire-proof construction, and the connections were all stone faced to match the present Arsenal shops. August 15, 1917, the first nitrate was shipped to this post, and this was unloaded by Stone & Webster into an old storehouse, and later, by the same firm, unloaded by trucks and chutes into the nitrate storehouses started by the Hemen Co. and completed by Stone & Webster June 12, 1918.



Typical shop interior, being the craneway in the field and siege building.

The Stone & Webster Co. also installed a new floor on the Moline bridge, September 7, 1918, to September 22, 1918; built the Plating and Tinning Shop, of fire-proof construction, starting March 18, 1918, completing August 1, 1918; Storehouse "MA", started December 13, 1917, and completed April 9, 1918; Gun-Stock Dry Kiln addition, started June

24, 1918, and completed December 3, 1918. This company also repaired stone cornices, remodelled old coal shed into a paint shop, and did considerable plumbing and heating in all shops from time to time.

The contract for the erection of an Ice Making Plant was awarded the Frazier & Davis Co., of Rock Island, on a lump sum contract; started June 17, 1917, finished October 4, 1917. This company later installed a new filtration bed, sedimentation basin, etc., on a lump sum contract, starting March 11, 1918, and finishing August 8, 1918. They also placed new gas mains at various points, starting May 15, 1918, completing August 6, 1918; remodelled the front of the fire station, starting August 15, 1918, completing October 15, 1918, placing a new sidewalk and driveway in connection therewith.

On June 25, 1917, the Arthur Neuman Co., of Des Moines, Iowa, started an addition to Stone Barracks on a lump sum contract, finishing May 15, 1918.

The Central Engineering Co., of Davenport, Iowa, was awarded a contract for sub-structure of the addition to the Water Power Dam, on a unit price basis, started July 31, 1917. They were later awarded a super-structure of brick and steel construction on a lump sum basis, started August 5, 1918, completed December 2, 1918. They later contracted for taking out the old cofferdam and old dam.

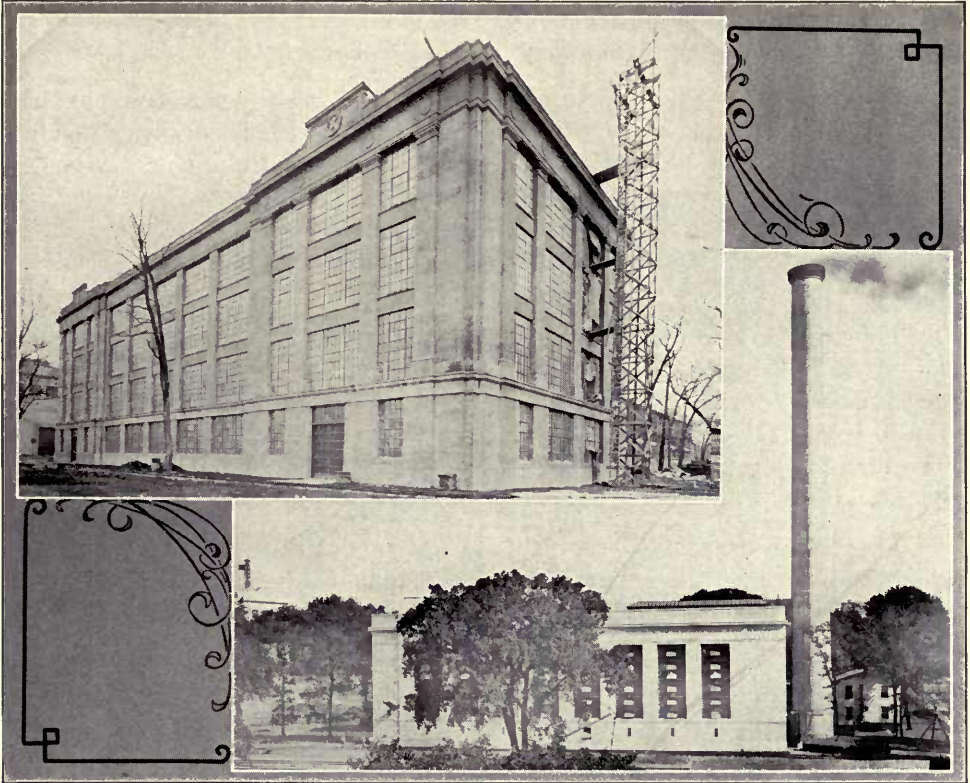
On February 18, 1918, the Walsh Construction Company, of Davenport, Iowa, started on several projects under a cost plus 7 per cent contract:

| | |
|------------------------------------|-----------------------------------|
| Office Building No. 2..... | Started 4-18-18, finished 5-15-18 |
| Bakery | Started 4-22-18, finished 5-20-18 |
| Civilian Hospital..... | Started 4-23-18, finished 6-15-18 |
| Ward and Isolation Hospital..... | Started 4-23-18, finished 6-15-18 |
| Remodelled Barracks "B"..... | Started 5-17-17, finished 6-24-18 |
| Remodelled Barracks "C"..... | Started 6- 1-18, finished 7- 1-18 |
| Remodelled Y. M. C. A..... | Started 6- 1-18, finished 7- 1-18 |
| Five Vehicle Storehouses..... | Started 2-18-18, finished 9- 7-18 |
| Concrete General Storage Bldg..... | Started 2-18-18, finished 3- 1-19 |

With the exception of the Vehicle Storehouses and General Storage Buildings, these buildings were of frame and of a more or less temporary nature.

Before building operations could be made possible, it was necessary, in most cases, especially at the southwestern and northwestern parts of the Island, to clear the land from trees, as a large portion of these sections were well wooded with trees ranging from three feet in diameter to brush size. Also land levels had to be graded to suit conditions, roads had to be built, and at many parts of the Island proper drainage facilities had to be effected. Considerable excavating was especially necessary at the grounds of the General Storehouse, W-I., as will be seen under that heading.

In general, Rock Island Arsenal is laid, as the name implies, on an island of rock, crusted with its own disintegrated, eroded and finely pulverized deposits, this intermixed with sedimentary organic substances, mostly of a vegetable character. The rock, like that of nearly all of this part of the United States, is a lime-stone, partially oolitic, but mostly



Above, Shop R, equipped for the manufacture of recuperators. Below, New Steam Heating Plant, housing boilers capable of supplying steam sufficient in quantity and pressure to operate the machinery of the Arsenal, serving as an auxiliary to the water power.

sedimentary, extremely finely grained. Outcrop of the rock has been encountered at nearly all parts of the Island, but an average of three feet of excavation is necessary in order to reach its bed. At various parts of the Island, especially the western part along Main avenue, rock was not encountered at over six feet depth of excavation, and in the south center, near Storehouse "G", thirty foot tests were made to reach rock. This has led, therefore, to the policy, for each project, of establishing rock grade at the site of buildings by digging to or sounding rock.

The entire sewage from the Rock Island Arsenal is drained through sanitary drains of vitrified tile, of concrete and of brick. At a point in the basement of Shops "A" and "B" there is a 24-inch brick arched sewer

extending east to the intersection of Shops "H" and "K", and all the temporary barracks on East avenue, thence south on Fourth street to the center of Fourth street and South avenue, where the laterals from Shops "A", "C", "E", "G", "I", Storehouse "A" and the main Guard House are connected. From this intersection the main 36-inch sewer is laid in a diagonal line to the power house tail race, into which it empties about 100-feet south of the power house. It also takes the sewage from the Truck Garage and the Temporary Testing Laboratory.

In August of 1917 the Stone & Webster Company constructed a 30-inch vitrified tile sewer to the Artillery Vehicle Plant, draining surface water from the low ground around the Powder and Fulminate Caves, the sewage from the Ammunition Assembling Plant, the Central Heating Plant and the new Cafeteria. This is a very good and properly constructed sewer, all laid in a graded trench with iron-covered man-holes at intervals of 400 feet.

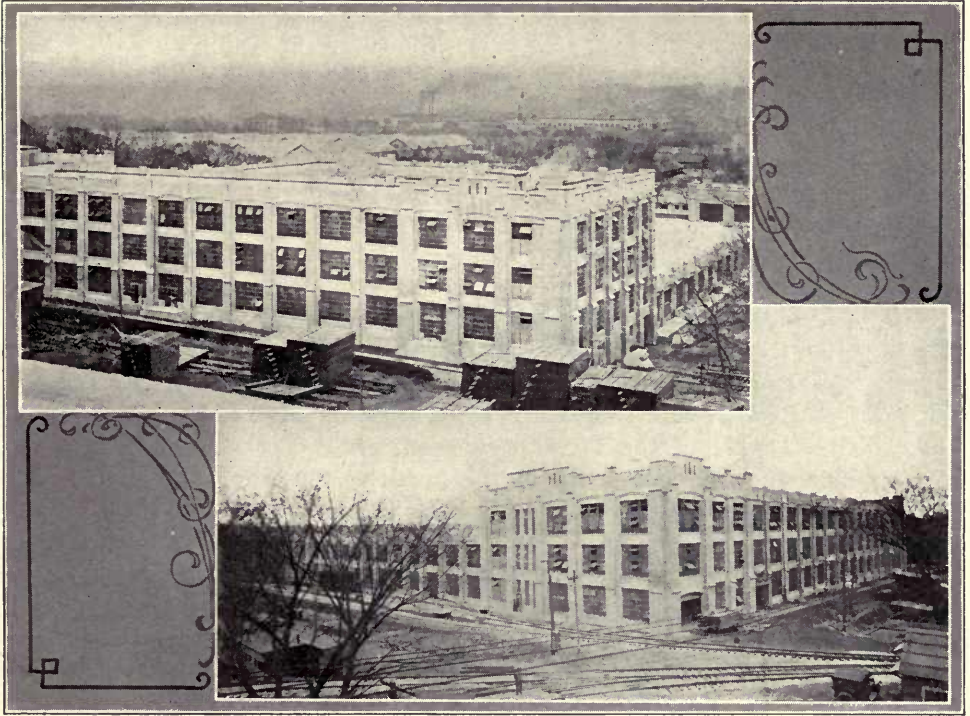
The west end of the Island is drained through a sanitary sewer installed in 1918 by the Walsh Construction Co. The sewage disposal from the six-story Storage Building drains off to the northeast through a sixteen-inch tile sewer and connects to the thirty-six inch just southwest of the Commanding Officer's quarters. Man-holes are provided in appropriate places, with a perforated iron cover.

The upper or east part of the Island is drained by a surface drain which empties into the water power pool about 3,000 feet from the Power House.

The Steel Storage Building, built by Stone & Webster, is located at the west end of the Field and Siege Building (Shop M), is a one-story steel-framed building on concrete foundation, and with an outside concrete wall to the height of the lower window sills. The superstructure walls are of hollow tile, plastered on the outside. The front walls of the building are entirely of concrete, to match the architecture of the Field and Siege Building as viewed from the Main avenue. The roof is of wood, supported on steel trusses. The building is 107 feet wide and 322 feet long, with a row of steel columns down the center. Two crane-ways are provided for, running the whole length of the building, one on each side of the center row of columns.

The new Cafeteria building is of frame on concrete foundation, 96 feet by 256 feet, and contains a men's dining room at the east end, ladies' dining room and officers' dining room at the west end, and kitchen and store room in the center. It is designed for serving meals on the cafeteria plan. A small cellar for storage is provided. The building is constructed with 6-inch studding, sheathing and drop siding and has a monitor 32-feet wide down the center. The floors are maple. The inside walls are finished with yellow pine sheathing and the ceiling with wall

board. At one end there is a cement floor porch 20 feet by 40 feet, enclosed, for the sale of candy and cigars. The service equipment was furnished by Albert Pick Co., of Chicago, but was installed by Stone & Webster, who also installed the plumbing and heating. The electric lighting was also installed by Stone & Webster, and a refrigerator plant for cooling three boxes—meat, dairy and vegetable, and drinking water—has been installed in the basement. About 2000 feet of dining tables were assembled. All the kitchen, refrigerating and service counter equipment was bought



Shop L is also an imposing structure. Here are two views of it.

by the government and installed by Stone & Webster. The building required approximately 275,000 board feet of lumber. Work was started October 1, 1918, and the first meal was served January 6, 1919.

The Parkerizing Plant is a frame building with concrete floor on concrete foundation, 36 feet wide by 76 feet long. Work was started August 22, 1918, and completed October 17, 1918.

The first duct line built by Stone & Webster at the Arsenal ran from the present service tunnel near East avenue, along the south side of the old shops, and west to the new boiler house to Shop M. This duct line was built to provide the light and power to Shop M and to the Ammunition Assembling Plant south of the boiler house. The line consists of eight 3½-

inch fibre duct, encased in concrete, with manholes approximately 300 feet apart. Branches from this duct were constructed into the rear of the south shops, where transformers were installed by the government. The second duct line consisted of a continuation from the government service tunnel west of Shop "K", around the north side of the north shops, with branches into the courts of the north shops, where transformers were also to be installed. Cable was installed in these ducts so that high tension current could be brought close to the shops, where it was to be transformed. This work was completed during the summer of 1918.

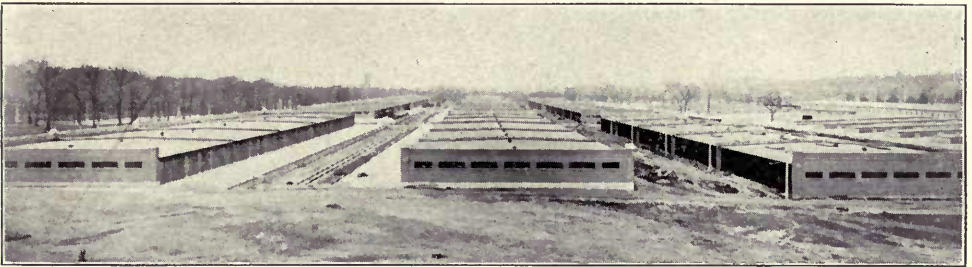
A new concrete tunnel 4 feet by 4 feet 6 inches, containing an 8-inch high pressure line and a 4-inch return line and 1½-inch drip line, was constructed by Stone & Webster from the Central Heating Plant to the new Warehouse W-I on Main avenue, to supply steam for heating that building. This tunnel is approximately 1360 feet long.

A new system of water mains for fire protection was designed by the Maintenance Department at the Arsenal during the summer of 1918. This system is designed for high pressure service (215 lbs. per square inch), which is obtained by the installation of two pumps at the new Hydro-Electric Power House. This system consists of class "F" cast iron water pipes, ranging from 14 inches to 6 inches, and runs from the Power House north along East avenue to Main avenue, west on Main avenue to a point about 300 feet west of the Davenport gate. At the junction of Main and West avenue there is a branch running north to the new temporary offices and a branch running south to connect with the present main at the Nitrate Storehouses and the Ammunition Assembling Plant. There is also a main south of the south shops from East to West avenues. At the junction of Main avenue and East avenue there is a branch running to the Hospital. From the main south of the south shops there is a branch running to the dry kilns. There is also an extension north from the main on Main avenue running along the west side of the new warehouse, and extensions around the Artillery Vehicle Storehouses and the new Steel Warehouses north of Main avenue.

The Main avenue line has also been extended, as contemplated in the original scheme, to point opposite the old Arsenal Building. Approximately 19,600 lineal feet of pipe has been installed, and there are more than 70 hydrants. All mains are laid so that there shall be a minimum of five feet covering over the top.

The General Storage Building W-I was erected by Walsh Construction Company. Plans and specifications were prepared by the Supply Division of the Ordnance Department at Washington, D. C. This building covers a ground area of about 96,000 square feet (including platforms) and has a cubical content of about 5,496,000 cubic feet. No special difficulty was encountered in the purchasing or delivery of materials. The arrival of

material being sufficiently in advance of work started not to delay normal progress of work. Excavation was started March 4, 1918. The floor level of the first floor was established about eight feet below the natural grade, in order to obtain proper track grades. A most unusual condition of rock grade was found, beds of shell rock, sometimes of considerable length and thickness, were frequently encountered imbedded in clay, and very accurate tests had to be made to determine whether bed rock had been reached. The construction is reinforced concrete four-way flat slab, with steel sash and frames. It is equipped with five elevators and one suspended tray elevator, furnished by the Link-Belt Company, of Chicago. Provisions were made for two other elevators. A feature of the building is the three stationary spiral chutes, ten feet in diameter, carried from top floor



Artillery Vehicle Storehouses, covering many acres of ground near west end of the Island.

to first floor. This building cost twenty cents a cubic foot and \$2.33 per square foot of ground area. The plumbing and electrical work was installed by sub-contractors of the Walsh Construction Company, and the heating was let under an emergency form of contract to the Henry Ewinger Plumbing and Heating Company, of Burlington, Iowa, the Arsenal furnishing the material.

OTHER BUILDING OPERATIONS

Vehicle Storage Buildings.—Plans and specifications were prepared by the Supply Division, Ordnance Department, at Washington, D. C. These buildings each cover an area of about 54,500 square feet, with the exception of Number 9, which covers about 44,200 square feet of floor area. Excavation was started September 15, 1918. The footings are of rock, from three to seven feet below the surface, but no tests were made as to whether the rock was bed rock or shell rock, as struck at the General Storage Building W-I. These buildings cost about 12½ cents per cubic foot and about \$1.99 per square foot of ground area. They are one-story structures built of brick, wooden posts and griders and rafters.

North and South Avenue Paving.—Plans and specifications were prepared by the Rock Island Arsenal Construction Department from sug-

gestions and data given by the Portland Cement Association, which cooperated with the Arsenal by having a representative on the work during a large part of the time. North avenue paving was already started before the Construction Division took charge, and was, therefore, not reported with South avenue. Cost accounts were, however, handled by the Walsh Construction Company as one job for the two avenues.

Motor Truck Garage.—Plans and specifications were prepared by the Rock Island Arsenal Construction Department engineering forces, and were completed about July 2, 1918; rock was struck close to the surface on the north end. During the process of excavation, it was deemed necessary to alter the position of the building as originally staked out, and an extra of \$565.00, covered by specifications, was allowed the contractor. An extra of \$175.00 was also allowed for column spirals, making the total cost \$32,000.00. This building has a ground area of 7,000 square feet and a cubic area of 206,500 cubic feet. About 90 per cent of the material for this building was bought locally. The remainder, steel frame work and steel sash, was obtained from the Illinois Steel Company, Jacksonville, Illinois, and the David Lupton Sons Company, Philadelphia, Pennsylvania.

Three steel frame warehouses were authorized in January, 1919. These buildings are located adjacent to the vehicle storehouses on the north-western part of the Island. Owing to the fact that a number of the former Arsenal war workers were deprived of their positions on account of the signing of the Armistice, it was decided to erect these buildings with Arsenal workmen, thereby giving employment to over three hundred and sixty men at one time. These buildings were erected more economically than if let under a cost plus type of contract, as no overhead or purchasing expense was necessary, this work being handled by the Purchasing and Time Division of the Arsenal.

These warehouses were originally intended to be erected in France for war purposes, and all the steel was fabricated and cut to the proper lengths with all holes for connections drilled, and all that was necessary was to erect the buildings in place.

WATER SUPPLY, GAS MAINS, ETC.

During the summer of 1918, to meet the demand for more filtered water, there was installed a new filter bed, which has a capacity of 500,000 gallons of water per day. This gives now a total supply of 1,500,000 gallons of filtered water per day of 24 hours. There was also installed at the filter plant a high tank, which has a capacity of 300,000 gallons of water, and is one hundred and twenty feet high from the ground line. All of the water system is now supplied from this new high tank, which gives a constant pressure of 55 lbs. at the base.

During the summer of 1918 a new ice plant, which has a 10-ton refrigerating capacity, was put in service. The ice plant was used

principally for cooling drinking water to supply all the shops through sanitary bubbling fountains.

During the summer of 1918 it was found, on account of the rapid expansion of production in the shops, that the gas main supplying city gas for furnaces, hardening, etc., was not large enough for the demand. The old gas main location was from the Forty-second street bridge, Rock Island, and through the new Nitrate Storage building site. This was considered dangerous, in addition to its being too small. An allotment was made to install a new 6-inch gas main from the Forty-second street bridge in Rock Island, following the street car track around to the east of Shop



Temporary Office Building No. 2. It was necessary to provide quarters for hundreds of extra office workers during the war. This is one of the buildings erected for that purpose.

“G” and then north to Shop “H”. After this was completed the Arsenal was then in a position to take care of all the furnaces that were required. This gas is furnished by the Peoples Power & Light Company, of Moline, and is metered in each shop.

In June, 1917, there was installed in the west wing of Shop “F” one Sullivan high pressure air compressor. Previous to this time there were only two small air compressors in service. These not being large enough for war work, it was necessary to greatly increase the air capacity. There were also installed in Shop “M” one high pressure Worthington air compressor of 2500 feet capacity and one low pressure Worthington compressor of 2800 feet capacity. It was found during the summer of 1918 that it would be necessary to move the low pressure machine from Shop “M” to Shop “F” to supply enough air for the additional furnaces installed in

this building. After this was done there was plenty of air to take care of all requirements.

There are eight 500 horse power Babcock & Wilcox boilers, arranged in batteries of two units each. The eight boilers are served by one stack, 12-foot inside diameter, and extending 210 feet above the grates. The working steam pressure of the boilers is one hundred and fifty pounds, and there are four four-inch Ashton safety valves on each boiler, set at 150 pounds. Each boiler has 5,080 square feet heating surface, 252 four-inch tubes and 108 square feet of grate surface.

PROTECTIVE LIGHTING

A series incandescent light circuit was installed on the fence surrounding the manufacturing shops and storehouses—one circuit for the Nitrate Storehouses and one circuit for the Ammunition Plant. The illumination is such that a guard patrolling the fence is able to see the entire length, which is, in some cases, 2,000 feet, approximately. Flood lamps were placed on the power house, lighting the river on both the north and south sides. The avenues are lighted with a series incandescent light circuit, eighty candle power lamps being installed every two hundred feet.

For inter-communication between the various shops and departments, a three hundred line two-wire local battery automatic telephone exchange has been installed. This system not only takes care of the manufacturing shops and storehouses, but affords communication between the outlying guard houses, pumping station and power houses.

An electric time system was installed in many of the departments, which takes care of the job cards of the employees on piece and day work; electric time recorders are also used for employees, registering their time of arrival and departure.

An electric signal system, which consists of klaxons installed in each shop, are controlled by the master clock through a series of relays. These klaxons are sounded automatically for the working hours of the shops.

On June 30, 1912, the following roads were in use on the reservation: 8.88 miles of macadam, 11.61 miles of cinder, 0.57 mile of taroid.

At the end of the fiscal year 1916-1917 the following roads were in use: 5.27 miles macadam, 11.61 miles cinder, 4.21 miles taroid.

Roads on reservation in March, 1919, consisted of: 8.85 miles macadam, 5 miles taroid, 6 miles concrete, and 6.33 miles cinder.

At the beginning of the war there was 3.13 miles of railroad trackage on the reservation. During the year 1918 approximately 16 miles of finished track was laid, all light rails in the old tracks having been replaced with 80-pound rails, switch lights installed, etc.

SUMMARY OF CONSTRUCTION PROJECTS COMPLETED AT
ROCK ISLAND ARSENAL SINCE APRIL 7, 1917

| Name of Project | Type of Construction | Purpose | Cost |
|---------------------------------------|---|---|--|
| Steel Water Supply Tank | Steel, 300,000 gals. capacity | Water supply | \$ 21,400.00 |
| Ice-Making Plant | Brick and concrete | Ice for shops and refrigeration for drinking water system | 24,500.00 |
| Non-Commissioned Officers Quarters | Hollow tile, stuccoed | Quarters for Non-Commissioned Officers | 10,600.00 |
| Toilet Addition to Stone Barracks | Stone building with reinforced floors, slate roof | Toilet facilities for Ordnance personnel | 32,500.00 |
| 30 Nitrate and Ammunition Storehouses | Hollow tile, concrete construction. Each building 50'x200'. Steel trusses | Storage of sodium nitrate and artillery ammunition | 490,000.00 |
| Artillery Vehicle Storehouse | Reinforced concrete construction 2-story and attic; 53'x140' | Storage of artillery vehicles | 31,330.00 |
| Artillery Ammunition Assembly Plant | Reinforced concrete construction, 360'x400'; north section, 3 stories; east section, 2 stories; west section, 1 story; basement under entire building | Assembly of artillery ammunition | 2,093,000.00 |
| Wheel Stock Dry Kiln | Reinforced concrete and hollow tile construction, 105'x267'. Contains 27 Tiemann type kilns | Drying wheel stock | The cost of these three projects is approximately \$520,000.00 |
| Gun Stock Dry Kiln | Reinforced concrete and hollow tile construction, 105'x115'. Contains 11 Tiemann type kilns | Drying and seasoning of gun stocks | |
| Three (3) Lumber Sheds | Steel frame, slate roof; each shed approximately 40'x240' | Storage of gun stocks and wheel stock material | |
| Addition to Gun Stock Dry Kiln | Reinforced concrete and hollow tile construction, 105'x152'. Contains 17 Tiemann type kilns | Drying and seasoning of gun stocks | \$ 127,000.00 |
| Artillery Vehicle Plant | Reinforced concrete construction. Consists of Main Erection Shop 120'x605', 4 stories; 3 wings each 80'x200', 4 stories and basement; and one story Forge Shop, 160'x160' | Manufacture of field artillery material | 2 225,000.00 |
| 4 Shop Connections | Reinforced concrete construction, with stone veneered walls. Each building 60'x90', 2 stories, attic and basement | Additional manufacturing space. Small arms, harness, field artillery material, etc. | 360,000.00 |
| Central Steam Heating Plant | Reinforced concrete construction, containing eight 504 H. P. water tube boilers, automatic stokers, etc. Stack 210' high, 12' dia. | Heating of shop buildings | 610,000.00 |
| Steel Storage Building | Reinforced concrete and hollow tile construction, 106'x320' | Storage of steel used in manufacturing operations | 173,000.00 |
| Tinning and Plating Shop | Reinforced concrete construction, 50'x160' | Tinning and plating of articles manufactured in Equipment Shop | 23,000.00 |
| Storage Building W-I | Monolithic concrete construction with flat slab floors and roof. 140'x540', 6 stories | General storage | 1,560,000.00 |
| Eight Vehicle Storage Buildings | Brick exterior walls, mill constructed roofs, concrete floors with 35 feet concrete platforms. (7 buildings 115'x500' and one building 115'x400') | Storage of artillery vehicles | 865,000.00 |
| Motor Truck Garage | Reinforced concrete construction, brick walls, flat roof supported on steel trusses, 70'x100', two stories | Storage and repair of motor trucks | 35,500.00 |
| Addition to North Lumber Shed | Light steel frame and slate roof construction, 36'x140' | Storage of lumber | 7,534.00 |
| Office Annex No. 1 | Temporary frame construction, 30'x90', three stories | Additional office space | 18,000.00 |

SUMMARY OF CONSTRUCTION PROJECTS COMPLETED AT
ROCK ISLAND ARSENAL—Continued

| Name of Project | Type of Construction | Purpose | Cost |
|--|--|---|------------|
| Barracks "A" | Temporary frame construction, 20' x147' | Housing Ordnance School personnel | 5,500.00 |
| Barracks "B" and "C" | Temporary frame construction, (Barracks "B" accommodates 412 men and Barracks "C" accommodates 465 men) | Housing Ordnance School personnel | 74,000.00 |
| Headquarters for Casual Military Personnel | Temporary frame construction, 43'x150' | Headquarters building for Ordnance School Commissioned personnel | 15,000.00 |
| Recreation Building and Post Exchange | Temporary frame construction, 38'x146' | Post exchange and recreational quarters | 11,500.00 |
| First-Aid Hospital | Temporary frame construction, 44'x77' | First-aid treatment of civilian cases | 9,200.00 |
| Isolation Hospital | Temporary frame construction, 20'x60' | Isolation cases | 3,000.00 |
| Hospital Ward and Isolation Ward | Temporary frame construction, standard hospital ward units; each 124'x150' | Hospital ward designed for general cases and isolation ward for care of contagious diseases | 22,600.00 |
| Laboratory for Motor Truck Testing | Temporary frame construction, 71'x100' | Testing of motor trucks and tractors | 17,700.00 |
| Office Building No. 2 | Temporary frame construction, main building 42'x136'; two wings each 43'x98'; 3 stories | Increasing office space | 61,000.00 |
| Barracks "D" | Temporary frame construction, 43'x140', two stories | Housing battalion of 10th Infantry stationed at Rock Island Arsenal for guard purposes | 60,000.00 |
| Parkerizing Plant | Temporary frame construction, with concrete floor, 76'x36' | Parkerizing components of U. S. Rifle, Cal. .30 | 9,700.00 |
| Cafeteria Building | Temporary frame construction, 96'x256'. Concrete foundation with maple floors | Facilities for serving lunch to Arsenal employees | 93,000.00 |
| 5 Temporary Store-houses | Temporary frame construction, size of buildings as follows: 60'x600'—1 story (MA) 60'x504'—1 story (BA) 60'x372'—1 story (KA) 60'x352'—1 story (GA) 52'x147'—1 story (AA) | General storage purposes | 95,000.00 |
| 3 Steel Warehouses | Steel frame construction, corrugated sheet metal siding, prepared roof, cinder floor. Each building 240'x500' | General storage purposes | 259,000.00 |
| Extension of Hydro-electric Power Plant | Superstructure is a brick building, 30'x233'. Extension contains eight 420 H. P. turbines, direct connected to 403 K. V. A. generators and 2 196 H. P. turbines, direct connected to 130 kilowatt generators | Increasing power supply | 748,000.00 |

ARSENAL'S MANUFACTURING CAPACITY

With its greatly increased capacity the Arsenal, of course, is prepared to play an even more important part in future wars, if any occur, than it has in the wars of the past. In order to ascertain just what may be expected of it as a manufacturing plant, a close study of its resources has been made and the results are summarized in tabular form, as here appended. With diversified output the individual items may not seem so imposing, but should attention be centered upon a relatively small number of the more

essential articles of war equipment the output will run into large figures. The following irgenuously arranged tabulation gives in most concise form all available information pertaining to possible rate of production of the various items with the existing facilities:

“A”—Facilities installed expressly for production monthly of the following:

- (1) 360 75mm. gun recuperators
- (2) 40 3" A. A. gun recuperators

“B”—Production units for simultaneous production per month of approximately:

- (1) 4 155mm. or 4.7" gun recuperators
- (2) 4 155mm. howitzer recuperators
- (3) 4 155mm. gun carriages (without recuperators)
- (4) 4 155mm. howitzer carriages (without recuperators)
- (5) 6 4.7" gun carriages (without recuperators)
- (6) 10 75mm. gun carriages (without recuperators)
- (7) 4 155mm. gun carriage limbers
- (8) 4 155mm. howitzer carriage limbers
- (9) 6 155mm. howitzer caissons or limbers
- (10) 6 4.7" gun caissons or limbers
- (11) 10 75mm. gun caissons or limbers
- (12) 10 battery and store wagons, Model 1917
- (13) 10 75mm. forge or store limbers

“C”—The production units for the items listed in paragraph “B”, if devoted to one item, could produce a maximum quantity of that item as follows:

- 4 155mm. or 4.7" gun carriages with recuperators and limbers
- 4 155mm. howitzer carriages with recuperators and limbers
- 40 4.7" gun carriages, Model 1906
- 75 75mm. gun carriages, Model 1916
- 250 75mm. gun limbers or caissons
- 250 Battery and store wagons, Model 1917
- 250 Forge or store limbers, Model 1902 MI

“D”—Tools, jigs, fixtures, patterns and gauges in store at this Arsenal available for issue to contractors for a monthly production of:

- 60 155mm. gun material
- 200 155mm. howitzer material
- 100 4.7" gun material
- 360 75mm. gun material
- 40 3" A. A. gun material

Note: By “material” is meant complete equipment for carriages, caissons, limbers, battery and store wagons, forge and store limbers, reels, carts, tools and accessories, pertaining to the calibre mentioned.

"E"—Simultaneous production per month of:

- 30,000 U. S. rifles, Model 1903
- 6,000 Browning automatic machine guns, Model of 1917
- 12,000 Browning automatic rifles, Model of 1918

Note: The machinery for these two units is at Rock Island Arsenal but not yet installed, the above figures is the estimated possible production only, should installation be accomplished.

"F"—Simultaneous production per month of:

- 100,000 mess equipment—canteens, cups, meat cans, etc.
- 3,000 arm racks, Model 1920
- 250,000 tin containers for 75mm. ammunition
- 13,750 hardware for rolling targets
- 27,500 hardware for sliding targets
- 20,000 (1) 6" cartridge storage cases
- 13,750 (2) 8" cartridge storage cases
- 13,750 (3) 10" cartridge storage cases
- 11,250 (4) 12" cartridge storage cases

Note: Capacity limited on cartridge storage cases as above to (1) and either one of (2), (3) or (4) simultaneously.

"G"—Simultaneous production of either (1), (2) or (3) of each unit at the same time per month:

- 5,625 (1) wheels, 56" complete
- 3,750 (2) wheels, 58" complete
- 2,750 (3) wheels, 50" and 60" complete
- 37,500 (1) packing boxes
- 90,000 (2) cartridge storage case shipping covers
- 18,750 (3) bobbing targets
- 15,000 (1) chests for Browning automatic rifles or machine guns
- 13,750 (2) rolling targets, complete
- 7,500 (3) carpenter's chests
- 7,500 (1) arm repair chests
- 7,500 (2) sliding targets, complete
- 5,625 (3) saddlers' chests

"H"—Simultaneous production of (1) and either (2) or (3) at the same time per month:

- 75,000,000 (1) target pasters
- 600,000 (2) paper targets 6'x10'
- 900,000 (3) paper targets 6'x6'

"I"—

- 175,000 (1) bayonet or bolo scabbards, Model 1910
- 60,000 (2) saber scabbards, Model 1913

Either (1) or (2) can be manufactured simultaneously with other parts at this Arsenal, but facilities for the necessary cloth and leather work

thereon are available to complete a maximum of only 7,500 of either per month.

“K”—Special machine tools, not installed, which, with addition of standard tools, will permit of manufacture in addition to the facilities now available as in “A”, “B”, “C”, and “D” above:

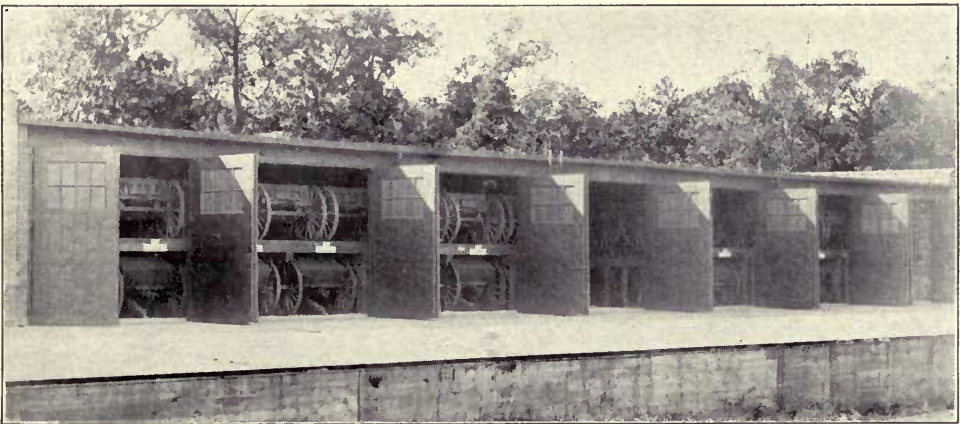
300 155mm. howitzer recuperators per month

80 155mm. gun recuperators per month

INCREASE OF STORAGE SPACE

Among the striking changes the World War brought to Rock Island Arsenal was the increase of storage space from 545,000 square feet on March 31, 1917, to 948,000 square feet on February 28, 1918, with corresponding cubical contents of 12,250,000 feet.

The functions of the storage section of the Arsenal, during the war, embraced activities which controlled sixty warehouses, located in various parts of the Island, containing approximately 1,764,837 square feet of



Storehouse VI, showing method of storing artillery.

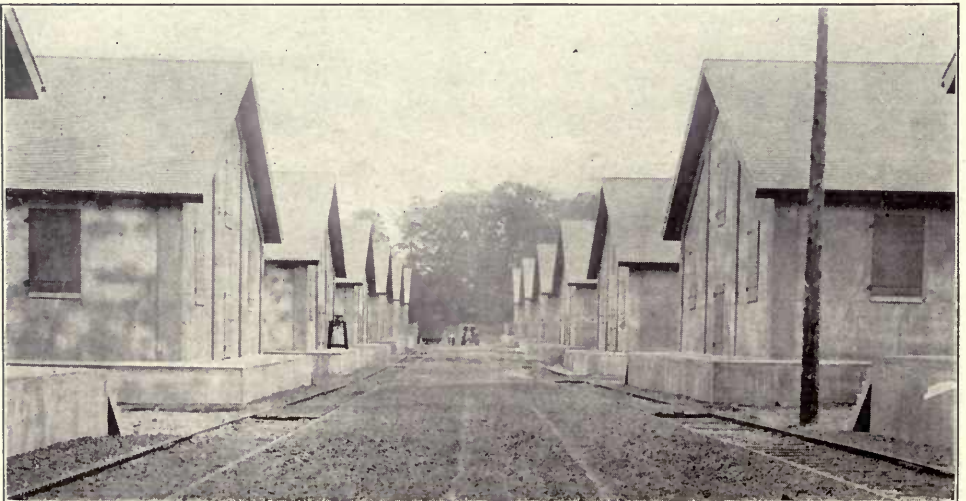
storage space under roof, in addition to oil storage space totalling 417,357 gallons. This storage ranged from newly constructed modern warehouses, with elevators, box conveyors and gravity conveyors, to temporary platforms roofed in. Some of the major items in use embraced 2,000 feet of gravity conveyors, seven locomotive cranes, four tractors, twenty trucks and trailers, and one shop mule.

The volume of incoming and outgoing freight from July 1, 1919, to June 1, 1920, is shown in the following summary:

| | |
|--|-------------|
| Cars received..... | 9,280 |
| Cars shipped..... | 2,485 |
| Cars transferred..... | 2,727 |
| Total tonnage in pounds..... | 555,404,304 |
| Government bills of lading received..... | 10,254 |
| Commercial bills of lading received..... | 3,149 |
| Bills of lading forwarded..... | 10,700 |
| Shipments..... | 12,710 |
| Number of pieces..... | 631,685 |

The gradual increase in storehouse activities at the Arsenal may be thus summarized: For the calendar year of 1916 the shipments averaged approximately 780, representing a monthly average of 8,000 pieces, weighing 450 tons. In February, 1918, a total of 2,300 shipments were made, weighing 3,383 tons and comprising 85,000 pieces. In April, 1918, this had increased to 3,406 shipments, consisting of 59,796 pieces and weighing 18,312,000 pounds.

Building done since the early part of 1918 has more than doubled the amount of storage space, so that there are now about two million square feet available for the sheltering of war material, manufactured and in the raw state. The following table gives the designation of existing storage structures, the use for which they were intended, and the capacity:



Nitrate and Ammunition Storehouses.

STORAGE SPACE AT ROCK ISLAND ARSENAL

| Building | Floor | Type of Material | Capacity in Square Feet |
|----------|-----------|--|-------------------------|
| V-1 | 1 | Vehicle storage | 54,300 |
| V-2 | 1 | Vehicle storage | 54,300 |
| V-3 | 1 | Tractor parts | 54,300 |
| V-4 | 1 | Vehicle storage | 54,300 |
| V-5 | 1 | Vehicle storage | 54,300 |
| V-6 | 1 | Tractor parts | 54,300 |
| V-7 | 1 | Vehicle storage | 54,300 |
| V-8 | 1 | Vehicle storage | 54,300 |
| V-9 | 1 | Vehicle storage | 42,900 |
| V-10 | 1 | Vehicle storage | 120,000 |
| V-11 | 1 | Tank, tractor and vehicle storage | 130,000 |
| V-12 | 1 | Artillery gun stock blanks | 130,000 |
| V-14 | 1 | Vehicle storage | 21,720 |
| V-15 | 1 | Vehicle storage | 32,580 |
| W-1 | 6 | Miscellaneous spare parts for artillery and small arms | |
| | 1st floor | Artillery and small arms | 68,900 |
| | 2nd floor | Artillery and small arms | 68,000 |
| | 3rd floor | Artillery and small arms | 68,000 |
| | 4th floor | Artillery and small arms | 68,000 |
| | 5th floor | Artillery and small arms | 68,000 |
| | 6th floor | Artillery and small arms | 68,000 |
| A | 4 | Tools, jigs and fixtures | |
| | 1st floor | Tools, jigs and fixtures | 15,075 |
| | 2nd floor | Tools, jigs and fixtures | 15,075 |
| | 3rd floor | Tools, jigs and fixtures | 15,075 |
| | 4th floor | Tools, jigs and fixtures | 15,030 |
| AA | 2 | Dies | |
| | 1st floor | Dies | 7,081 |
| | 2nd floor | Dies | 7,592 |
| X-1 | 1 | Small arms ammunition storage | 9,500 |
| X-2 | 1 | Cal. 30 rifle storage | 9,500 |
| X-3 | 1 | Cal. 30 rifle storage | 9,500 |
| X-4 | 1 | Sodium Nitrate storage | 9,500 |
| X-5 | 1 | Motor storage | 9,500 |
| X-6 | 1 | Tools, jigs and fixtures | 9,500 |
| X-7 | 1 | Rifle storage | 9,500 |
| X-8 | 1 | Motor storage | 9,500 |
| X-9 | 1 | Cal. 30 rifle storage | 9,500 |
| X-10 | 1 | Miscellaneous Mark VIII tank material | 9,500 |
| Y-1 | 1 | Mark VIII transmissions | 9,500 |
| Y-2 | 1 | Cal. 30 rifle storage | 9,500 |
| Y-3 | 1 | Fireworks hand grenade storage | 9,500 |
| Y-4 | 1 | Small arms ammunition storage | 9,500 |
| Y-5 | 1 | Sodium nitrate storage | 9,500 |
| Y-6 | 1 | Sodium nitrate storage | 9,500 |
| Y-7 | 1 | Sodium nitrate storage | 9,500 |
| Y-8 | 1 | Sodium nitrate storage | 9,500 |
| Y-9 | 1 | Sodium nitrate storage | 9,500 |
| Y-10 | 1 | Small arms ammunition storage | 9,500 |
| Z-1 | 1 | Cal. 30 rifle storage | 9,500 |
| Z-2 | 1 | Sodium nitrate storage | 9,500 |
| Z-3 | 1 | Cal. 30 rifle storage | 9,500 |
| Z-4 | 1 | Sodium nitrate storage | 9,500 |
| Z-5 | 1 | Rifle storage | 9,500 |
| Z-6 | 1 | Rubber tire storage | 9,500 |
| Z-7 | 1 | Rubber tire storage | 9,500 |
| Z-8 | 1 | Small arms ammunition storage | 9,500 |
| Z-9 | 1 | Rubber tire storage | 9,500 |
| Z-10 | 1 | Mark VIII transmission storage | 9,500 |
| A-1 | 1 | Smokeless powder magazine | 2,400 |
| L-4 | 1 | Primer and fuze magazine | 377 |
| L-5 | 1 | Primer and fuze magazine | 234 |
| L-6 | 1 | High explosive magazine | 25 |
| L-7 | 1 | High explosive magazine | 100 |
| L-8 | 1 | High explosive magazine | 100 |
| L-9 | 1 | High explosive magazine | 504 |
| L-10 | 1 | High explosive magazine | 504 |
| L-11 | 1 | High explosive magazine | 504 |
| L-12 | 1 | High explosive magazine | 504 |
| L-13 | 1 | High explosive magazine | 504 |
| L-14 | 1 | High explosive magazine | 504 |
| L-15 | 1 | High explosive magazine | 504 |
| L-16 | 1 | High explosive magazine | 504 |
| B-A | 1 | Inert storage | 27,500 |
| G | 3 floors | Spare parts for tank | |
| | 1st floor | Spare parts for tank | 10,294 |
| | 2nd floor | Spare parts for tank | 10,294 |
| | 3rd floor | Spare parts for tank | 10,294 |

STORAGE SPACE AT ROCK ISLAND ARSENAL—(Continued)

| Building | Floor | Type of Material | Capacity in Square Feet |
|------------------------|---------------|--|-------------------------|
| G-A 1 | 1 | Spare parts F. W. D. | 12,728 |
| | 3 floors | Spare parts F. W. D. | |
| | 1st floor | Spare parts F. W. D. | 7,132 |
| | 2nd floor | Spare parts F. W. D. | 7,132 |
| K | 3rd floor | Spare parts F. W. D. | 7,132 |
| | 4 floors | Returned field stores | |
| | 1st floor | Returned field stores | 15,075 |
| | 2nd floor | Returned field stores | 15,075 |
| K-A M-A Shop "A" | 3rd floor | Returned field stores | 15,075 |
| | 4th floor | Returned field stores | 15,075 |
| | 1 | Returned field stores | 14,650 |
| | 1 | Returned field stores | 33,280 |
| Arsenal Building | 4 floors | Miscellaneous material for manufacturing shops | |
| | 1st floor | Miscellaneous material for manufacturing shops | 43,701 |
| | 2nd floor | Miscellaneous material for manufacturing shops | 43,910 |
| | 3rd floor | Miscellaneous material for manufacturing shops | 38,349 |
| | 4th floor | Miscellaneous material for manufacturing shops | 40,404 |
| | 4 floors | Inert storage | |
| | 1st floor | Inert storage | 9,500 |
| | 2nd floor | Inert storage | 9,500 |
| 3rd floor | Inert storage | 9,500 | |
| 4th floor | Inert storage | 9,500 | |



Arsenal employees participating in Liberty day celebration, Nov. 11, 1918.

Expansion of Shop Personnel



ON the 13th of June, 1921, the President, in commenting upon the present National Defense Law, made the following statement: "Our present National Defense Law establishes an economical and democratic military policy thoroughly consistent with our national traditions. It provides for a small regular army, to be augmented by great citizen forces in the event of national emergency. This is our traditional military policy. But, whereas in the past these larger war forces have been extemporized after the occurrence of an emergency, the new law wisely provides that the frame work of their organization shall be established and developed in time of peace, in so far as this is practicable, through the voluntary services of patriotic young men. The Army of the United States, as defined in the new law, comprises the Regular Army, the National Guard and the Organized Reserves. Every patriotic citizen should encourage the development of these forces, each within its proper sphere."

In line with the policy expressed above, the Arsenal of the United States, whose function is the creating of war material, should in time of peace likewise be developed, in order that they may be prepared to meet the emergencies of war. That this doctrine of development has been pursued, is evidenced in the steady growth of the Rock Island Arsenal. In the years immediately preceding the Spanish-American War some manufacturing was done, but it was small in amount and the manufacturing plant was of limited capacity.

In the emergency incident to the outbreak of war with Spain the necessity for increasing output at once became apparent, and every energy was strained to satisfy the demand. The plant was largely increased at that time, but arrangements were not entirely satisfactory, and at the close of hostilities a well-considered plan for the development and expansion of the manufacturing plant was laid down. At that time only two of the ten great shops in the Armory and Arsenal rows were utilized for manufacturing purposes. Under the plan of development which followed in later years seven of the ten shops were, at the outbreak of the World War, fully equipped with machinery and apparatus.

Recent strides in further expansion of facilities of the plant evidenced the perpetuation of the adopted policy of development, and today the plant as it stands represents a permanent national investment.

Of no less importance in the scheme of plant development is that of the expansion of the Arsenal working force. It has been the practice of the past, at the outbreak of war, to expand the small peace-time organization

into that of a great non-professional war-time producing unit. The situation presented by the World War is recent enough to permit this expansion being visualized, but in order that this conception may be more clearly developed, a statement concerning the civilian personnel will not be amiss.

The manufacturing work in the shops is in charge and under the control of officers who are specially educated and trained for such duty. The work is carried on by civilian employees recruited from residents in the neighboring cities of Davenport, Iowa, and Rock Island and Moline, Illinois. These employees are selected men; are protected in the permanency of their employment by the Civil Service laws, and are unquestionably unequalled by any body of men to be found in similar vocations. But few industrial concerns in the country manufacture at a single establishment the variety



Women workers in the cloth department, photographed shortly before the Armistice was signed.

of articles which the Arsenal is called upon to produce, and in few plants can be found vocations of so diversified a nature. Under Government employment they have the benefit of clean, well lighted, well heated and commodious shops, with all sanitary conveniences. They have Saturday half-holiday, with pay, in the summer months. They have thirty working days' leave, with pay, each year, and when disabled for more than thirty days, through injury received in the course of employment, are granted full pay for the time absent from work on account of such injury; if in the classified service, they are pensioned on arriving at retirement age, provided they have a maximum of fifteen years' service to their credit. The rule of the Government is to pay the same hourly rate of wage as that which prevails in the vicinity for similar work.

Surely the conditions surrounding the employees at Rock Island Arsenal, in respect to conveniences, conditions of work, leave privileges, compensation for injury and rate of wages, cannot be equalled by that of any other body of men in the vicinity. That these circumstances are appreciated, is indicated by the large number of employees of long service included in the file of its workers. A large number have records of from twenty-five to thirty years, and the larger proportion of employees have been at the

Arsenal ten years or more. Records of long and steady employment speak more for working conditions and contentment than pages of argument could do.

While the conditions cited redound to the benefit of the employees, the Government, in turn, benefits through the morale of the organization which such conditions engender. Continuity of employment makes toward perfection of workers in the line of their endeavor. Through close and long association in the manufacture of ordnance they become skilled in the art of its specialized manufacture and acquire a technique of inestimable value as a factor in increased production. This is especially true in the manufacture of small arms. Recognition of this fact by the Ordnance Depart-



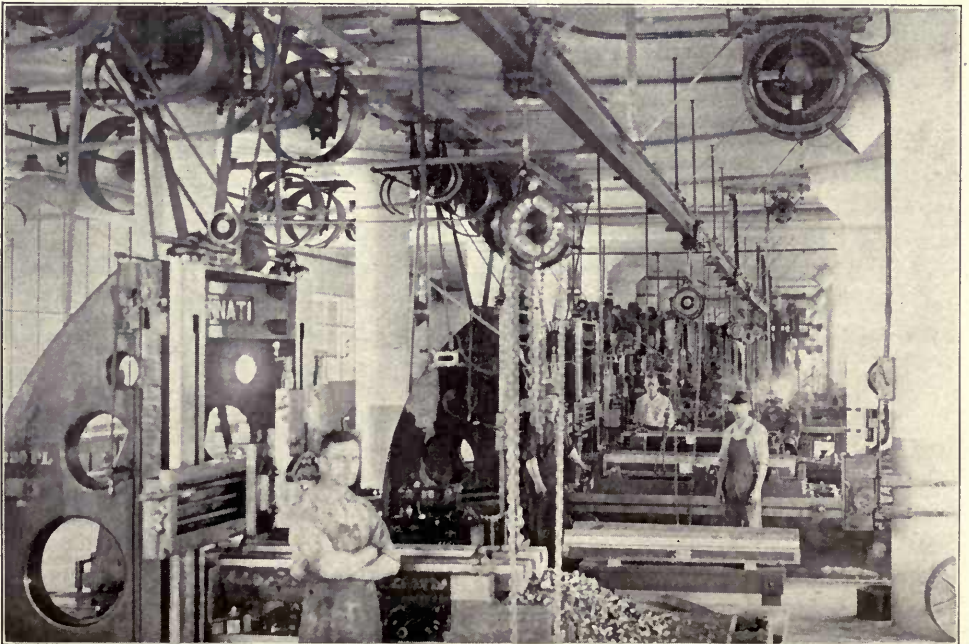
Of course the Arsenal workers had a band, and it was a good one.

ment can be found at the time the manufacture of small arms was first undertaken at Rock Island Arsenal. Workmen skilled in the manufacture of the rifle, to the number of three hundred, were transferred from Springfield Armory at the expense of the Government to inaugurate the work of rifle manufacture at this Arsenal and to school new employees in the manufacturing processes in connection therewith, owing to the dearth of skill at the Arsenal in this line of manufacture.

In a large sense this is the duty which devolves upon the nucleus of the peace-time organization of the Arsenal when war is imminent, and this process of expansion, carried on at the outbreak of the late war, enabled Rock Island Arsenal to quickly attain a maximum production to meet the demands of the army in the field. The force, which consisted of approximately three thousand employees at the outbreak of the war, was expanded to a force numbering approximately fourteen thousand. This expansion, although gradual, covered, in reality, a remarkably short period of time. The responsibility rested upon the Employment Department to determine, from statements of capabilities of applicants having no well defined trade,

such as machinist, carpenter, etc., the particular duty for which the prospective employee was best adapted; after selection, appointment and actual trial in the shops, it oft-times developed that employees possessed capabilities which justified their selection for other and perhaps more important work, differing widely from that for which they were originally selected. The duty of imparting to the inexperienced the knowledge of shop practice that enabled him to perform efficiently one or several of the many shop operations with which charged, and the co-ordinating of his duties into that of a well-organized producing unit, was the task which fell to the more experienced employee of the Arsenal peace-time force.

No less complex in its nature was the problem of demobilization of the vast working army upon cessation of hostilities. Many workers who, at the outbreak of the war, prompted solely by the spirit of loyalty, had left their regular lines of employment to assist in the production campaign at the Arsenal, returned to their chosen vocations upon the signing of the Armistice. In the process of elimination of those that remained, the more efficient were retained. The gradual resumption of peace-time manufacture and production required, naturally, very heavy reductions to bring the working force within the proportions allowed the Arsenal under its reduced appropriations. In making these reductions the established policy of the War Department was followed, and all reductions were based on efficiency, consideration, however, being given those of the force whose military service entitled them to preference.



Interior of machine shop.

Military Personnel



FROM a small and comparatively unknown military post a few years ago, Rock Island Arsenal has come to be recognized all over the country as one of the leading Government posts. A large military personnel is unnecessary, because of the isolated position and natural topographical advantages.

At the beginning of hostilities in 1917 the post had ten officers and an ordnance detachment of 89 enlisted men, six enlisted men in the Medical Department and three enlisted men in the Quartermaster's Corps. This force was gradually increased by authorization of the Chief of Ordnance, until at the conclusion of the fighting in Europe there were 76 ordnance officers and 169 enlisted men. In addition, there were six medical officers, with a detachment of 45 enlisted men, and three officers of the Quartermaster's Corps, with 48 enlisted men.

The following is the roster of officers stationed at Rock Island Arsenal for duty at the date of the signing of the Armistice:

ORDNANCE DEPARTMENT

Colonel LeRoy T. Hillman (Commanding Officer.)

Lieutenant-Colonels Lloyd G. McCrum, Emil Tyden.

Majors Horace C. Sykes, Robert L. Messimer, Thomas Kirk, Rupert L. Penny, Robert L. Streeter, C. K. Boettcher, Lorenze B. Somerby, Milton D. Campbell.

Captains Henry A. Brown, Charles G. Kaelin, Hammond W. Whitsitt, Albert R. Chandler, Ernest M. Gross, William G. Noth, Francis H. French, Max Steinhauer, Francis S. Day, Norman B. Scott, Richard S. Hosford, John J. Berry, Charles A. Barton, John B. Thompson, Robert H. Fulton, Jr., Newman M. Marsillius, Ernest Mosman, Victor A. Stibolt, Harry B. Knowlton, Clifford B. Langstroth, Joseph S. Stringham, S. W. Burford, Walter C. Hull, Louis Carson, Leo. C. Smith.

First Lieutenants Charles P. Tymeson, M. M. Smith, G. Jules Polhemus, Hulbert D. Bassett, Edgar M. Webb, William D. Lacey, Clarence F. MacKay, Elmer L. Kyle, Sam Lewis, Robert G. Meyler, John O. Powell, Edward C. Blackwood, Charles P. Skinner, W. A. Gately, J. Reed Lane, Urban J. Rockcastle, Robert C. Black, Robert C. Mitchell, Charles H. Tharp, Albert W. Davis, Robert F. Peelle, John M. Metzger, Edward R. Kent, E. S. Russell, P. R. L. Hogner.



Col. Leroy T. Hillman, deceased, Commandant at the time of the signing of the Armistice.

Second Lieutenants Frank J. Vonachen, Herman J. Hutkin, Walter Latt, Donald F. Smith, Charles R. Martin, H. S. Francis, G. C. Jefferson, C. J. Rafinski, Philip N. Wright, Paul Keachie, Harry A. Wilson, E. S. Higginbotham.

MEDICAL DEPARTMENT

Major Chester H. Clark.

Captains George G. Parlow, Elbert E. Cone, Walter E. Hunt, Fred F. Sprague.

First Lieutenants U. S. Boyer, Otto Kolar (Dental).

QUARTERMASTER CORPS

Captain James L. Greene.

Second Lieutenants Clifford Martin, Thomas F. Drummy.

ATTACHED

First Lieutenant E. C. Wright, Philippine Scouts (Retired)

Local interest attaches to the fact that in addition to those residents of the Tri-Cities whose names appear among those listed above as serving at the Arsenal at the time of the signing of the Armistice, the following officers, commissioned from civil life either during the earlier stages of the war or while undergoing a course of instruction preparatory to overseas duty, were stationed at the Arsenal:

Major Ordnance Reserve Corps—Alfred LaMar.

Captains Ordnance Reserve Corps—A. D. Ficke, R. A. Gregory, J. M. Hassett, Harry Hoisington, W. J. Larson, A. W. Mitchell, Leon Mitchell, H. G. Roberts, O. H. Seiffert, C. P. Skinner, Wm. B. Spears, George W. Thompson, J. A. Utts.

First Lieutenants Ordnance Reserve Corps—G. Decker French, E. R. Guyer, Emil H. Hass, C. E. Pingle.

Second Lieutenant Ordnance Reserve Corps—M. K. McPhail.



Troops drawn up to witness presentation of faithful service badges to old employees.

Civilian and Military Guard



ONE of the most striking features at Rock Island Arsenal during the period of the war was the careful and efficient manner of guarding the government property by means of both civil and military guards on and about the Island.

Prior to the declaration of war the shop guard consisted of four civilian guards and four soldiers, the latter members of the permanent ordnance detachment of the regular army. These were known as "key men," and reported by means of clocks at various points in the shops.

Immediately after war was declared, however, means were taken to protect the property and equipment, and a high wire enclosure was built



Rock Island Arsenal Military Drill Corps.

around the shops, the main storehouses, and the oil houses. Nine more civilian guards were employed to patrol the main gates and the west railroad gate. Admission to the wire enclosure could then only be secured by the presentation of the proper pass.



Rock Island Arsenal Women's Military Drill Corps.

At the time the gate guards were employed, sixteen more civilians were placed as shop guards and given posts around the shops to patrol. A sergeant of the ordnance detachment was placed in charge of these guards.

In March, 1917, Companies A and F, 6th Illinois Infantry, were ordered to the Arsenal for outside guard duty; they continued to guard government property until February, 1918, when the 1st Battalion of the 10th United States Infantry was assigned to this duty in their stead. The battalion



Fire fighting force assembled before headquarters.

numbered approximately 1,000 men and patrolled all the Island outside the enclosure, establishing thirty-two posts where a sentry was on duty all the time. These posts included the pump house, railroad bridges, magazines, power dam, and other places of importance. In the meantime, many other civilian guards and members of the ordnance detachment were assigned to escort all civilians whose business required their presence inside the enclosure, and a traffic squad was organized from the detachment to handle the enormous flow of pedestrians and vehicles to and from the Island in the mornings and evenings.

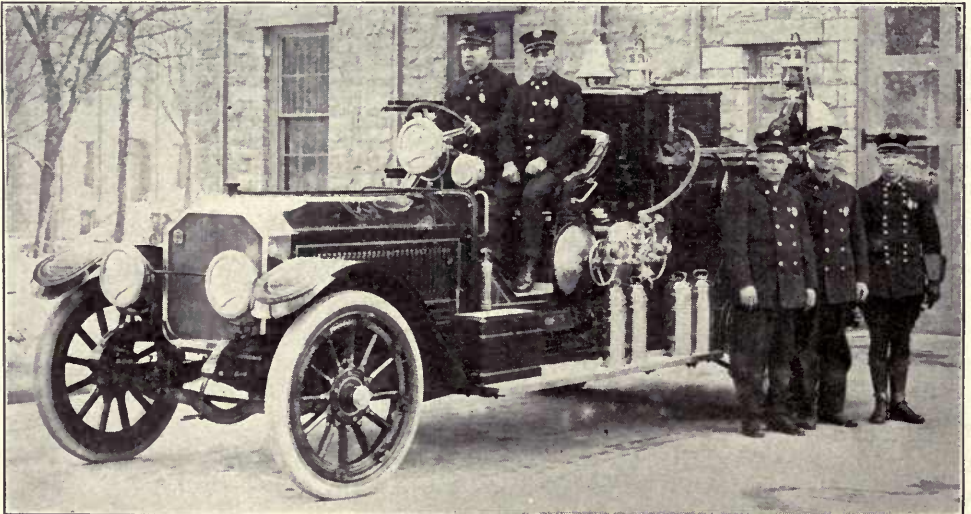
During the first week in August, 1918, the Headquarters 5th Battalion and Companies B, C and D, United States Guards, relieved the Tenth Infantry from this duty. The guards comprised twenty officers and about 450 men.

This organization was increased later by a company of the Twentieth United States Infantry.

PROTECTION AGAINST FIRE

Prior to January 1, 1918, the fire department at the Arsenal was entirely inadequate for the protection of the huge amount of property and many buildings, and all members of the department were civilian employees from the shops, under the direction of the master mechanic, the entire personnel comprising forty men. On January 1, 1918, two men were employed as drivers of the pumping machine.

About April 1, 1918, authorization was given for the reconstruction of the department, and an experienced fireman was assigned as chief. Twenty men were subsequently employed. The double platoon system was placed in effect, and a full equipment of the most modern motorized fire-fighting apparatus replaced the obsolete types formerly in use. A high pressure water system was built and an electric alarm system installed. Fortunately, no serious fires occurred, due principally to the propoganda of the safety department and constant efforts and inspections by the fire marshal and chief.



Chemical Fire Truck ready for action.

Post-War Activities

WORK PERFORMED BY ROCK ISLAND ARSENAL FOR OTHER DEPARTMENTS OF THE GOVERNMENT

A provision in the Act of July 11, 1919 (Public No. 7, 66th Congress), reads as follows:

"That no part of the moneys appropriated in each or any section of this Act shall be used or expended for the purchase or acquirement of any article or articles that at the time of the proposed acquirements can be manufactured or produced in each or any of the Government Arsenals of the United States for a sum less than they can be purchased or produced otherwise."



THE purpose of the inclusion of the above provision in legislation was to provide for placing with the Ordnance Department orders for supplies by the Supply Bureaus concerned which could be manufactured by Arsenals cheaper or to better advantage than they could be procured from other sources. Prior to its adoption the large, spacious shops of the Arsenal, with their machines and shop appliances and facilities capable of producing work more diversified in character than that of any other government Arsenal, had been utilized almost exclusively in the manufacture of ordnance with the procurement of which the Ordnance Department was charged.

In order to accomplish the object of the above Act, and to co-ordinate the work between the Ordnance Department and the bureaus concerned, there was established in the office of the Chief of Ordnance an Arsenal Orders Branch, through which medium the Arsenal receives information and data concerning the requirements of other bureaus and has opportunity to submit quotations on articles for which inquiries are sent out. Bids submitted in answer are assured the same consideration as to price and time of delivery as are those from other bidders.

The Arsenal has received 92 orders as a result of bids, 72 from the Ordnance Department and 20 from other departments. Of the circulars received, over 90 were returned on which no quotations were submitted, due to the fact that in many cases they called for small quantities of items of commercial manufacture for which it would have been hopeless for the Arsenal to attempt to compete, as they were items included in the regular output of commercial plants.

The diversified nature of the work which the orders involved will be noted from the statement that the work performed covered torpedo parts and forgings for combustion flasks for naval torpedo stations, Bebout weirs for use on the Ohio river dam, emergency gates for the United States Engineer Department, bomb racks and demolition bombs for the Air Service, and mail bags and straps for the Post Office Department.

The Arsenal, however, under instructions from the War Department, must confine its operations to manufactures for which its machinery and

equipment is adapted, and is not permitted to acquire additional machinery for the purpose of further invading the commercial field.

The production attained at the various Arsenals and by the industrial plants throughout the country engaged in the manufacture of munitions of war naturally found the government, upon cessation of hostilities, with vast quantities of ordnance stores of every description, both in finished and partly finished state, on hand, together with large quantities of components.

The most serious handicap in the manufacture by private concerns of war munitions in the World War was their unfamiliarity with the highly specialized business of manufacturing munitions, and if the Arsenal is to develop in times of peace the technique acquired through developing types of weapons, it is essential that it be given orders sufficient to maintain its organization to meet this end.

The estimating section of the Arsenal during the fiscal year ending June 30, 1921, submitted through the channel mentioned above, and other government departments, approximately 300 estimates or bids. A list is given below of the different departments, with number submitted in each case, for which estimates were made:

| | |
|---------------------------------|-----|
| Ordnance Department..... | 174 |
| Navy Department..... | 18 |
| Treasury Department..... | 1 |
| Post Office Department..... | 8 |
| Railroad Administration..... | 1 |
| Panama Canal..... | 1 |
| Geological Survey..... | 3 |
| Lighthouse Service..... | 3 |
| Engineer Corps..... | 18 |
| Interior Department..... | 18 |
| Signal Corps..... | 4 |
| Agricultural Department..... | 1 |
| Land Office..... | 1 |
| Air Service..... | 9 |
| Government Printing Office..... | 1 |
| Quartermaster Department..... | 9 |

THE MARK VIII TANK

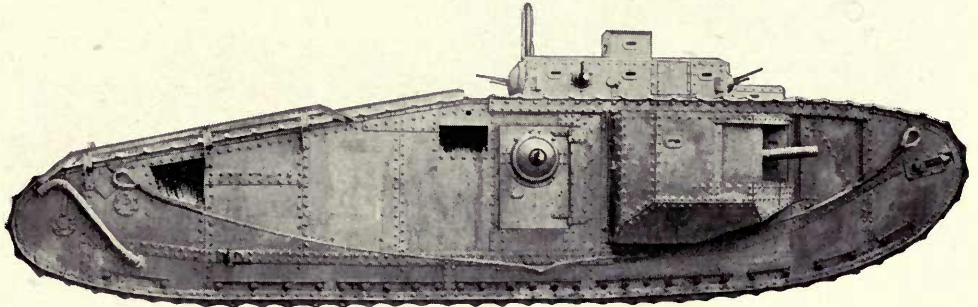
When, in the spring of 1919, the Rock Island Arsenal received an order to assemble 100 Mark VIII tanks, it was not only the largest order ever received in the history of the Arsenal, but it involved the most new problems.

Practically all of the components of the tank required in the assembly were shipped to the Arsenal. The principal parts consisted of the heavy structural pieces—i. e. armor plate, angle iron, steel girders and channels, together with a large quantity of equipment, such as tools, Hotchkiss guns,

camouflage nets, water cans, bird cages, food cans, telescopes, periscopes, festoon lamps, semaphores and various other sundries purchased from the British Government. The balance of the required material was manufactured by various outside contractors in the United States, and included Liberty motors, transmissions, compound clutches, petrol tanks, radiators, electrical equipment, and front control units.

Construction on the first of these tanks was started July 1, 1919, and the last tank was completed and ready for road test June 5, 1920, making a total of 286 days to complete the 100 tanks.

The Mark VIII tank is a fighting tank weighing about 40 tons when fully equipped and manned. It carries a complement of eight men—one



The Mark VIII tank. The order to assemble one hundred of these ponderous fighting machines, received in the spring of 1919, was the largest ever undertaken at the Arsenal. The task was completed in 286 days.

in the engine room and seven in the fighting compartment. The seven men consist of the officer in command, the driver and five gunners, two of the gunners manning the 6-pounder Hotchkiss guns and three the Browning machine guns. Storage capacity is provided for 200 rounds of 6-pounder ammunition and 20,000 rounds of calibre 30 ammunition.

IMPROVEMENT OF GROUNDS

During the period of the war only such repairs to the roads had been made and labor in the upkeep of the grounds expended as was found to be absolutely necessary. The activities carried on in connection with the Arsenal's construction projects had left the grounds adjacent to many of the new buildings in an unsightly condition. The vast quantities of war material turned in from the field and from abandoned plants had, because of lack of covered storage space, to be piled in the open in scattered areas about the Arsenal.

The clearing of these sites, the disposing of the serviceable and un-serviceable material; the construction of new roads and drives; the repairing and resurfacing of many of the permanent roads (the most notable of which was that of Main avenue from the main gate to West avenue); the removal of the flagstaff, formerly occupying the center of Main avenue at its juncture with West avenue, to its present location in front of the Administra-

tion building, but out of the line of traffic; the replacing by monolithic walks of many of the earlier types of flagstone walks, which had become broken and sunken; the planting of trees and shrubs; the laying out of a park for the recreation of Arsenal employees; the extension of the exterior lighting of roads and buildings, including the placing of lights on the clock tower of the old Arsenal building at the lower extremity of the Island, and many other improvements have since been completed to restore the Island to its former beauty.

With the advent of war, precautionary measures which the government was obliged to take with respect to protection of its plant and property, to



Col. Jordan presenting faithful service badges to old employes, June 3, 1920.

the end that its capacity to produce fighting material might not be curtailed, compelled the War Department to close the Arsenal to visitors, and where heretofore general admission to holders of passes had been granted to visit the Island, it became necessary to revoke the privilege and limit the admission to those only having business on the Island; the shops and that area of the Island which was given over to manufacturing purposes was enclosed in a high non-climbable wire fence, and the regulations with respect to admission within this enclosure were rigidly enforced. With the signing of the Armistice the restriction with respect to passes imposed as a result of the war were removed; and while at this government post strict regulations are necessarily enforced, passes are generally issued to residents and visitors to the Tri-Cities who apply for same and who may desire to avail themselves of the privilege.

Savanna Proving Ground



THE purchase of approximately 13,000 acres of land for a proving ground near Savanna, Illinois, was made possible under an appropriation of \$1,500,000 authorized by an Act of Congress on June 12, 1917, and work on this valuable adjunct to Rock Island Arsenal was pushed early after the United States entered the World War.

It was contemplated that this tract be used for proof-firing gun carriages manufactured at the Arsenal, some sixty miles distant, but upon the signing of the Armistice, immediate need for gun carriages having ceased, the Savanna project was used as a storage depot for the vast quantities of ordnance stores manufactured at the Arsenal during the war.

In the purchase of the Savanna lands, the United States had the services of Hugh E. Curtis, of Rock Island, Illinois, and others, through whom options were secured from the owners, and the sales were consummated

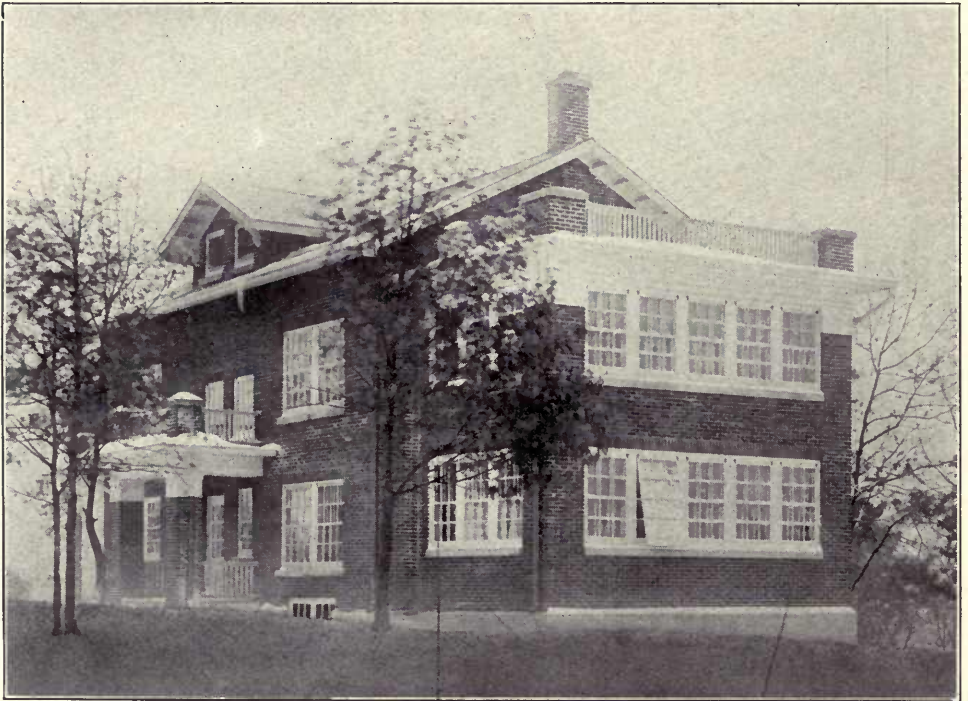


Tractors and tanks in field awaiting permanent storage. This picture, taken in June, 1919, shows but a small part of the equipment brought to Savanna after the war.

upon acceptance by the government. Out of a total of 13,146 acres, costing \$890,209.15, only 320 acres were purchased direct by the government, and condemnation proceedings were necessary in the acquirement of ten acres that could not be obtained in any other way.

After the Savanna land purchase there remained from the appropriation made by Congress approximately \$600,000, and this was expended in constructing necessary quarters, barracks, firing points, power house, store-houses, roads, and sewage system.

It will be realized to what extent the Savanna site was used for a storage depot from the statement that at the beginning of the fiscal year 1920 artillery material was being received at the rate of forty carloads a day. No covered storage was available, and the material was parked in the open, there being something like fifteen acres of this on hand July 1, 1920. To care for the material it was necessary to construct forty storehouses, each 96 by 400 feet, to house artillery and tractors.



Quarters of Commanding Officer at Savanna proving ground.

War With Spain



IN 1898 Rock Island Arsenal had its first real test, and it was not found wanting. At the outbreak of the War with Spain, in April of that year, the extent of the country's unpreparedness may be judged by the fact that this Arsenal, though employing only 500 men and having less than one-fifth of its shop floor space utilized for manufacturing purposes, yet was first of all the arsenals of the country in size, number of employees, variety of work performed, amount of output and monthly payroll. Inevitably, then, upon this Arsenal fell a proportionately large share of the work of equipping the suddenly augmented fighting forces of the nation.

Rock Island Arsenal, fully outfitted with machinery and completely manned, it had been estimated, should be able to equip and maintain an army of 750,000 men, but the spring of 1898 found it with a capacity of not more than one-fifth of its estimated maximum output. Congress had not appropriated sufficient funds to place it in a state of readiness for such an emergency. Nevertheless, it did not fail to do all and more than was expected of it.

The plant, which up to that time had been large enough merely to supply the small army maintained in time of peace, quickly expanded to meet the increased demands occasioned by the rapid growth of the military forces. Additional machines were installed where possible, and where hand labor only was involved in the shop operations the great floor space available in the vacant buildings was promptly filled. There was no time, and, indeed, there was no need for further shop or storehouse construction. In six months the crisis was passed.

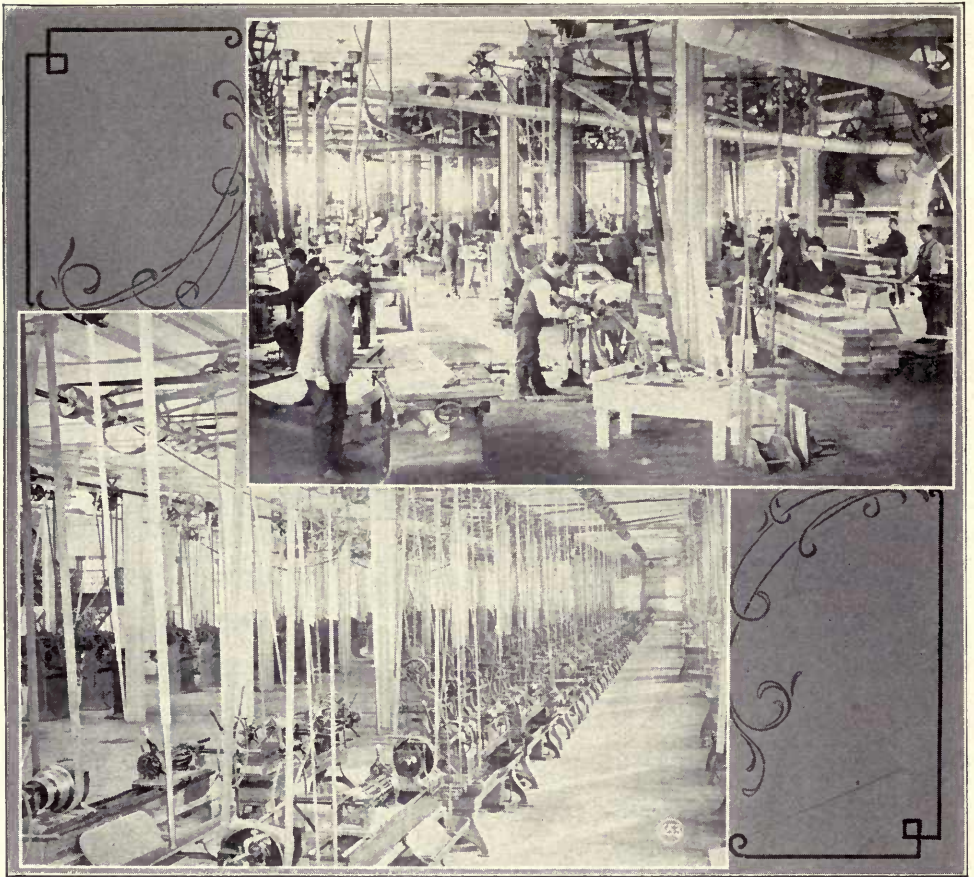
The number of employees, which on March 1, 1898, numbered less than 500, quickly increased until a maximum force of approximately 3,000 was attained, with an expenditure of \$175,000 per month in wages.

The old shop and office forces were made the nucleus of the larger organization, those especially fitted for leadership being advanced to more responsible positions and given the task of organizing and training the inexperienced help taken on in such large numbers.

The extent to which the Arsenal was developed to meet the emergency then existing may be realized by stating that the department producing the cloth equipment, which, before the Spanish-American War, operated but fifteen machines, was expanded until sixty machines were used to turn out the product. The shop which at its maximum was producing before the war 300 tin cups and 125 meat cans per day, and in which no facilities for the

manufacture of canteens existed, when finally developed, was capable of turning out 3,000 tin cups, 6,000 meat cans, and 4,000 canteens per day.

All shops and departments were expanded in like proportion, and although the force was operated continuously twenty-four hours per day, it was necessary to augment the Arsenal's output by purchases from private manufacturers of large quantities of completed articles of infantry, cavalry and horse equipments, delivered in finished condition ready for issue to the



Interior of Woodworking Shop, above; below, interior of Armory.

field. With the procurement of these articles, entailing the preparation of specifications, inviting of bids, making of awards, and the placing of the orders, the Arsenal was charged. In many cases the contractor performed only one certain operation in connection with the complete equipment, such as covering with leather of the saddle tree and the wooden stirrups, the trees and stirrups for which were manufactured and furnished the contractor by the Arsenal.

As was the case later, during the World War, the Arsenal found much to do in organizing and directing private manufacture of materials needed by the army, in assembling complete sets of equipment from parts obtained here and there and adding the final touches to make them ready for use.

Orders for large quantities of raw materials were placed, as the limited capacity of the Arsenal, operating on a peace-time basis, resulted in only a moderate quantity of materials for orders then in progress being on hand. The magnitude to which the purchases grew under the stimulus of war to meet shop production requirements may be indicated by a statement of the principal articles procured.

These included 351,400 yards dyed duck; 1,008,000 yards cotton webbing of various widths for haversacks and blanket bags; 654,000 pounds tin plate for meat cans, tin cups and canteens; 79,900 pounds brass wire; 89,500 pounds sheet brass for buckles, rings and hooks; 984,000 feet linen rope for lariats; 205,300 pounds harness leather backs; 1,262,000 square feet collar, bridle and bag leather for straps, saddles, saddle bags and carbine scabbards; 116,200 pounds copper; 1,161,900 pounds steel for gun carriages; 133,000 feet basswood and ash for saddle trees; and 690,000 feet other lumber for ammunition chests, besides many thousand pounds of minor articles.

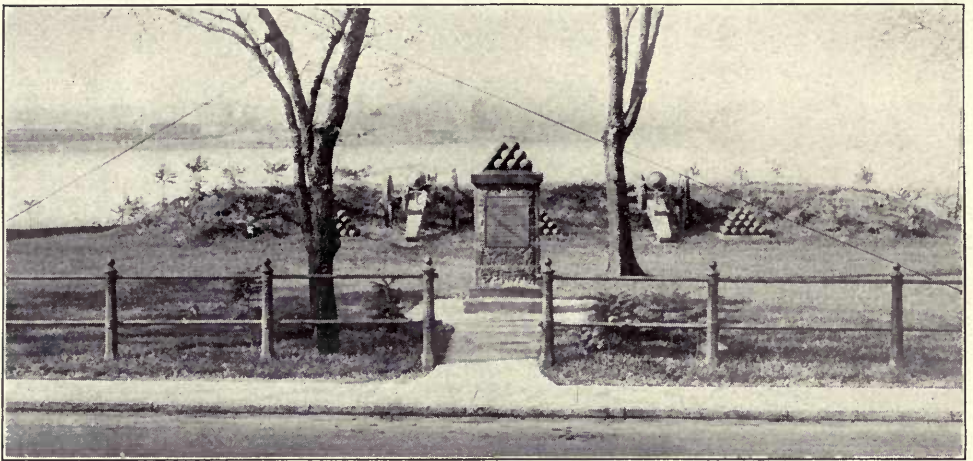
The value of the completed articles purchased during the Spanish-American war aggregated \$331,262.33. Some of the principal items of equipment, showing the proportion in which they were manufactured at the Arsenal and the quantities which were acquired by purchase, are as follows:

| Articles | Manufactured at The Arsenal | Purchased from Contractors |
|--|--------------------------------|-------------------------------|
| Blanket bags..... | 36,190 | 30,521 |
| Blanket bag shoulder straps, pairs.... | 72,428 | 12,980 |
| Blanket bag coat straps, pairs..... | 48,070 | 20,269 |
| Canteens | 235,553 | 23,952 |
| Canteen straps, Infantry..... | 95,671 | 105,059 |
| Gunslings | 64,942 | 86,979 |
| Haversacks | 80,588 | 61,878 |
| Haversack straps..... | 122,086 | 29,236 |
| Meat cans..... | 208,841 | 29,206 |
| Tin cups..... | 231,400 | 29,209 |

Of course the foregoing tabulation includes but a small fraction of the articles manufactured, purchased and assembled here. In the four months from April 15 to August 15, 1898, there were either made here wholly or partly, or received from contractors, 25 3.2-inch breech loading rifles and other field guns, 53 carriages for 3 and 3.2-inch guns, 210 limbers for the 3.2 and 3.6-inch guns, 120 caissons, a large quantity of artillery harness,

saddles, etc., and hundreds of thousands of miscellaneous articles. The Arsenal was the largest depot of issue in the country.

At the outbreak of the war with Spain this country was far behind the times in much of its military equipment. The old 45-calibre single shot Springfield rifle, firing with black powder, but little better than the weapons used at the close of the Civil War, was the only small arm available for use by many of the troops. About the only improvement in the army uniform made since the 60's consisted in the addition of the campaign hat and leggings. Our forces invaded the tropics clad in the regulation blue wool garments, ill-fitting and as uncomfortable as they were conspicuous



Site of old Fort Armstrong, looking down the Mississippi.

to enemy marksmen. No canteens had been made since the Civil War, the surplus left after that conflict being repaired and recovered as needed. In many other ways the equipment was far out of date.

The Spanish war not only stimulated manufacture, but brought about a marked change in type of most army goods, which led to a permanent expansion of Rock Island Arsenal's facilities and shop forces. Though the war of 1898 did not last long, it brought realization of the advanced needs of the nation in the way of defenses and was followed by an increase in the size of the standing army, which helped to insure continued activity at this Arsenal on a scale greater than that which had prevailed up to that time.

Among the permanent improvements brought about at once were the modernizing of the water power plant and the taking of steps for the manufacture of small arms. During the Spanish War, rifles were cleaned, repaired and issued, but none were made here.

Major Blunt, the Commandant, in his report for 1893 praises the spirit of the shop workers during that year. Referring to the manner in which the organization was expanded he said:

“As the force was increased, the necessity for foremen and inspectors familiar with the successive operations (for there was no time to teach and develop new men) grew with the expansion of the work. They were found among the old employees, and from their ranks a number of temporary appointments to these positions were made. They proved capable and efficient, and when necessary, as was frequently the case, worked overtime with entire willingness; in fact, the spirit they displayed permeated, with very few exceptions, the entire force, the men being apparently animated by the desire to observe the shop rules and regulations to the best of their ability and to render all possible assistance to the government in the existing emergency.”

That work turned out at the Arsenal was superior to that made in private plants, and produced at a lower cost, is emphasized:

“While fairly favorable prices were obtained for the \$1,110,000 worth of finished articles of ordnance stores procured under contracts, yet in all cases they exceeded, in some instances considerably so, the cost at which similar stores were at the same time being turned out at the Arsenal. * * * It must also be remembered that the articles obtained by purchase, especially at such a period, as unquestionably has been the case with most of those recently procured under contracts, are often inferior, both in material and workmanship, to those procured in the government shops. This fact was universally admitted by all the contractors who visited this Arsenal during the last few months and examined the work in progress.”



Rock Island Arsenal Golf Club, maintained by civilian members from surrounding cities, but under control of Commandant, who is ex-officio president of the organization.



GROUP OF VETERAN ARSENAL EMPLOYEES.
Top row, left to right—R. C. Munson, deceased; Hiram Shunk; W. J. Pratt, deceased; W. A. P. Totten, deceased. Lower row—Emil Beck; Patrick Henthan; D. C. Thompson; W. O. Gronen, deceased.

Fort Armstrong

By JOHN H. HAUBURG



O fort gave a greater sense of security to the pioneers of the Illinois Territory than did old Fort Armstrong. For decades the Indians of the Upper Mississippi had been in the habit of uniting their forces against their white brethren. Together they shared the honors at Braddock's defeat during the French and Indian War, and again they were united in Pontiac's War. The seizure of the Illinois country by General George Rogers Clark in 1778 was a challenge to the warriors, under British control, from Rock River to Lake Superior and from Lake Michigan to the St. Peter's river in Minnesota. In 1779, and again in 1780, there were fighting expeditions descending the Mississippi past Rock Island bent on the re-conquest of Illinois from the Americans, and among them braves from the local villages of the united Sauks and Foxes.

When the War of 1812-'14 came on, Territorial Governor Ninian Edwards wrote: "I believe there is a universal combination among the Indians. Independent of the Indians west of the Mississippi, and 300 lodges of Sioux on the Wisconsin, we may certainly count on 4,400 who can reach the settlements on the Mississippi in six or eight days, and come all the way by water. Our danger, therefore, is very evident."

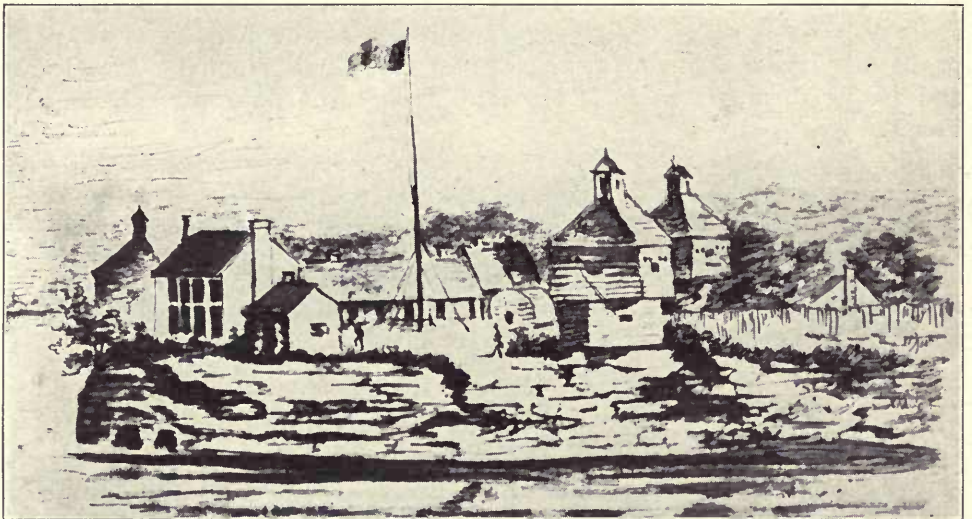
The settlements of the pioneers at that time were mostly near the Mississippi, and nearly all south of a line drawn eastward from where Alton, Illinois, is now. North of this line was the wilderness, from which came Indian bands creeping upon the settlers by stealth and leaving a trail of blood. In 1813 Governor Edwards wrote: "The savages have already committed murders within the bounds of every regiment in this (Illinois) territory."

In 1814 the government took aggressive action against the Indians of this vicinity. Governor William Clark, of Mississippi Territory, headed an expedition to Prairie du Chien, Wisconsin. His first trouble came as he reached Rock Island, where he was attacked by the united Sauk and Fox. This was in the month of May. In July of the same year Lieutenant John Campbell was attacked at Campbell's Island, a few miles above Rock Island, and after a hard fought battle was defeated by Black Hawk's warriors. Early in September the same year an expedition under Major Zachary Taylor came up stream for the purpose of destroying Black Hawk's village and corn fields and to select a site for a fort. Major Taylor was decisively defeated by British artillerists and overwhelming numbers of Indians of the allied tribes at Credit Island, in plain sight of Rock Island.

Peace was signed as between Great Britain and the United States in December, 1814, but the Indians continued their depredations upon the

settlers to the south, and so, in 1815, the 8th U. S. regiment was dispatched to Rock Island to build a fort. On account of certain hindrances, they did not arrive at Rock Island until May 10, 1816, at which time, accompanied by the rifle regiment under Brevet Brigadier-General Thomas A. Smith, work on the fort was begun. As General Smith remained but a short time, the work was continued under Col. William Lawrence, of the 8th regiment, and was called "Fort Armstrong," in honor of the then Secretary of War.

Major Marsten, in 1819, reported as follows: "This fort is about 270 feet square, with three block houses mounting three six-pounders. The barracks are well constructed, of hewed timber, and are sufficiently extensive



Fort Armstrong, as originally built, from photograph of an old drawing.

to quarter three companies. The magazine is of stone, and well built. The commanding officer's quarters consists of a center two-story building 28 feet in length and a piazza built in front and rear. The fort is built on the lower point of Rock Island, and upon a perpendicular bank of limestone about twenty-five feet in height. It completely commands both channels of the river. The garrison is a great check upon the Indians in this country, and from its central situation it appears to me to be a station of considerable importance."

Of its general outward appearance, Governor Ford wrote as follows: "The river here is a beautiful sheet of clear, swift-running water, about three-quarters of a mile wide. Its banks on both sides were uninhabited, except by Indians, from the lower rapids to the fort, and the voyagers up stream, after several days solitary progress through a wilderness country on its borders, came suddenly in sight of the whitewashed walls and towers

of the fort, perched upon a rock, surrounded by the grandeur and beauty of nature, which at a distance gave it the appearance of one of those enchanted castles in an uninhabited desert, so well described in the Arabian Nights Entertainments."

Within the walls of the fort were housed a variety of interests—the commandant, the surgeon, the interpreter, the Indian Agent, the blacksmith, the soldiers, and lastly the servants. Among the last named was the colored man, Dred Scott, whose residence at Fort Armstrong provided the grounds for the legal battle carried through to the United States Supreme Court, made famous in history by the "Dread Scott decision." The blacksmith was appointed because of a stipulation in treaties with the Indians that the United States should provide such an artisan for repairing the Indians' hoes, axes, guns, etc.

The United States Indian Agent managed the affairs of the Government with the Indians. All traders must receive their traders' licenses from the agent. He would pass upon the proposed trader's qualifications, upon the financial responsibility of those who signed his bond as security, take a list of their interpreters, clerks and boatmen, the place where to trade and the tribe of Indians with whom he would trade. The agent issued passports to Indians wishing to travel to other posts, issued rations to the Indians, keeping book account of all such transactions, and paid out the thousands of dollars annually as annuities to the red men, etc. In addition to those officially connected with the fort, James D. Rishell, in a recent edition of "Black Hawk's Autobiography," says: "Around every fort on the border, from the earliest times onward, hovered a band of French, English and American traders, in sharp competition for the rich furs and peltries of the Indians." Colonel George Davenport, in fact, had a permanent trading establishment but a few hundred yards distant from Fort Armstrong.

All through the years, until after the Black Hawk War, Fort Armstrong functioned as a restraint upon the Indians. Always there were quarrels, battles, killings, stealings, between the two races over a wide range of country hereabout. Our earliest settlers would scarcely have dared to locate within Black Hawk's village had it not been for the presence of the fort. The Winnebago War, and two campaigns, 1831 and 1832, of the Black Hawk War, found the fort a refuge to the crowds of men, women, and children of settlers, as also the headquarters for the military operations which resulted in the expulsion from the old Northwest Territory of the last of a long list of patriotic, fighting Indians.

The stories of Indian treaties negotiated at Fort Armstrong; of refugee settlers in fear of massacre; of Black Hawk's attempt to blow up the fort; of the legend of the spirit, in the form of a large swan, which inhabited the cave underneath the fort; the hustle and bustle of soldiers and supplies

during the Black Hawk War, at which time the fort was headquarters for the army; the coming of General Winfield Scott, and the plague of cholera at the fort—all these and many others are subjects of too great length to be treated in the space allotted to this part of the story of the Tri-Cities and the Arsenal.

From Wm. A Meese's "Early Rock Island" we quote the following:

"May 4, 1836, the fort was evacuated and the troops sent to Fort Snelling. Lieutenant Colonel William Davenport was in command at that time, and he left Lieutenant John Beach, of the infantry, in charge with a few men to take care of the property. The fort was never re-garrisoned. November, 1836, Lieutenant Beach was ordered away and all the property was removed. From 1836 to 1838, General Street, Indian Agent, had charge of the Island, and he was succeeded by Colonel George Davenport, who had been appointed Indian Agent. In 1840 some of the buildings were repaired and an ordnance depot was established at the fort, Captain W. R. Shoemaker having charge until 1845, when the depot was broken up and the goods removed to St. Louis. Thomas L. Drum, of Rock Island, was custodian from 1845 to 1853. Ordnance Sergeant Cummings was in charge for a short time in 1853 to 1854; J. B. Danforth from 1854 to 1857, and H. Y. Slaymaker from 1857 to 1863."



Reproduction of first block house, erected in 1916 by the people of the community, for celebration of 100th anniversary of building of Fort Armstrong.

In 1855 part of the fort was reduced to ashes. The last vestiges of the fort were removed in 1863, at the time of the building of the large Armory clock tower building. It is unfortunate that part, at least, of this relic of the stirring days of the past was not left as a monument for succeeding generations.

In 1916, however, the one-hundredth anniversary of the building of Fort Armstrong was fittingly observed by a great celebration, in which not only the Tri-Cities joined, but visitors from away were here in large numbers. Among the noted visitors were Jesse Ka-ka-que, of Kansas, a great grandson of Black Hawk, and Push-e-ton-e-que, chief of the Fox or Mesquakies, together with about twenty-five other Indians from Tama, Iowa. As a part of this celebration, one of the blockhouses was restored, and is an exact replica in form of those which were placed there a century before, which, with their six-pounders, gave such comfort to the westward tide of immigration.

Squatters' Rights



ALTHOUGH claiming it from the first as a reservation for its uses, the War Department had no little difficulty in finally establishing title to Rock Island. Seldom has a tract of land no larger than the Island offered such obvious attractions to private owners, and many and devious were the schemes employed in an effort to wrest it from the control of the government. In the end it cost Uncle Sam \$221,035 to buy rights of settlers who were conceded to have just claims to portions of the premises, and the water power rights are still shared by private interests.

Much space would be required to record details of this phase of the Arsenal's history. Only a brief outline will be attempted.

For many years the question whether the Island was lawfully under the control of the War Department, or subject to distribution as part of the public domain, was considered debatable. Appeal was made at various times to the Courts, to the Secretary of War, the President, and even to Congress.

In 1825, and again in 1835, the War Department formally asserted its claim to the whole of the tract. Nevertheless, a survey was made by an engineer employed by the Department of the Interior in 1832, and the land was laid out in quarter sections. After the troops were withdrawn, in 1836, squatters appeared and occupied most of the Island, with a view of preempting it under regulations applying to all public lands not set aside for some particular purpose.

In 1837 the Illinois legislature gave permission, by special act, empowering David B. Sears and John W. Spencer to construct a water power dam across Rock Island Slough, connecting the Island with the mainland at Moline. In 1842 the dam was completed, and in a short time a number of small manufacturing plants made their appearance at the head of the Island, operating with the power generated there. In 1846 Mr. Sears built another dam connecting the main island with Benham's Island, on the north and just below the head of the former. In 1848, for some reason not clear at this date, the Secretary of War wrote to the Secretary of the Interior formally relinquishing the Island for military purposes. In doing so, however, the former exceeded his powers, as court decisions and subsequent acts of the War Department indicated, and so a great many persons who claimed interests in the property were disappointed.

Most of the litigation with respect to the ownership of the premises resulted from the building of the Chicago & Rock Island railroad, which crossed the Island a quarter of a mile east of the present line, the company

claiming a tract 300 feet in width by virtue of its charter from the State of Illinois. That was in 1854. The War Department resisted the intrusion, and the matter was thrown into the courts, which eventually upheld the company, apparently more on the grounds of public need of transportation by rail than upon proof of technical rights submitted by the defendant. Subsequently the railroad was induced to remove its tracks to the extreme western end of the Island, where they are now located.

In 1850, when General Zachary Taylor was President, he issued an order for the sale of the Island. Advertisements were not printed in local newspapers, and it was charged that the move had been instigated by outside capitalists who wished, for obvious reasons, to avoid publicity. Two weeks



Grave of Gen. Rodman, guarded by guns of type he designed. These weapons were used in the monitors which crushed the hope of the Confederacy of striking a vital blow at the north from the sea during the Civil war.

prior to the date of the sale, however, people of the community awoke to what was going on, and immediately such a protest arose that the War Department felt impelled to postpone the date. Word to this effect did not reach Rock Island until the afternoon of the day on which the sale was to have taken place and an officer was on the ground prepared to receive bids. Most active in opposing the sale were those who had settled or made improvements on the Island, for they felt that their alleged rights were being placed in jeopardy. They banded together and even went so far as to post notices in the vicinity warning prospective purchasers that those appearing to submit bids would be in serious physical danger. The sale was finally called off.

Many bills were offered in Congress for the sale of all or part of the land, but most of them were defeated through the vigilance of local interests,

which from the first ardently upheld the effort to maintain the Island as a site for an Arsenal. In 1858 the War Department again was induced to consent to public sale, and bids were advertised for and received, but never opened. About this time Congress began to manifest a real interest in the utilization of the Island for military purposes, and so in 1859, when the last bill ever offered for sale of the premises came up, it was promptly voted down, and that ended the controversy.

In the meantime parts of the Island had been disposed of by act of Congress. Colonel George Davenport, the original settler in the community, was permitted to purchase at the prevailing price of \$1.25 per acre the



Residence of Commandant of Arsenal.

quarter section he had claimed and improved at the time the first army post was established, and D. B. Sears was given a similar privilege with respect to the fractional tract adjacent to his flour mill at the head of the Island. The Davenport interests subsequently were re-purchased by the War Department for \$40,700 and the Sears interests for \$145,175.

An organized effort to get the greater part of the Island by preemption was made in 1856, when one Thales Lindsley, said to have been a clerk in the Patent Office at Washington, appeared and located a party of squatters as "dummies" upon unoccupied parts of the Island. About the same time a number of Rock Island men conceived of the same idea, namely, that of

establishing rights preliminary to purchase from the government. The result was that the population of the Island was materially increased, there being two or more claimants for each of the more desirable portions. Some violence resulted from the clash of interests. Eventually the Lindsley party was worsted. Lindsley, however, was not daunted. He remained on the ground and interested a number of local men in a plan to get the Island by grant from Congress as the site for a great state and national university. He drew up a prospectus for an institution of learning, offering

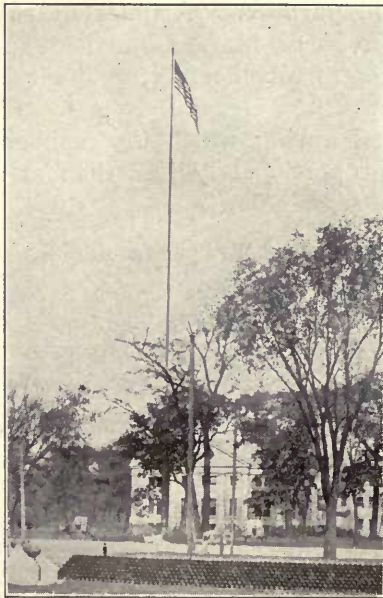


Beauty spots on the Island. Above, stone bridge leading to Officers' quarters.
Below, garden near Commanding Officer's quarters.

more than one hundred courses of study, some of which never had been, and perhaps never will be, taught in any school. A bill to carry out the scheme was actually presented to Congress. When Lindsley appealed to Senator Stephen A. Douglas for aid, that statesman, evidently apprised of the many devices already employed with a similar purpose, is quoted as having exclaimed: "For heaven's sake, sir, draw something thicker than a lace veil over your scheme!"

Apparently that sealed the doom of the project, for it did not get much farther. Lindsley made one other attempt to improve his fortunes through an application to the Illinois legislature for a water power grant involving rights in the south channel, already claimed by the Moline Water Power Company, but met with defeat.

Private claim to water power rights in the Rock Island slough never was seriously contested by the War Department. The original dam, built in 1842, by Sears and Spencer, was taken over a few years later by Pitts, Gilbert & Pitts, an eastern firm. Power was supplied to a number of factories from the first, but the project was not placed on a permanently paying basis till after 1865, when it passed into the hands of the newly formed Moline Water Power Company. This concern entered into an agreement by which it surrendered all rights to the government, obtaining in return a perpetual grant of the use of one-fourth of the power developed, with the option of use of surplus power, above the requirements of the Arsenal, at a specified rental. The government agreed to bear all expense of development and maintenance. This agreement stands to this day, and the Moline Water Power Company is still in existence, selling power to the Peoples' Power Company, which provides for distribution in the community.



Flag pole in front of Commanding Officer's headquarters.

Building the Original Arsenal



THE first formal move to set Rock Island apart for military purposes was made in 1825, when the Secretary of War notified the Commissioner of the General Land Office to reserve the land from sale. Ten years later Congress approved of an examination of sites for a proposed western Armory, which was made by a commission of army officers.

In 1840 the Commandant of the Arsenal at St. Louis was directed by the Chief of Ordnance to ascertain what advantages Rock Island might have for ordnance purposes. The report, submitted by Captain William Bell, gave an intimate description of the Island and adjoining community, praising the transportation and water power facilities, and stating there were but two responsible private claimants at that time prepared to dispute ownership with the government.

The following year Congress again ordered an investigation to determine the site for a western Armory to be located on a waterway. Three army officers spent eighteen months in the work and made a voluminous report, which gave enthusiastic praise to the natural advantages of Rock Island for the proposed purpose. "Articles of subsistence of all kinds, for man and beast," the report said, "are abundant, and these are remarkably cheap. The site is exceptionally healthy, as evidenced by reports now on file in the office of the Surgeon General * * * covering a period of more than twenty years, during which the number upon the sick list at Fort Armstrong was proportionately less than at any other post in the western country."

Other reports of similar nature were made to the War Department from time to time, up to the date when Congress finally authorized the beginning of construction of permanent buildings. A. C. Dodge, chairman of the Senate Committee on Public Lands, writing to the Secretary of War in 1854, said:

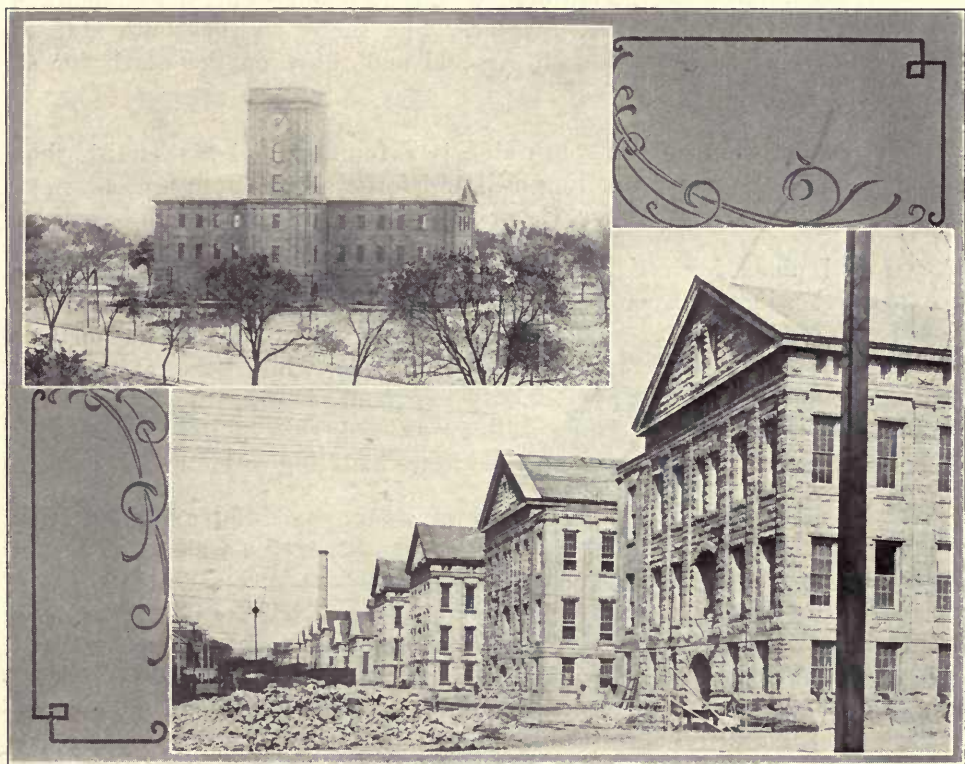
"Rock Island, as you are well aware, has long been regarded by a large portion of the people of the Mississippi valley as an advantageous site for an Arsenal of construction."

From the earliest days of the white men in this vicinity there was a strongly defined sentiment in the upper river valley, and especially in the more immediate locality, in favor of maintaining and developing the Island for military uses. Time after time, the records show, when ownership of the land by the War Department was threatened, or the authorities at Washington wavered in their intentions along this line, champions of the

Arsenal project who were able to make their voices heard and influence felt in the national capital came forward. Disposition toward hasty adverse action was repeatedly halted and the subject kept open till a more deliberate consideration of its merits finally won the day.

By Act of Congress, approved July 11, 1862, a national Arsenal was located on Rock Island, and \$100,000 was appropriated for buildings. The original intention was to use the establishment for storage and repairs only.

Major C. P. Kingsbury was assigned as the first Commandant, coming on the scene in 1863. In that year the first permanent building, the one at



Rear view of original shops. Insert, old stone storehouse at west end of Island. This was the first permanent building erected. With its tall clock tower it is now the most conspicuous object connected with the Island, as viewed by transients. It is now kept chiefly as a relic.

the west end of the Island, with its clock tower provided with 12-foot dials facing in four directions, was begun. This structure was designed as a storehouse, and for years has been used only incidentally as circumstances demanded. A few years ago it was condemned and ordered torn down, but the order was rescinded in response to local sentiment. The building is not now a part of the Arsenal, properly speaking.

General Thomas J. Rodman succeeded Major Kingsbury in command in 1865 and remained in charge till his death, which took place in 1871. His remains were buried on the Island. Under General Rodman, who designed some of the best heavy guns used in the Civil War, those with which the monitors were armed being among them, comprehensive plans for the Arsenal were elaborated. In accordance with these, the institution was constructed and remained with only minor additions up to the date of beginning of the World War.

Two rows of great shops, one on either side of the main avenue extending east and west, and located on the highest ground the Island afforded, were included. Most of the building was done under General Rodman and his successor, General D. W. Flagler. The shops on the south side of the avenue were designed for an Arsenal and those on the north for an Armory.

The center shop on the south side is a foundry and blacksmith shop and the one on the north a rolling mill and forge shop. Both are one-story structures, with monitor roofs. Other shops are two stories, with basement.

Ground plans for all ten buildings originally were alike. Each has two parallel wings, 60x300 feet, 90 feet apart, being U-shaped, with the closed end on the avenue. This leaves a court 90x238 feet. The porticos at the sides project 12 feet and are 60 feet wide, while those at the ends are of the same width, but project only two feet. During the late war the inside porticos of the two end buildings on each side of the avenue were joined, to give more floor space and facilitate handling of materials.

Walls of all buildings are entirely of stone, most of it obtained from quarries near Joliet, Illinois. Average thickness of the walls is 3 feet 4 inches for the first story, 2 feet 10 inches for the second, and 2 feet 4 inches for the third. An enormous amount of material was used. In Shop A, for instance, were placed 30,115,800 pounds of stone, 3,132,800 pounds of brick, 2,199,646 pounds of iron, 1,331,500 pounds of lumber, 362,500 pounds of slate, 200,000 pounds of plaster and 26,000 pounds of copper. Total area of each shop is a little more than one acre. Much of the construction work was done by day labor directed by specially trained officers, and reports of Commanding Officers comment upon the saving of money effected and better structures secured through this plan.

These shop buildings, supplemented with three fire-proof storehouses, barracks, Commanding Officer's quarters, subaltern officers' quarters, general offices and fire engine house, all of equally durable and commodious character, provided facilities for housing the largest and most effective Arsenal and Armory in the country. So much room was there, in fact, that only a part of the space afforded was utilized for manufacturing purposes and fitted out with machinery until after the European War broke. Good

use was made of it during the Spanish War flurry, but most of the shop expansion then was of a temporary nature.

Under General Rodman the second Rock Island bridge was begun and work was prosecuted in the improvement of the water power. A reservoir giving sufficient water facilities for the needs of the institution was constructed and Shops B and C and the Commanding Officer's quarters were nearly completed.

Under General (then Captain) Flagler most of the other buildings were constructed as originally planned. The Moline highway bridge was built, a sewer system installed, the main avenues were partially improved, and miles of driveways about the Island laid out. Most of the trees, other than those of the natural forest remaining, were planted at this time. The second bridge over the main channel of the river was completed and opened for public use.

Construction lagged under Colonel T. G. Baylor (1886 to 1889), and Colonel J. M. Whittemore (1889 to 1892). Under Colonel A. R. Buffington (1892 to 1897) the Rock Island bridge was rebuilt to bear heavier traffic, this being the chief item in the way of improvements.

Under Colonel S. E. Blunt as Commandant the Arsenal rendered valiant service to the country in the Spanish-American War. Reference of a more extended nature under this heading is made elsewhere. The capacity of the manufacturing plant was enlarged by the installation of machinery and shop fixtures. Congress, stirred by the urgent need of the times, made tardy provision for the equipping of the Armory and the manufacture of army rifles. Money for this purpose was voted in 1899, and in the following year work was begun with a view of increasing the water power plant, modernizing it with electricity and placing three of the shop buildings in Armory row in readiness for men and machinery. Eventually the Armory attained a capacity of 250 rifles daily, but after the immediate needs of the army were met the output was cut down to about half the full capacity. For some years before the World War little was done at the small arms plant, but it sprang into new life with the entrance of the country into the great struggle, the number of employees being brought up to 3,000 in this department alone.

The vast additions to shops and storehouses, together with the many other improvements brought about by the late war, were made under Colonel George W. Burr, Colonel L. T. Hillman, and Colonel Harry B. Jordan.

What the Arsenal Cost and Its Present Valuation



EXPENDITURES for all purposes in connection with Rock Island Arsenal during the 58 years of its existence total \$32,591,920.94. Present estimated value of improvements is \$18,310,525.00. With grounds, buildings and war material and machinery stored therein inventoried at more than \$250,000,000, the government has a larger investment in this Arsenal than at any other center in the United States, outside of Washington, D. C.

In the table below there are included under "Construction, Repair and Preservation" not only the cost of the buildings when new, but also the sums required for their repair and maintenance; the government share of expense in connection with the various bridges; and under "Water Power" the sums disbursed for acquisition of power rights and their sub-

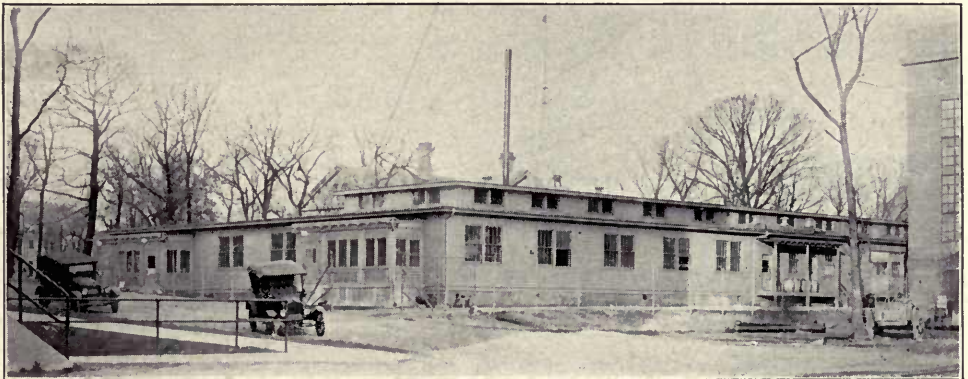


Filtration plant. The Arsenal's water supply is taken from the Mississippi river, being purified by modern methods.

sequent development; and under "Machinery," the cost of all that has been installed, including the earlier purchases, now either worn out or obsolete and no longer in use. The totals, therefore, represent actual expenditures, and, taking no account of appreciation or depreciation, do not represent present values. Against the various items it is proper to charge off the benefit that the country has enjoyed from the operation of the Arsenal, which, of course, is an item that cannot be reduced to figures.

COST OF BUILDINGS, WATER POWER, MACHINERY, ETC., AT
ROCK ISLAND ARSENAL FROM ITS ESTABLISHMENT
TO JUNE 30, 1920

| Commandant | Period | Construction, Repair and Preservation of Buildings, Roads, Sewers, etc. | Construction, Repair and Preservation of Bridges | Rock Island Water Power Dikes and Dams | Machinery and Shop Fixtures | Total |
|-----------------------|---------|---|--|--|-----------------------------|-----------------|
| Maj. C. P. Kingsbury | 1863-65 | \$ 231,384.72 | | | | \$ 231,384.72 |
| Gen. T. J. Rodman | 1865-71 | 1,855,455.62 | 6,664.33 | 440,506.35 | | 2,302,626.30 |
| Gen. D. W. Flagler | 1871-86 | 4,137,675.24 | 160,894.74 | 591,911.47 | 92,000.00 | 4,982,481.45 |
| Col. T. G. Baylor | 1886-89 | 201,200.00 | 96,250.00 | 322,000.00 | 44,000.00 | 663,450.00 |
| Col. J. M. Whittemore | 1889-92 | 69,000.00 | 182,318.48 | 101,000.00 | 25,000.00 | 377,318.48 |
| Gen. A. R. Buffington | 1892-97 | 47,250.00 | 315,125.50 | 67,500.00 | 47,500.00 | 477,375.50 |
| Col. S. E. Blunt | 1897-07 | 404,344.50 | 173,877.02 | 317,792.00 | 1,153,521.26 | 2,049,534.78 |
| Lt. Col. F. E. Hobbs | 1907-11 | 100,964.36 | 139,172.55 | 78,500.00 | 121,107.15 | 439,744.06 |
| Col. Geo. W. Burr | 1911-18 | 4,880,701.11 | 171,992.85 | 168,167.45 | 1,031,820.30 | 6,252,681.71 |
| Col. L. T. Hillman | 1918-18 | 5,859,540.86 | 25,197.76 | 438,537.24 | 4,476,962.59 | 10,800,238.45 |
| Col. Harry B. Jordan | 1919-20 | 2,138,749.70 | 52,375.54 | 314,643.79 | 1,509,316.46 | 4,015,085.49 |
| | | \$19,926,266.11 | \$ 1,323,868.77 | \$ 2,840,558.30 | \$ 8,501,227.76 | \$32,591,920.94 |



Cafeteria, erected to serve thousands of war workers.

For the single year from July 1, 1919, to July 1, 1920, the cost under the four headings was as follows:

| | |
|---|-----------------------|
| Construction, Repair and Preservation of Buildings, Roads, Sewers, etc..... | \$858,231.57 |
| Construction, Repair and Preservation of Bridges..... | 33,573.30 |
| Rock Island Water Power, Dikes and Dams..... | 80,608.61 |
| Machinery and Shop Fixtures..... | 393,893.33 |
| Total | \$1,366,306.81 |

Two hundred and three items are included in the list of Arsenal improvements, 168 being of a permanent nature and the balance temporary. Of course not all of the buildings originally constructed are now standing, a number of the smaller and less substantial sort having been salvaged. By

far the most valuable of the present structures are those of modern design erected during the last few years, as an inspection of the following itemized estimate will show:

VALUATION OF QUARTERS AND BUILDINGS

PERMANENT BUILDINGS

ADMINISTRATIVE BUILDING

1—Main office-----\$ 39,000.00 \$ 39,000.00

OFFICERS' QUARTERS

2—Commanding Officer's quarters----- 100,000.00
 3—Assistant Officer's quarters No. 2----- 36,000.00
 4—Assistant Officer's quarters No. 3----- 33,000.00
 5—Assistant Officer's quarters No. 4----- 23,750.00
 6—Assistant Officer's quarters No. 6----- 13,500.00
 7—Assistant Officer's quarters No. 7----- 12,000.00 218,250.00

ENLISTED MEN'S QUARTERS

8—Stone barracks----- 127,500.00
 9—Sergeant's quarters No. 10----- 4,000.00
 10—Sergeant's quarters No. 23----- 5,000.00
 11—Sergeant's quarters No. 24----- 4,000.00
 12—Sergeant's quarters Nos. 11 and 12, double----- 10,600.00
 13—Casual Personnel quarters No. 25, 26 and 27----- 15,000.00
 14—Quarters No. 28 at chicken farm----- 1,000.00
 15—Quarters Nos. 19, 20, 21 and 22----- 20,300.00
 16—Contagious Hospital (wash room for quarters)----- 3,000.00 190,400.00

MISCELLANEOUS BUILDINGS

17—Post Hospital----- 10,000.00
 18—Bowling alley (south of welfare building)----- 5,500.00
 Post exchange and welfare building----- 11,500.00
 19—Garage, Commanding Officer's quarters----- 450.00
 20—Garage, quarters No. 2----- 250.00
 21—Garage, quarters No. 3----- 180.00
 22—Garage, quarters No. 4----- 280.00
 23—Garage, quarters No. 6----- 280.00
 24—Garage, quarters No. 7----- 250.00
 25—Chicken house, Commanding Officer's quarters----- 900.00
 26—Chicken house, No. 2 quarters----- 300.00
 27—Chicken house, No. 3 quarters----- 280.00
 28—Chicken house, No. 4 quarters----- 280.00
 29—Chicken house, No. 6 quarters----- 380.00
 30—Chicken house, No. 7 quarters----- 300.00
 31—Frame bakery----- 2,800.00
 32—Post stables----- 9,000.00
 33—Green houses, Commanding Officer's quarters----- 9,720.00
 34—Barn west of caddy house----- 1,800.00
 35—Band stand, National Cemetery----- 500.00 54,950.00

MANUFACTURING SECTION

36—Shop "A"----- 600,900.00
 37—Shop "B"----- 600,000.00
 38—Shop "C"----- 650,900.00
 39—Shop "D"----- 600,900.00
 40—Shop "E"----- 280,000.00
 41—Shop "F"----- 295,000.00
 42—Shop "G"----- 375,000.00
 43—Shop "H"----- 403,500.00
 44—Shop "I"----- 323,500.00
 45—Shop "K"----- 377,200.00
 46—Shop "L"----- 1,916,804.00
 47—Chemical Laboratory L-1----- 150,000.00
 48—L. court----- 75,900.00
 49—Shop "M" and oil storage, Group No. 4----- 2,225,000.00
 50—Shop "O"----- 150,000.00
 51—Shop "Q"----- 125,000.00
 52—Shop "R"----- 450,000.00
 53—Tinning and Plating shop----- 23,000.00
 54—Paint shop----- 53,000.00
 55—Shop connections A-C, B-D, G-I and H-K----- 360,000.00
 56—Central heating plant----- 610,000.00
 57—Boiler house "C"----- 23,500.00
 58—Boiler house shop "F"----- 35,000.00
 59—Tractor laboratory----- 17,700.00
 60—Rifle range----- 5,021.00
 61—Truck garage----- 35,500.00

MANUFACTURING SECTION—(Continued)

| | |
|--|---------------------|
| 62—Filtration and ice plant..... | 54,500.00 |
| 63—Stone Reservoir..... | 30,100.00 |
| 64—Pump house, north shore..... | 7,000.00 |
| 65—Pump house L-17..... | 1,500.00 |
| 66—Water tank (high tank)..... | 21,400.00 |
| 67—Parkerizing plant..... | 9,700.00 |
| 68—Oil storage, Group No. 5 (filling station)..... | 3,900.00 |
| 69—Proving grounds..... | 2,000.00 |
| 70—Power dam (old)..... | 294,500.00 |
| Power dam (new)..... | 748,000.00 |
| 71—Truck shed (at truck garage)..... | 5,000.00 |
| 72—Dry kiln (old)..... | 11,129.00 |
| 73—Dry kiln (new)..... | 4,125.00 |
| 74—Dry kiln (wheel spoke)..... | 247,500.00 |
| 75—Dry kiln (gun stock)..... | 374,000.00 |
| 76—Unloading platform (shop "A" court)..... | 4,900.00 |
| 77—Fulminate fuse exploding vault..... | 90.00 |
| | <hr/> 12,585,069.00 |

STOREHOUSE SECTION

| | |
|--|--------------|
| 78—Storehouse "A"..... | 147,520.00 |
| 79—Storehouse "G"..... | 60,696.00 |
| 80—Storehouse "I"..... | 31,390.00 |
| 81—Storehouse "K"..... | 119,700.00 |
| 82—Storehouse V-1..... | 78,000.00 |
| 83—Storehouse V-2..... | 108,000.00 |
| 84—Storehouse V-3..... | 108,000.00 |
| 85—Storehouse V-4..... | 108,000.00 |
| 86—Storehouse V-5..... | 108,000.00 |
| 87—Storehouse V-6..... | 108,000.00 |
| 88—Storehouse V-7..... | 108,000.00 |
| 89—Storehouse V-8..... | 108,000.00 |
| 90—Storehouse V-9..... | 108,000.00 |
| 91—Storehouse V-10..... | 86,333.00 |
| 92—Storehouse V-11..... | 86,333.00 |
| 93—Storehouse V-12..... | 86,334.00 |
| 94—Storehouse V-14..... | 65,000.00 |
| 95—Storehouse V-15..... | 65,000.00 |
| 96—Storehouse W-1..... | 1,560,000.00 |
| 97—Storehouse X-1..... | 29,277.00 |
| 98—Storehouse X-2..... | 29,277.00 |
| 99—Storehouse X-3..... | 29,277.00 |
| 100—Storehouse X-4..... | 29,277.00 |
| 101—Storehouse X-5..... | 29,277.00 |
| 102—Storehouse X-6..... | 29,277.00 |
| 103—Storehouse X-7..... | 29,277.00 |
| 104—Storehouse X-8..... | 29,277.00 |
| 105—Storehouse X-9..... | 29,277.00 |
| 106—Storehouse X-10..... | 29,277.00 |
| 107—Storehouse Y-1..... | 29,277.00 |
| 108—Storehouse Y-2..... | 29,277.00 |
| 109—Storehouse Y-3..... | 29,277.00 |
| 110—Storehouse Y-4..... | 29,277.00 |
| 111—Storehouse Y-5..... | 29,277.00 |
| 112—Storehouse Y-6..... | 29,277.00 |
| 113—Storehouse Y-7..... | 29,277.00 |
| 114—Storehouse Y-8..... | 29,277.00 |
| 115—Storehouse Y-9..... | 29,277.00 |
| 116—Storehouse Y-10..... | 29,277.00 |
| 117—Storehouse Z-1..... | 29,277.00 |
| 118—Storehouse Z-2..... | 29,277.00 |
| 119—Storehouse Z-3..... | 29,277.00 |
| 120—Storehouse Z-4..... | 29,277.00 |
| 121—Storehouse Z-5..... | 29,277.00 |
| 122—Storehouse Z-6..... | 29,277.00 |
| 123—Storehouse Z-7..... | 29,277.00 |
| 124—Storehouse Z-8..... | 29,277.00 |
| 125—Storehouse Z-9..... | 29,277.00 |
| 126—Storehouse Z-10..... | 29,277.00 |
| 127—Old Arsenal building..... | 200,000.00 |
| 128—Lumber shed (old)..... | 14,000.00 |
| 129—Lumber shed (north new)..... | 8,500.00 |
| 130—Lumber shed (center new)..... | 8,500.00 |
| 131—Lumber shed (south new)..... | 8,500.00 |
| 132—Oil storage, Group No. 1 (old building)..... | 15,000.00 |
| 133—Oil storage, Group No. 1 (new building)..... | 20,000.00 |
| 134—Oil storage, Group No. 1 (office)..... | 6,500.00 |
| 135—Oil tank, Group No. 2..... | 8,700.00 |
| 136—Oil house and tanks, Group No. 3..... | 29,600.00 |
| 137—Oil house, "AA" (storehouse)..... | 23,000.00 |
| 138—Storehouse "M" (for steel)..... | 173,000.00 |
| 139—Central tool storage No. 2..... | 4,500.00 |
| 140—Primer dry L-4..... | 8,130.00 |
| 141—Powder blending L-5..... | 7,055.00 |
| 142—Gun cotton dry L-6..... | 2,320.00 |
| 143—Cave fulminate L-7..... | 1,980.00 |

STOREHOUSE SECTION—(Continued)

| | | |
|---------------------------------|-----------|--------------|
| 144—Cave fulminate L-8 | 1,980.00 | |
| 145—Smokeless powder L-9 | 1,968.00 | |
| 146—Smokeless powder L-10 | 1,968.00 | |
| 147—Black powder L-11 | 1,968.00 | |
| 148—T. N. T. L-12 | 3,280.00 | |
| 149—Smokeless powder L-13 | 1,968.00 | |
| 150—Smokeless powder L-14 | 1,968.00 | |
| 151—T. N. T., L-15 | 3,280.00 | |
| 152—T. N. T., L-16 | 3,280.00 | |
| 153—Magazine A-1 | 15,000.00 | |
| 154—Scale house | 3,000.00 | |
| 155—Tool shed, east side of Y-5 | 600.00 | 4,708,675.00 |

MISCELLANEOUS BUILDINGS

| | | |
|--|-----------|-----------------|
| 156—Mess hall (cafeteria) | 93,000.00 | |
| 157—Davenport house | 500.00 | |
| 158—Fire and police station | 27,500.00 | |
| 159—Guard house Ft. Armstrong ave., Station B | 5,000.00 | |
| 160—Guard house Davenport bridge N. E., Station C | 250.00 | |
| 161—Guard house, main gate, Station D | 2,500.00 | |
| 162—Guard house, Moline bridge | 500.00 | |
| 163—Guard house, Rock Island viaduct, south end, Station A | 600.00 | |
| 164—Outside Department | 26,196.00 | |
| 165—Golf Club house | 50,000.00 | |
| 166—Shelter station (street car) Main and West avenue | 320.00 | |
| 167—Shelter station (street car) R. I. avenue | 320.00 | |
| 168—Loading platform south of central heating plant | 2,700.00 | 129,386.00 |
| Grand total valuation of permanent buildings | | \$18,005,730.00 |

TEMPORARY BUILDINGS

ADMINISTRATIVE BUILDING

| | | |
|---------------------------|--------------|--------------|
| 169—Office building No. 2 | \$ 61,000.00 | \$ 61,000.00 |
|---------------------------|--------------|--------------|

MILITARY BUILDINGS

| | | |
|--|-----------|------------|
| 170—Sheep shed (east of V-12) | 160.00 | |
| 171—Chicken farm (except quarters) | 3,730.00 | |
| 172—Ward hospital | 11,300.00 | |
| 173—Infantry stables, cow barn, hay shed | 6,500.00 | |
| 174—Sheds at post stables | 2,625.00 | |
| 175—Barracks B | 37,000.00 | |
| 176—Barracks C | 37,000.00 | |
| 177—Barracks D | 45,000.00 | 143,315.00 |

MANUFACTURING SECTION

| | | |
|--|----------|----------|
| 178—Shed court yard, A-C annex | 1,800.00 | |
| 179—Spray painting shed (east of V-10) | 500.00 | |
| 180—Receiving room G and I court | 2,040.00 | 4,340.00 |

STOREHOUSE SECTION

| | | |
|---------------------------------------|-----------|------------|
| 181—Storehouse V-12A | 8,000.00 | |
| 182—Oil shed (east of storehouse "G") | 1,200.00 | |
| 183—Storehouse "BA" | 19,000.00 | |
| 184—Storehouse "GA" | 19,000.00 | |
| 185—Storehouse "KA" | 19,000.00 | |
| 186—Storehouse "MA" | 19,000.00 | |
| 187—Machine gun storage | 1,500.00 | |
| 188—Office "XYZ" | 500.00 | |
| 189—Machine storage shed | 2,200.00 | |
| 190—Shed in raw material yard | 275.00 | |
| 191—Shed north of truck garage | 500.00 | |
| 192—Shed back of storehouse W-I | 300.00 | |
| 193—Shed in scrap lumber yard | 200.00 | |
| 194—Shed (office north of V-10) | 250.00 | 299,880.00 |

MISCELLANEOUS BUILDINGS

| | | |
|----------------------------------|----------|----------|
| 195—Laboratory sheds | 3,500.00 | |
| 196—Shed west of Z-1 | 275.00 | |
| 197—Caddy house (at golf club) | 240.00 | |
| 198—Bicycle shed, shop B | 150.00 | |
| 199—Bicycle shed, shop D | 150.00 | |
| 200—Bicycle shed, shop F | 150.00 | |
| 201—Bicycle shed, shop H | 150.00 | |
| 202—Bicycle shed, shop M | 150.00 | |
| 203—Bicycle shed, Storehouse W-I | 150.00 | 4,915.00 |

Grand total valuation of temporary buildings \$ 304,795.00
 Grand total valuation of permanent buildings 18,005,730.00

Grand total valuation of all buildings \$18,310,525.00

Military Prison In Civil War



URING the Civil War, 1861-1865, Rock Island became the site of a military prison. It was the policy of both the Union and the Confederacy to confine prisoners of war as far as possible from the battle lines. This Island answered very well the need of the government in this connection, being hundreds of miles north of the Mason and Dixon line, and comparatively easy to guard. Besides, the War Department already claimed the ground and there was abundant room.

Extensive barracks for prisoners were built during the summer of 1863. Construction of buildings was in charge of Captain C. A. Reynolds, U. S. Quartermaster's Department, and they were intended to accommodate 13,000 men.

Barracks were placed on the north side of the Island near the river front and about midway between the east and west ends. The prison took



Map of Island drawn in 1870, showing location of prisoners' barracks in central part near north side. At that time, it will be observed, improvements were few and the land was nearly all covered with trees.

the form of a rectangle, covering about twelve acres. The four sides faced the main points of the compass, the northeast corner being opposite the lower end of Pappoose Island. There were fourteen rows of one-story buildings, extending east and west, six in a row. Each was 100 feet in length and 20 feet in width, with windows in the sides and doors in the ends. They were not plastered or painted, but otherwise were well constructed and as comfortable as the use to which they were put demanded that they should be. A kitchen was located in one end of each building. Double-

decked bunks were provided for sleeping purposes, each building housing 120 men. A main avenue divided the seven rows on the north from the seven on the south. This avenue was 50 feet wide.

Though intended to house 13,000 prisoners, there never were that many in the prison. The death rate was high, 1,961 men expiring of disease in a period of two years. A few prisoners escaped and several were killed in the attempt to do so.

East of the main shop buildings and south of Main avenue is the cemetery in which Confederate dead lie buried. They were interred in long trenches, bodies being placed in wooden boxes, laid about two feet apart. At the head of each grave is a permanent marker, giving name, regiment and state of deceased.

Farther east is the cemetery for Union soldiers. Here are buried about five hundred men. Many of these served at the local post, but the burial grounds are open to receive the remains of any American soldier. At this cemetery it is the custom to hold services each Memorial Day, exercises being under the auspices of the veterans' organizations of the vicinity.

Both burial grounds are surrounded by trees and guarded by old cannon, and the premises are carefully maintained.



Entrance to Confederate cemetery, where the remains of 2,000 prisoners were interred.

The Arsenal's Water Power



HE water power of the Rock Island rapids was one of the main factors which determined the selection of its present site for the location in the Mississippi valley of an Arsenal for the manufacture of military supplies. Jefferson Davis, while Secretary of War, wrote in 1854 to the United States Senate Committee on Public Lands as follows:

“I have the honor to acknowledge the receipt of your letter of the 10th instant, asking the views of this department as to the expediency of selling the military reservation at Fort Armstrong, on Rock Island, Illinois, as contemplated by Senate Bill No. 195.

“The water power available at that place, and the communication by water and railroads, projected or in the course of construction, concur with other circumstances in rendering Rock Island one of the most advantageous sites in the whole western country for the construction of an Armory or an Arsenal for the manufacture of wagons, clothing, or other military supplies.”

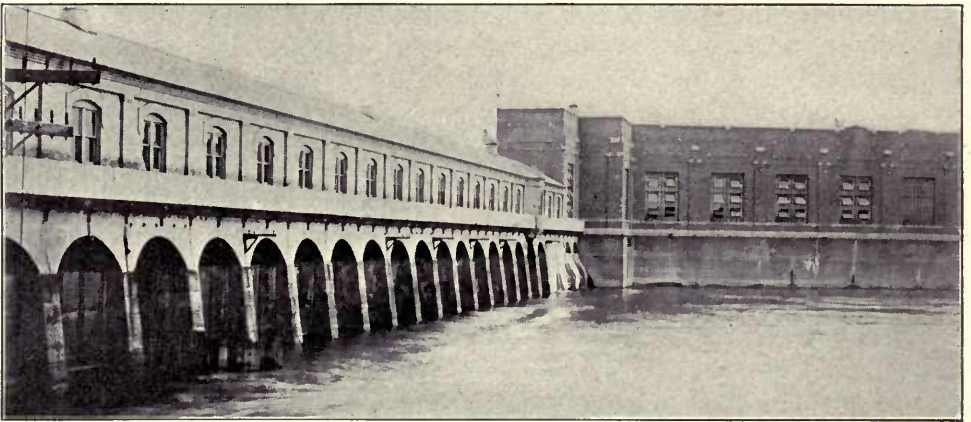
Water power in the south channel, near the head of the Island, was developed by private enterprise in 1843, long before there was any clearly defined plan to erect a manufacturing Arsenal at this point. When the War Department started the erection of factory buildings the Moline Water Power Company already had acquired such power rights as a charter from the State of Illinois could confer, and had a considerable investment in its plant. Power was being supplied to a number of nearby factories.

After extended negotiations, the Power Company, in 1867, subscribed to an agreement relinquishing its rights to the government, being pledged in return the free use of one-fourth of the power derived from existing or subsequent development of the premises, together with the privilege of renting whatever surplus there might be after the needs of the Arsenal were supplied. The government, under this compact, assumed all cost of development and maintenance. In pursuance of the terms laid down, the government erected a dam wall parallel to the Illinois shore of the channel south of the Island, with numerous flume openings, and later constructed, farther along this channel and closer to the site chosen for the Arsenal shops, a second dam, known as the government dam.

In 1895 the government closed all the openings in the first dam wall, known as the upper dam, and erected a new dam, located at the west of the first structure, where the openings were concentrated and from which power is now being developed.

The abandoned tail-race resulting from the closing of the openings in the upper dam wall was filled, and over a section of the filled portion the D. R. I. & N. W. railroad is now operating its line, extending service to the adjacent factories in Moline.

Fall in the river from the foot of the Island to the head of the original wing dam at the upper end was about seven and one-half feet, but in 1899 the dam was extended longitudinally up stream about two and one-half miles, to what is known as the head of Duck Creek chain, and the head of water was increased to about fourteen feet, at rest, or more than eleven feet when in operation. Commenting upon the success of this improvement,



Present power dam, viewed from below.

Major Blunt, under whose administration as Commandant the work was done, in an address to Tri-City business men in 1901, stated that there had been provided "a volume of water which it was recently found could not be materially diminished, even when all the gates in the two power dams were simultaneously opened."

Following the improvement of conditions above the dam, the channel below it was excavated, the tail-race was widened and deepened and the united channel, extending from the juncture of the canal south of Sylvan Island (the tail-race from the upper dam) with that of the government dam to the point where it reaches the deep water below the lower point of the Island, was straightened.

Forty-one openings for water wheels were provided in the dam at the time the government reconstructed it in 1890, but only eight of the number of openings provided were utilized and turbines installed therein. Because of the type of wheel and the low head of water, but 35 horse-power was developed from each wheel, the total being but 280 horse-power. This

amount, however, sufficed for the limited operations of the Arsenal prior to the Spanish-American war. When that conflict broke it was necessary to supplement the water power with steam power, which was provided at considerable additional expense.

Needs of the War Department for additional facilities for the manufacture of small arms became apparent at the time of the outbreak of the war with Spain, as it was found that the equipment at the Springfield Armory, which prior to this time furnished a sufficient output for the requirements of the army on a peace footing, was wholly inadequate to meet the needs on a war footing. As buildings and other facilities were already available at Rock Island Arsenal, the original plans contemplating use of the north row of shops for Armory purposes, it was natural to turn to this plant for help.

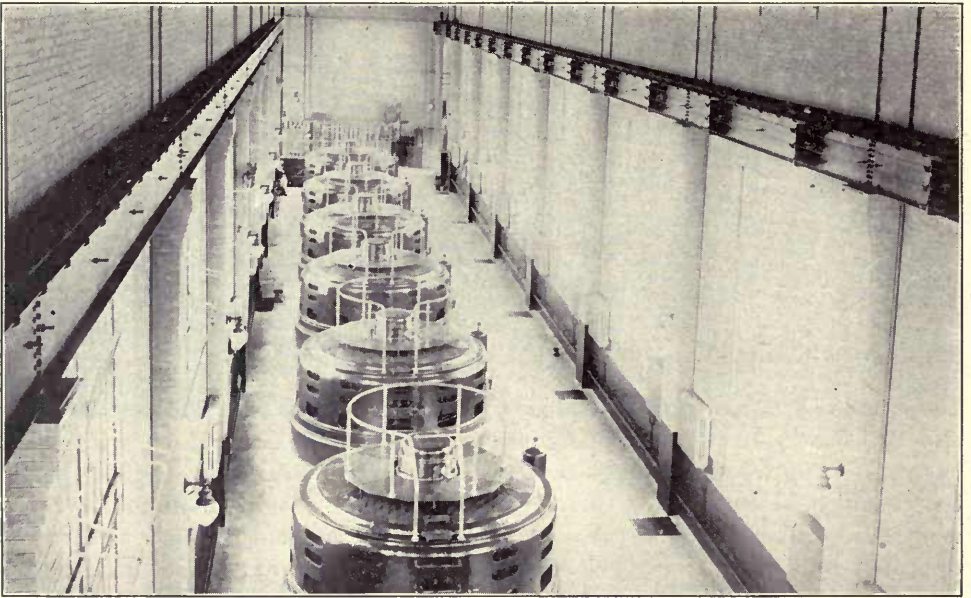
The south or Arsenal row of shops required a minimum of 600 horse-power and the Armory row, fully equipped, would need as much more. To supply the combined requirements of the Arsenal and give a liberal surplus over minimum needs, 14 new turbines of improved design were installed at the power plant. Each was capable of developing from 125 to 150 horse-power, depending upon the stage of water, or from 1,750 to 2,100 horse-power, taken together. In addition, at the time of reconstruction of the dam, provision was made for installing seven more wheels, which would bring the total horse-power developed up to from 2,500 to 3,000, which was deemed sufficient to meet the Arsenal's needs, as far as it was possible to anticipate them at that time.

The installation in 1899-1900 provided for fourteen 50-inch Leffel wheels and two 500-kilowatt three-phase alternating current generators, with their exciters. The wheels transmitted their power through heavy bevel gearing to a long, horizontal shaft on which the generators were mounted and arranged so that either generator could be connected with either exciter and operated by either of the two groups of seven turbines as separate units, or the whole plant could be connected and operated as a single unit. Some five years later this equipment was supplemented with six more wheels of similar type and a 650-kilowatt generator was installed, thereby completing the plant as planned at the time the dam was reconstructed.

Distance from the source of power at the dam to its place of application in the shops is considerable, being about two thousand feet. Transmission of power was one of the earlier problems of the Arsenal. General Rodman proposed the use of compressed air, while General Flagler installed a continuous shaft. As neither method was feasible, a wire cable was resorted to as being most reliable and economical. Power was transmitted by this cable over successive sheave wheels from the dam to the shops, the sheave wheels being supported by aerial towers. When the plant was modernized, immediately after the Spanish-American war, the old cable transmission line was replaced by electricity.

To carry the transmission wires to the shops a concrete subway or tunnel was constructed from the dam to the two shops at the eastern end of the north and south rows. Cross tunnels were run under each row of buildings, and brackets secured to the tunnel walls, along which the power cables were laid. All tunnels are lighted with incandescent lamps set at the top of the arch, and are seven feet in height and wide enough to allow comfortable passage from end to end, so that conductors can be inspected at any time. Separate motors were placed in the shops for independent operation of the different main lines of shafting, for elevators, etc.

In 1914, after it had been in operation 15 years, frequent repairs and mounting cost of upkeep of the water plant led to consideration of plans for



Interior of power house, showing big electric generators.

replacement of the various units. The water wheels, which were the best available when they were installed, already had become obsolete and were far less efficient than the modern turbine. The combination of inefficient wheels, long shaft and bevel gearing involved a great loss of power. The working head of water averaged eleven feet or less, and it required three feet to merely turn the generators, so that the plant, with a rated capacity of 2,200 horse-power, actually was generating only from 1,300 to 1,400 horse-power, or 65 per cent of its supposed capacity. It became evident that the demands resulting from increased consumption of electrical energy in the shops, together with new uses constantly being found for it, would soon render the power plant entirely inadequate. During the fiscal year ending June 30, 1913, approximately 3,000,000 kilowatt hours of electricity

was consumed, and it was necessary to purchase some power from private sources.

The sundry civil appropriation act approved July 1, 1916, among other things, contained a provision setting aside \$500,000 "toward providing facilities for manufacturing field artillery ammunition, at a total cost not exceeding \$1,250,000, under a contract or contracts, or otherwise, in the discretion of the Secretary of War." The estimate forming the basis for this appropriation included the project for increasing the water power at Rock Island Arsenal. It was found that the most economical and satisfactory method of doing so was to construct a new concrete dam in the rear of and at an angle with the existing dam, and to install therein eight large generator units and two exciter units of modern type, giving, with an eleven foot operating head, approximately 3,760 horse-power. This was done, the improvement being ready for use June 1, 1919.

The present plan consists of eight alternators with a capacity of 430 KVA each at 80 per cent power factor, generating 2,400 volt, three phase, 60-cycle current. Generators are of the vertical type, direct connected to water turbines.

Underground distribution was installed from the new power plant to the sub-stations in the various shops, distribution being at 2,300 volts, stepped down to 550 volts at the sub-stations for operation of motors, etc. Each sub-station is arranged for one power feeder, one light feeder and an emergency feeder which is capable of caring for both the power and lighting at that particular sub-station. The feeder distribution and transformers installed are capable of taking care of 6,600 KVA, which was about peak load at the Arsenal during the late war.

Acts of Congress making appropriations for the development of water power at Rock Island Arsenal are as follows:

| | |
|-----------------------------|------------|
| Act of June 27, 1866..... | \$ 100,000 |
| Act of June 8, 1868..... | 80,000 |
| Act of March 3, 1869..... | 150,000 |
| Act of July 15, 1870..... | 200,000 |
| Act of March 3, 1871..... | 200,000 |
| Act of June 10, 1872..... | 110,000 |
| Act of March 3, 1873..... | 18,000 |
| Act of June 23, 1874..... | 5,400 |
| Act of March 3, 1881..... | 50,000 |
| Act of August 7, 1882..... | 100,000 |
| Act of March 3, 1883..... | 20,000 |
| Act of July 7, 1884..... | 18,500 |
| Act of Oct. 2, 1888..... | 275,000 |
| Act of August 30, 1890..... | 101,000 |
| Act of July 1, 1898..... | 45,000 |

| | |
|---------------------------|--------------------|
| Act of March 3, 1899..... | 21,350 |
| Act of March 3, 1901..... | 130,500 |
| Total | <u>\$1,624,750</u> |

Extraordinary repairs to the Rock Island Arsenal water power have called for the following appropriations.

| | |
|-----------------------------|-------------------|
| Act of October 2, 1888..... | \$ 25,000 |
| Act of August 18, 1894..... | 30,000 |
| Act of March 2, 1895..... | 37,500 |
| Act of June 4, 1897..... | 28,150 |
| Act of June 6, 1900..... | 97,000 |
| Act of May 27, 1908..... | 28,500 |
| Total | <u>\$ 246,150</u> |



One of the many original forest trees seen along driveways on the Island.

Improvement of the Rock Island Rapids



LOSELY linked with development of water power for use of the Arsenal has been the improvement of the Rock Island rapids for purposes of navigation. Measures taken to create a head of water sufficient for Arsenal needs have been of incidental help in deepening the channel of the stream and furnishing slack water navigation over the swiftest and most dangerous part of the rapids. The Island's shores form the bank of the present power pool, and almost inevitably will perform a similar function in any future hydro-electric development that may be attempted.

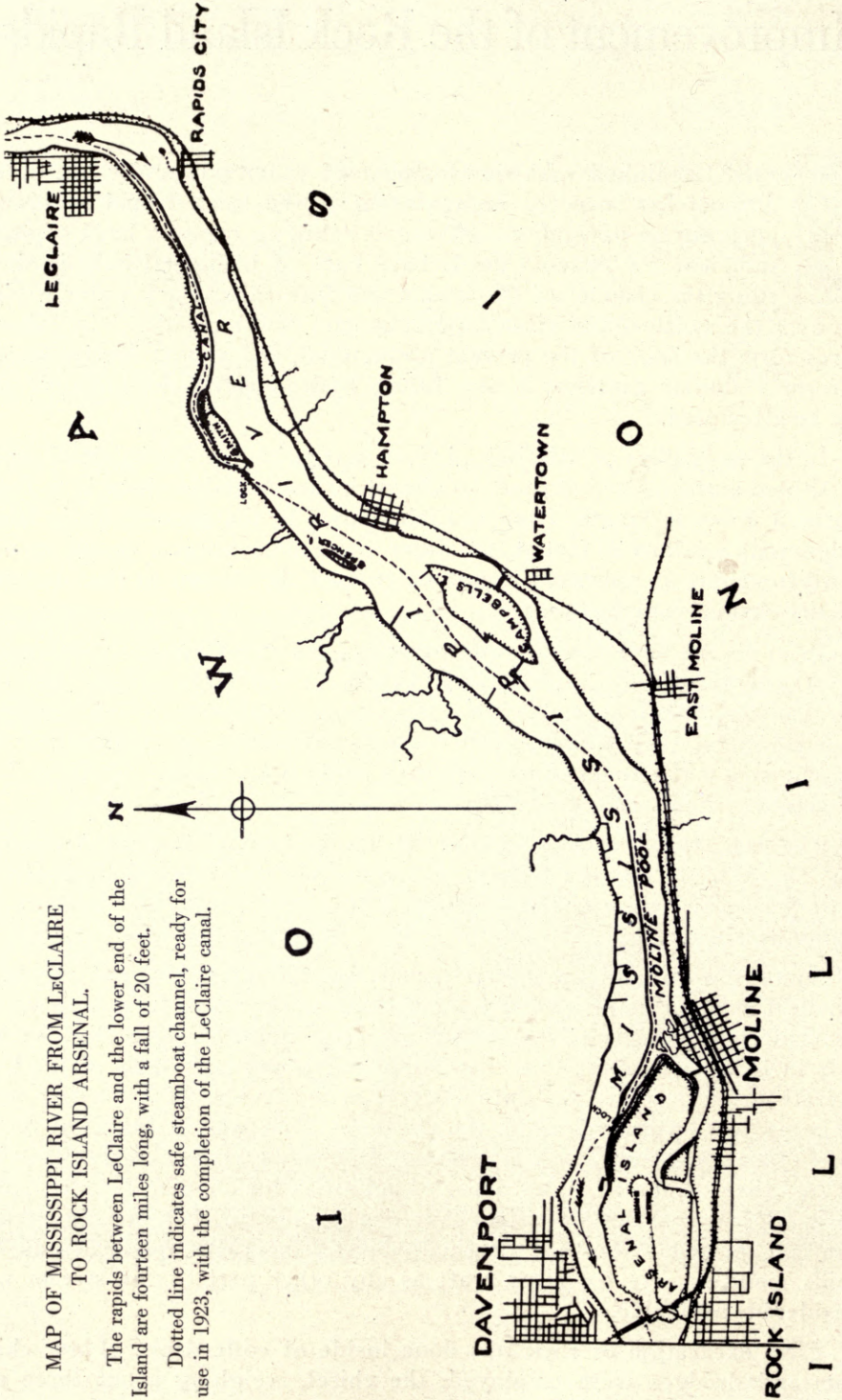
In the early days of Mississippi river navigation the Rock Island rapids constituted a serious and at times an almost insurmountable obstacle to boats. Fourteen miles in length, from LeClaire down to the present Rock Island bridge, with a fall of 20 feet at low water, there always was a strong current. Fourteen chains of upheaved limestone crossed the stream in that distance, and the channel was tortuous.

Prior to the beginning of improvements the rapids were, in extremely low stages, impassable to boats and barges of the larger type. In 1863, and again in 1864, it was necessary for a time to transfer freight and passengers around the rapids by rail. Boats frequently were wrecked and groundings on the rocks were almost of daily occurrence. Rafts of logs and lumber often were broken up.

The first steamboat to pass over the rapids arrived at Fort Armstrong May 23, 1823. It was the "Virginia," from the Ohio river, and passed on up to the Galena river and the mouth of the St. Peter, now known as the Minnesota river.

Surveys were made at an early date, but Congress did not see fit to provide funds for improvements for a number of years. The first survey was made by Lieutenant Napoleon B. Bufort, in 1829. A second one was made in 1836. Robert E. Lee, then a lieutenant, and later head of the Confederate armies, made the third survey, with a view of removing some of the navigation hazards from the channel. That was in 1837, but it was 1857 before any actual work was done. In that year some rock was taken out, and then there was a total lapse of activities for another decade. Since 1867 work has been fairly continuous in one form or another, and the present year is expected to see the original object practically realized, and the rapids made as safe for river craft as any other part of the stream now considered navigable.

First excavation of rock was done inside of cofferdams. Later chisel boats and dredges were employed, the chisel, weighing about three and



MAP OF MISSISSIPPI RIVER FROM LECLAIRE TO ROCK ISLAND ARSENAL.

The rapids between LeClaire and the lower end of the Island are fourteen miles long, with a fall of 20 feet.

Dotted line indicates safe steamboat channel, ready for use in 1923, with the completion of the LeClaire canal.

one-half tons, breaking up the rock, which was scooped up by the dredges. This method gave way to that of drilling and blasting, with removal of rock by dredging, as is now done.

First appropriation for removal of rock from the channel was made by Congress in 1852. During the years from 1867 to 1882 efforts of the river engineers were directed to the opening of a channel 200 feet in width, excavated in the rock. This work was done in carrying out a project approved by Congress in 1879, calling for a channel of a minimum depth of four and one-half feet from the mouth of the Missouri to the head of navigation. Subsequently, in 1907, Congress passed an act providing for a minimum depth of six feet in the section of the river indicated, and later projects on the rapids have conformed to this standard.

Construction of closing and wing dams to confine the channel and aid in deepening it was commenced in 1890. Up to that time spoil from excavation was deposited in various places outside of the channel.

Practically all improvements in the rapids have been made by use of government-owned equipment, operated by day labor, and directed by War Department engineers.

The power pool at Moline was originally created by building a rock dam about one-half mile up the river, parallel with the shore, from Benham's Island, north of and just below the head of Rock Island. This was extended three miles farther upstream in 1898. Another dam connected the two islands named. These dams virtually cut off the city of Moline from benefits of river transportation, since boats entering the pool were forced to go around the head of the longitudinal dam.

The River and Harbor Act passed in March, 1905, provided for the remedying of this situation. It appropriated money for the building of a lock and dam at the foot of Benham's Island, thus obviating the detour to gain access to the channel, and also set on foot the excavation of a 250-foot passageway for boats, four feet deep, throughout the entire length of the pool. The lock and dam were built in 1907, the cost being \$386,000. Later the longitudinal dam was reconstructed with a concrete core to prevent leakage, and a concrete apron to check erosion in high stages of the river, when the dam became a spillway, relieving the pool of surplus water. By stopping leakage and making a slight extension of the main dam, together with the building of back water dams, the head of water in the pool was increased one and one-half feet, giving a channel depth of approximately six feet and conforming to the general plan for river improvement.

With the completion of this work, practically all river traffic was diverted through the pool and lock, thus avoiding the worst part of the rapids. A difficult stretch of river remained, however, between LeClaire and

what is known as the Hampton pool. Lateral dams had been built to raise the water, but the channel was narrow and the current swift.

In 1888 maps were prepared by a board of engineers with a view to the creation of a longitudinal canal connecting the head of the rapids with the Hampton pool, three miles below. With the adoption of the six-foot channel project the subject was further investigated, and it was determined to build the canal on the Iowa side. Plans called for a longitudinal dam to the head of Smith's Island, which was to form the south bank for about a mile, thus obviating much work. The height of the dam was to be six and one-half feet above low water at the upper end, to serve as a spillway in floods, and the lower part was to be above high water mark. Below the island a dam and lock were provided for. The original estimate of cost was \$1,282,797.

Work was begun in 1914 and is being continued at the present time. Delay has been caused by failure of Congress to make consecutive appropriations, but it is expected that the lock will be ready for use at the opening of the 1923 navigation season.

The LeClaire canal project involved construction of cofferdams and the removal of much rock in the upper section. This has made the work slow and costly. The lock at the lower end of the canal is 80 feet wide and 350 feet long, with a lift of six feet at low water.

Upon completion of this project the Rock Island rapids will no longer be an obstruction to navigation. A safe channel with a depth of not less than six feet and not less than 200 feet wide, with no swift water, and with two locks capable of passing the largest boats and barges, will be available.

But a small part of the potential power of the Rock Island rapids is developed by the present hydro-electric plant, and considerable attention has been given to the subject of extending the scope of the project. Maps and plans have been prepared looking to furthering the undertaking both by the government and by private interests.

Flow of the Mississippi at this point varies from 20,000 to 200,000 cubic feet per second, depending upon the stage of water, and this, with a 20-foot fall, forms the basis for varying estimates of the power possibilities involved.

It is apparent that any increase of water power utilization that takes place holds important possibilities for Rock Island Arsenal, provided the work is done by the government, or under government supervision, and the plan of operation be so arranged that the needs of the Arsenal shall be fully provided for before any diversion of power for private use is permitted.

Bridging the Mississippi



P to the time when the present Chicago, Rock Island & Pacific Railroad Company completed its bridge from Rock Island to the Davenport shore, in 1856, the channel of the Mississippi never had been spanned. The remains of the south pier of the first bridge to cross the stream may yet be seen on the Island shore, about a quarter of a mile above the present structure.

This original bridge was of wood, of what is known as the Howe truss type. It was a single decker, with room for but one railroad track. There were six spans, the draw span being 250 feet in length. The first locomotive, pulling a few empty cars, crossed April 21, 1856.

Compared with later triumphs of the bridge builder's art, this old structure was crude and inadequate, and was doomed to demonstrate its shortcomings in a variety of ways. Fifteen days after it was opened the steamer "Effie Afton," bound down stream, crashed against the draw span pier, took fire and burned, igniting the span, which also was consumed. The hull of the boat drifted a couple of miles down stream and sank. Other craft subsequently came to grief at this point, and rafts frequently met with disaster. There was much property loss and some loss of life.

Constructed, as it was, at the height of the usefulness of the steamboat, when a score of packet lines plied the upper river and hundreds of rafts of logs and lumber were brought down from the north each season, the bridge was not popular with the river men. As a matter of fact, it greatly complicated the feat of successfully negotiating the already dangerous rapids, being built just below the most difficult stretch of the rock-infested channel. To make matters even worse, the draw span was not set squarely across the current.

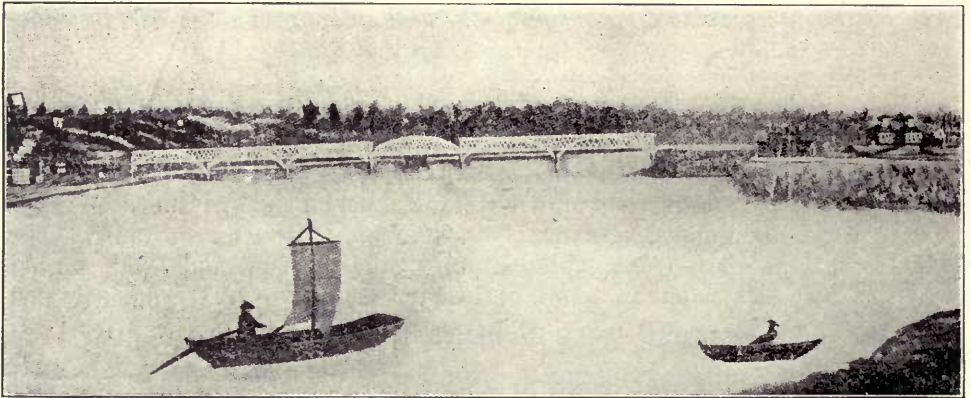
In the spring of 1868 the ice, in moving out, caught the first pier from the Iowa side and pushed it down stream 25 feet. A few weeks later a windstorm from the west rolled the draw span over on its side, so that it hung suspended on the pier. These various accidents made it necessary practically to rebuild the bridge piecemeal.

The accident to the "Effie Afton" led to a lawsuit in which the owners of the boat endeavored to recover damages from the bridge company. Abraham Lincoln was one of the attorneys for the defense. Lincoln contended that the right to navigate a stream was no more fundamental than the right to cross it, and that, therefore, the fact that the steamboat antedated the bridge in this case added nothing to the merits of the plaintiff's cause.

The jury disagreed, which was regarded as a triumph for the defense, in view of adverse public sentiment.

Under the administration of Col. Jordan as Commandant at the Arsenal steps were taken to permanently repair the old pier of the original bridge, which had been retained as a memorial of the first bridge crossing the Mississippi, and which was crumbling away. The weakened parts were bound up with concrete and a metal tablet with suitable inscription was placed upon it.

When Rock Island was set aside for Arsenal purposes in the early 60's the question of bridges became one of much importance. Means of access to the surrounding cities must be provided, and the government at once



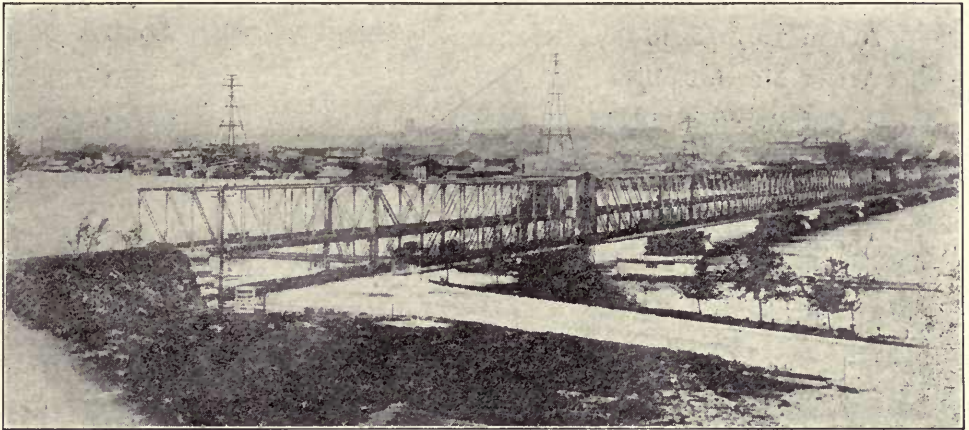
Original Rock Island bridge, viewed from the Illinois shore below the Island. This structure was opened in 1856, and was the first thrown across the Mississippi at any point.

took charge of the situation. An agreement with the Rock Island road was effected for the removal of its tracks to the western end of the Island, and the joint construction by the railroad and government of a new steel bridge on the site of the present one across the main channel.

Work on the second bridge was completed in February, 1872, and it was turned over to the War Department four months later. Originally this bridge was intended for use in transaction of government business only, and not as a thoroughfare between the Illinois and Iowa shores. There was much local criticism of the course pursued, but Captain Flagler, the Commandant, who had just improved and opened the present Fort Armstrong avenue, threw the main bridge open to the public shortly after it was placed in his hands.

The second bridge was 1,550 feet long, five spans and draw, and cost about a million dollars. It was a double-deck, two-track bridge, with foot-paths on the sides below, the same as the bridge of this day.

Heavier traffic, especially use of larger locomotives and railway cars, made it necessary to replace the second bridge with a new steel structure in 1894-95. The old piers were used. Ralph Modjeska, son of the famous actress, and to this day one of the leaders in his profession, was the engineer in charge of the work.



The second Rock Island bridge, completed in 1872.

The trusses of the present bridge, which provides for street railway, as well as railroad, vehicle and foot traffic, are calculated to carry a moving load of 11,360 pounds per lineal foot, 8,000 on the railroad floor above and 3,360 pounds on the lower floor. The draw span, one of the heaviest in existence at the time it was built, weighs 2,500,000 pounds. The first span at the north is 260 feet long, the second, third and fourth are 220 feet, and the fifth 260 feet. The draw span, which touches the Island shore, is 368 feet in length, with an opening on either side for river traffic of 162 feet. The railroad approach span on the Iowa side is 200 feet in length and that at the south end about 100 feet.

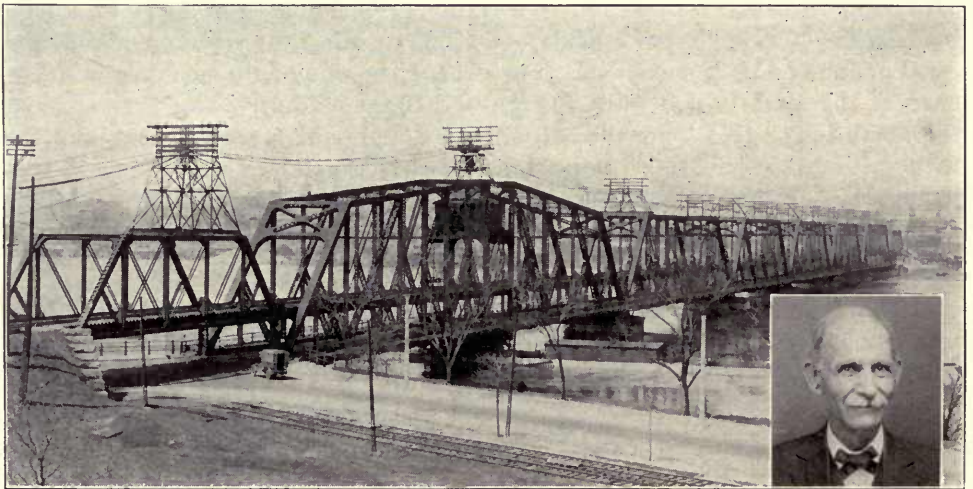
The first bridge connecting the Island with the City of Rock Island was a wooden affair, and belonged to the municipality. This the government bought soon after the construction of the Arsenal was begun. In the spring of 1868 this bridge was carried away by the ice and was succeeded, as soon as an appropriation for the purpose could be secured, by one of steel. This later was elevated at the south end and a viaduct built across the railroad tracks on the river bank.

Moline owned the original bridge connecting that city with the Island. The government bought this in 1868, and replaced it with the present steel bridge in 1873.

The railroad and street railway bridges from the Island to the Illinois shore are under control of, though not built by, the government.

All told Congress has appropriated \$1,310,550 for bridges at Rock Island, as follows:

| | |
|----------------------------|--------------------|
| Act of March 2, 1867..... | \$ 200,000 |
| Act of July 25, 1868..... | 100,000 |
| Act of March 3, 1869..... | 500,000 |
| Act of July 15, 1870..... | 300,000 |
| Act of March 2, 1889..... | 35,000 |
| Act of March 28, 1896..... | 96,000 |
| Act of June 11, 1896..... | 10,200 |
| Act of May 27, 1908..... | 9,350 |
| Act of March 4, 1909..... | 60,000 |
| Total | <u>\$1,310,550</u> |



The present Rock Island bridge. Insert, Frank E. Robbins, who has been in the service of the government for 42 years, and for 29 years has been superintendent of the bridge.

Being the only artery for use of street cars, vehicles and pedestrians between the Rock Island and Davenport shores, the Rock Island bridge now bears a traffic which at times tests the capacity of the lower deck. When heavy movements of freight are on the railroad tracks, there, also, are scenes of much activity.

Records of traffic, both across the bridge and up and down the river, have been kept from the beginning, and a comparison of the figures from year to year is enlightening. While travel across the stream has grown rapidly, there has been a rapid falling off in the use of the river. The record for the fiscal year ending June 30, 1921, follows:

| | Total Number | Average Per Day |
|---------------------|-----------------|--------------------|
| Engines, | 36,385 | 100 |
| Passenger cars..... | 98,568 | 270 |
| Freight cars..... | 469,334 | 1,286 |
| Street cars..... | 162,688 | 445 |
| Pedestrians | 810,142 | 2,220 |
| Vehicles | 3,296,064 | 9,030 |
| Steamboats | 1,607 | 7 (for 8 months) |
| Barges | 1,466 | 6 (for 8 months) |

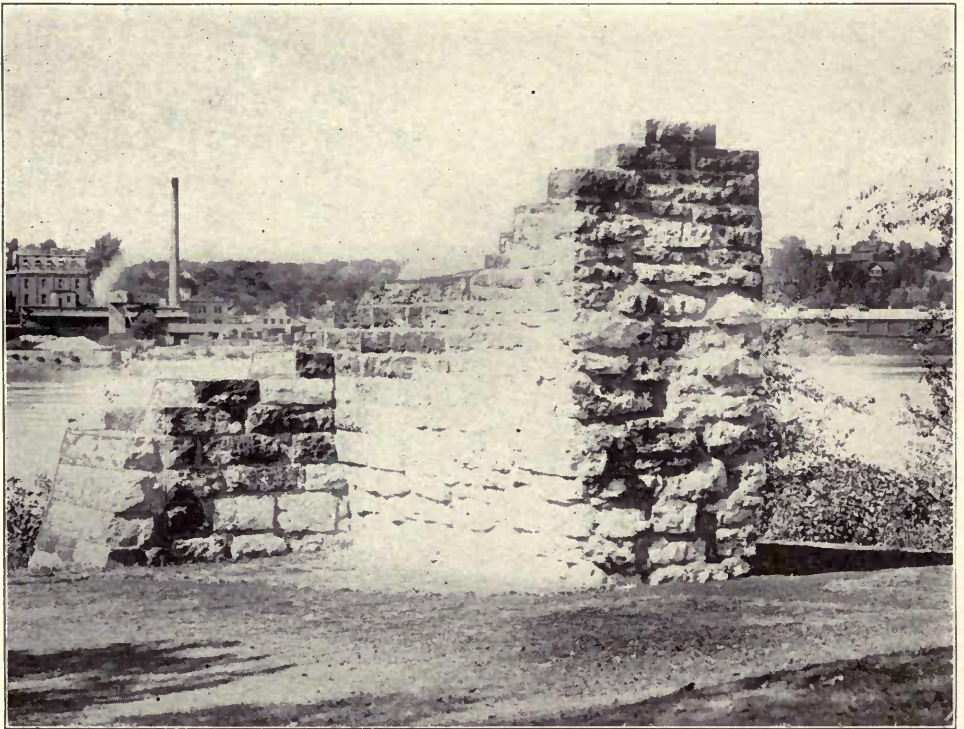
Compare the foregoing with the figures for the fiscal year ending June 30, 1874:

| | Total Number | Average Per Day |
|-----------------------------|-----------------|--------------------|
| Engines | 3,725 | 10 |
| Passenger cars | 9,088 | 25 |
| Freight cars | 120,775 | 331 |
| Pedestrains | 338,786 | 938 |
| Vehicles | 290,940 | 797 |
| Steam boats | 1,672 | 7 (for 8 months) |
| Barges | 444 | 2 (for 8 months) |
| Rafts, lumber and logs..... | 583 | 2½ (for 8 months) |
| Street cars | None | |

The maximum load for a freight car in 1874 was 30,000 pounds; in 1921 115,000 pounds. The 583 rafts that passed through the bridge in 1874 had an average of 2,000,000 feet, board measure, or a total of 1,166,000,000 feet. In the seventies and early eighties, there were 17 side-wheel packets plying

between St. Louis and St. Paul. All of those packets were about on a par with the "St. Paul" and "Quincy" of late years.

It will be noted that the records do not indicate the decline in steamboat traffic that actually has taken place since 1874. The truth is that in 1921 no packets passed through the draw, craft listed being mostly sand dredges and government boats and barges working on the rapids, with a few excursion steamers, which ply the upper river irregularly during the summer months.



Remains of the Island pier of the first bridge, now preserved as a historic relic.

Passenger Transport



LAYING out driveways on the Island and building bridges connecting with Rock Island, Moline and Davenport did not fully solve the question of passenger transportation to and from Rock Island Arsenal. Workers lived in the surrounding cities, some of them several miles from the scene of their employment, so walking was out of the question, and in the early days it was impossible for all to arrange for private vehicles.

The situation was met at first through the use of horse-drawn hacks, carrying as many men as a team could conveniently haul, which collected passengers at given points, at designated periods in the mornings, and returned them to their homes in the evenings. Each driver kept his own list of passengers, and compensation was arranged on mutually agreeable terms.

With the coming into general use, early in the 90's, of the bicycle, this became the favorite means of getting to and from work for many of the men, especially the younger ones, though the hacks continued to operate till after the coming of the street car, which was under the administration of Colonel Blunt. Then the Tri-City Railway Company obtained a franchise to lay tracks on the Island extending from the southern viaduct on Fort Armstrong avenue at the west, past the shops, and connecting with the Rock Island-Moline lines by means of a bridge across Sylvan Water at Forty-second street, Rock Island. Thereafter cars were operated on regular schedule over this line, with special cars starting from various points in the three cities to collect workers in the morning and returning them to their homes at the close of the day.

Under Colonel Blunt, also, bicycle paths were laid out for the safety and convenience of those using this method of traveling back and forth, but these became obsolete with the coming of the automobile into general use, and occupying part of the building sites when the vast expansion of the late war was begun, were discontinued. Many Arsenal workers now use their own automobiles, though the street cars continue to operate and do the greater part of the passenger carrying, and the bicycle still is in favor with some.

In time of war the privilege of the public to visit the Arsenal is of necessity closely curtailed, but ordinarily restrictions are removed to the limit considered compatible with the security of the institution. Guards are stationed at the entrance gates both day and night, and passes are required to gain admittance.

Since the main driveway through the Island offers the shortest route between Moline and Davenport, it was to have been expected that efforts

would be made to have it declared a public thoroughfare. The War Department, however, has consistently refused this concession, on the ground that it would practically remove restrictions upon visitors and would greatly complicate the work of guarding the valuable government property at the Arsenal. Then, too, wear and tear on the two miles of paving which is maintained by the War Department has been an item given consideration. A similar policy was adopted with reference to the street car line across the Island, which carries no through passengers.

Regulations respecting the care of property are strictly enforced. Visitors are not allowed to picnic on the Island, or to destroy shrubs, flowers or trees, or to kill wild birds and animals, which numerously inhabit the wooded tracts. Timber squirrels are common, as are imported pheasants, which find the premises a haven of refuge. Among the squirrels are many of the black variety, which are not native to the locality.



Fort Armstrong avenue. Public highway between bridges at west end of Island and sole traffic artery between Illinois and Iowa shores at this point.

The Military Museum



FOR the visitor, nothing at Rock Island Arsenal holds greater interest than the war museum, one of the most complete of its kind in the country. It contains nearly every fighting implement used by man in the last century, and some weapons common as far back as Revolutionary times. It occupies a space 60x216 feet on the first floor in the southwest corner of Shop A, and the need for more room is increasingly felt to house the exhibits constantly being added to it.

Prior to the World War the museum was relatively small, but since that struggle it has acquired a great variety of new material, including many trophies captured from enemy armies. These help to make the collection one of surpassing interest. During the war many of the exhibits were boxed and stored, while the others were placed on view in the old storehouse near the south end of the main bridge. This was done to give more floor space for manufacturing purposes.

In the museum one can trace the history of the development of the art of war even as far back as the day of the spear and the bow and arrow, for there are included in the collection the weapons of the primitive Indian of the locality and the wild natives of the Philippines, as well as tools of destruction evolved by the so-called civilized nations. Along with the spear and the machete are samples of gaspipe cannon, wrapped with wire to give greater strength, that occasionally have been employed since the age of gunpowder arrived, to meet emergencies arising from lack of facilities to manufacture more effective weapons. Some of these guns were used against our own soldiers in the Philippine insurrection.

Of cannon there is a variety most complete, from the old brass gun that a man could carry about and the swivel guns of yore, down to quick-firing and destructive implements used in the late war. So far it has been impracticable to show the heavier siege guns. There are, however, a number of mortars and howitzers of larger bore. Among the guns are some that were made for use by the navy.

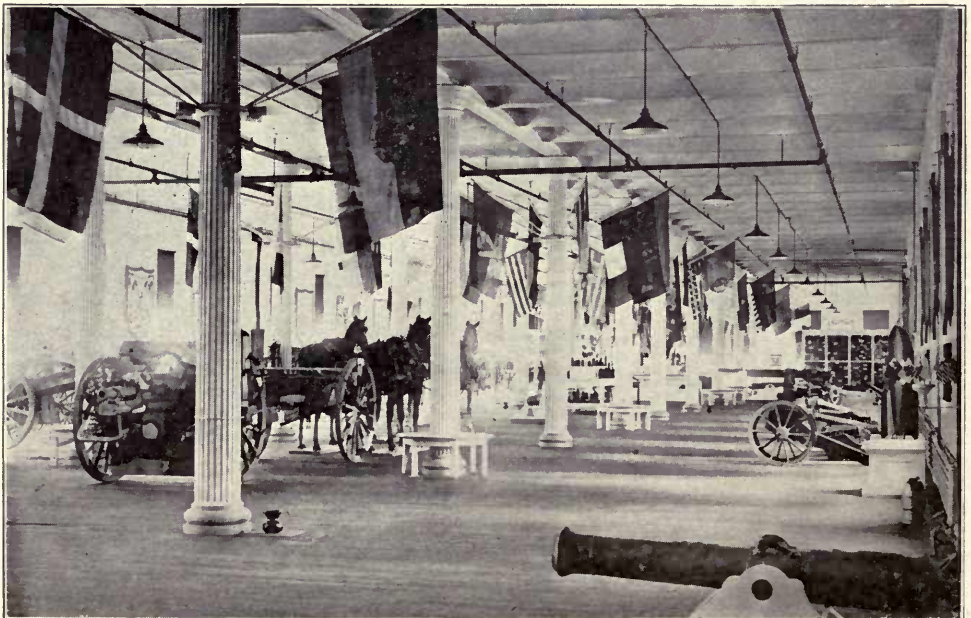
It would be difficult to conceive a more complete collection of small arms than the one here shown. There are revolvers of every type used since gunpowder was invented, and rifles of every description. The old flintlocks are here, and so are the deadly automatic rifles and the sawed-off shotguns which did such execution in the World War. Not alone are shown weapons made for army use, but scores of arms of private manufacture, especially of the latter part of the nineteenth century, are included. Here one sees the weapons with which the pioneers of this country established their reputations for accurate shooting, and which exterminated the buffalo and forced the Red Man into subjection. Guns used by foreign armies can be seen and studied.

The machine gun exhibit is one of much interest, and includes many trophies over which sanguinary struggles took place in France. With the machine guns is a sample repair kit made by the Germans, and well illustrating their trait of care and thoroughness in preparing for war. There is also a German war map, drawn with infinite pains and delineating every topographical and other feature that could be of use in planning and executing military manœuvres. Anti-aircraft guns, armor, gas masks, bombs used by aircraft, torpedoes, and most of the devices used in trench warfare are on view.

Included in the artillery is an exact duplicate of the French gun which fired the first shot from French soil at the advancing Germans. There are several guns in camouflage, and a field gun and caisson of an earlier type appears, hitched to horses completely harnessed and apparently ready for marching orders.

Of leather goods there is a great variety, showing the products of this department of the Arsenal, which was the largest of its kind in the world. Saddles, harness and the various straps and other devices for which an army has use, are all to be seen. There is also a wall exhibit of personal equipment sets made at the Arsenal, some of them shown in course of manufacture, the effect of each separate operation being indicated. In one corner is a Liberty motor set up on a block.

It is the policy of the department to add to the exhibits of this museum from time to time, and to maintain it open to the public, admission free, subject only to such rules and regulations as are necessary in the circumstances.



Arsenal Museum, showing a few of the many war relics on view.

The Old Davenport House



THE early history of the Island, from the founding of Fort Armstrong to the establishment of the Arsenal in 1862, is largely a record of contention for possession of the premises. It was apparent from the first that the land would some day be very valuable, and many coveted the more desirable parts of it. Influx of settlers was accelerated at the close of the Black Hawk war, which put an end to Indian depredations and assured the safety of the white man. After that there was no real need for the presence of troops in the locality.

Fort Armstrong, however, was maintained until May 4, 1836, and two years later Colonel George Davenport was appointed Indian agent and remained in charge until 1840. Colonel Davenport was the first white settler in



Home of Col. Davenport, as it stands today.

the vicinity of the Island. He was identified with it from 1815 to July 4, 1845, when he was murdered in his home by a band of robbers and horse thieves. The murderers escaped unrecognized, but were afterward arrested, and three of them—Aaron Long, John Long and Granville Young—were hanged on October 19th, of the succeeding year.

Colonel Davenport was an Englishman, born in Lincolnshire, in 1783. After many hard experiences at sea, he reached New Orleans in 1806. Dur-

ing his Island life he became famous as a trader, winning the confidence of the Indians.

The house in which Colonel Davenport was murdered stands near the northern shore at the lower end of the Island. It was built in 1833, and is by far the oldest structure at the Arsenal. Up to the year 1906 no repairs had been made, and it was gradually falling into decay, but in that year the Old Settlers' Association of Rock Island County, Illinois, secured permission from the government to undertake the work of repair and to maintain this historic building for the future.

An organization known as the Colonel Davenport House Association has been formed for the purpose of fostering the local traditions and history with which the Davenport home is so closely attached. To each of the four patriotic societies of the Tri-Cities—the Colonial Dames, the Daughters of the American Revolution, the Old Settlers' Associations of Rock Island County, Illinois, and Scott County, Iowa, and the Davenport family—one each of the four rooms in the old house has been definitely assigned.

The preservation of the Davenport house was made possible through the efforts of Mr. Phil Mitchell, of Rock Island, Miss Alice French and C. A. Ficke, of Davenport, and the Misses Catherine and Naomi Davenport.



Looking toward Davenport from west end of Island.

Arsenal Commandants



THE four commanding officers at Rock Island Arsenal connected with the World War time and the period of readjustment immediately following were Colonel George W. Burr, Colonel L. T. Hillman, Colonel Harry B. Jordan, and the present Commandant, Colonel D. M. King. All saw active service abroad, Colonel, now General, Burr, in charge when America entered the struggle, and upon whose shoulders fell the responsibility of placing the Arsenal on a war-producing basis, having been relieved in early 1918, promoted and detailed to service abroad; Colonel L. T. Hillman, who went across with the first expeditionary forces, and returning was assigned to command of the Arsenal to succeed Colonel Burr, and Colonels Harry B. Jordan and D. M. King, also rendering distinguished service abroad until the Armistice was declared. The army careers of these officers is of particular interest at this time.

COLONEL D. M. KING, ORDNANCE DEPARTMENT

Colonel D. M. King, the present Commandant of Rock Island Arsenal, was born in Ohio, November 5, 1869. In 1889 he entered the West Point Military Academy, and was graduated in June, 1893.

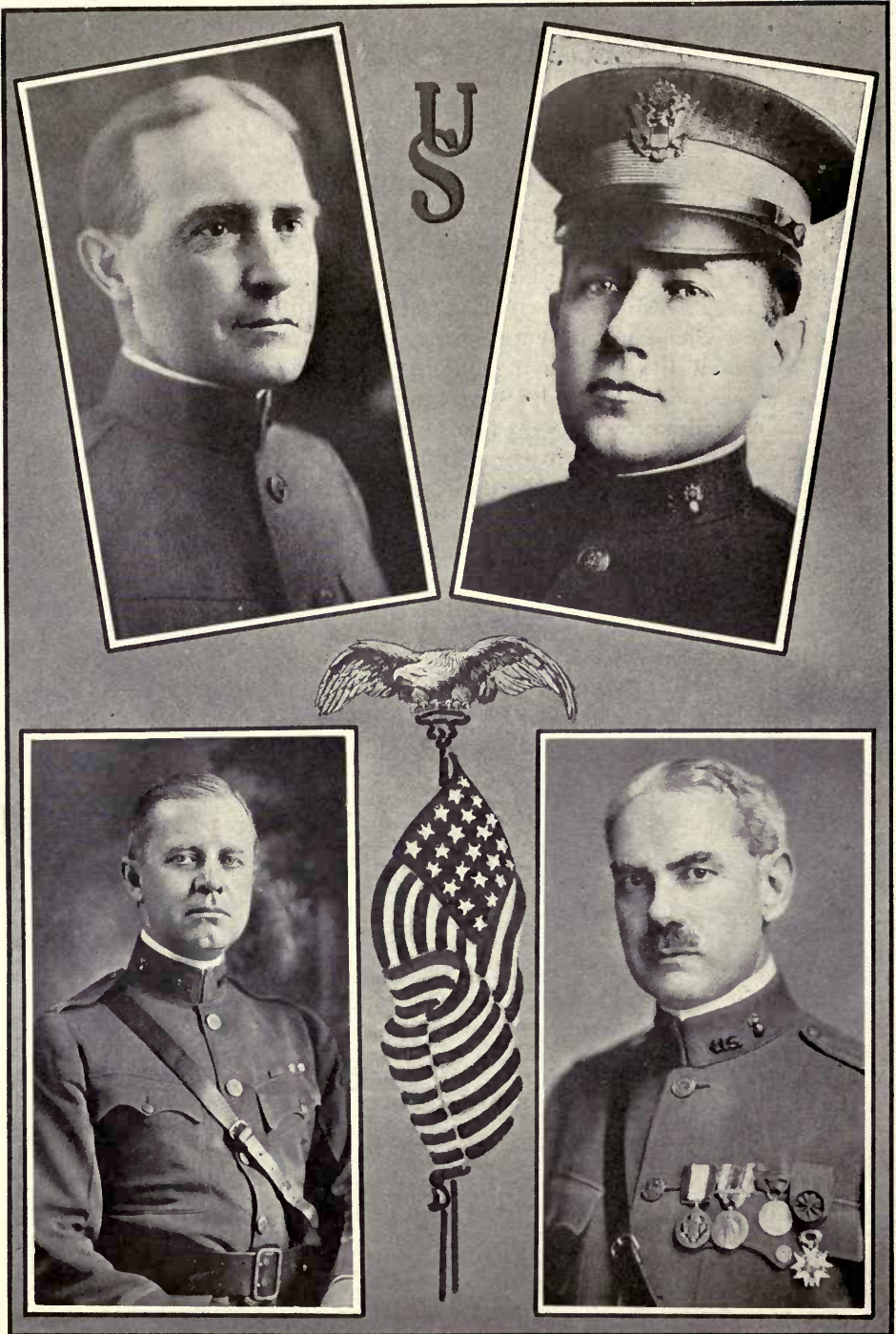
After his graduation he was stationed in Washington, D. C., from 1893 to 1896, and from 1896 to 1899 he was instructor at the U. S. Military Academy. In 1898 he was commissioned First Lieutenant, Ordnance Department.

Colonel King, in July, 1917, upon entrance of the United States into the World War, was on the staff of Colonel Burr at the Rock Island Arsenal and was designated by the Chief of Ordnance to design, equip, construct and obtain the necessary commissioned and enlisted personnel for the maintenance of all ordnance material in France. This was a \$20,000,000 project, and required approximately 275 officers and 20,000 skilled enlisted men for the operation of the shops and repair facilities.

The main shops were located at Mehun, France, and about 9,000 men were employed at the date of the Armistice. Some twenty smaller plants were established, maintained and operated at artillery training camps and elsewhere in France.

Colonel King received the Distinguished Service Medal and the Legion of Honor was conferred upon him by the French Government.

Colonel King has been in command of Rock Island Arsenal since June 3, 1921.



ROCK ISLAND ARSENAL COMMANDANTS DURING THE WORLD WAR PERIOD

Upper—Left, Col. George W. Burr, 1911-1918; right, Col. Leroy T. Hillman, March to December, 1918.
Lower—Left, Col. Harry B. Jordan, 1918-1921; right, Col. D. M. King, 1921.

COLONEL HARRY B. JORDAN, ORDNANCE DEPARTMENT

Colonel Harry B. Jordan, Ordnance Department, is a native of Kentucky, being born in the Blue Grass State February 26, 1876. He was appointed to West Point Military Academy from Washington in June, 1897, and graduated with the rank of Second Lieutenant of Cavalry in February, 1901. In April of the same year he was transferred to the Fourteenth Cavalry, and in July, 1903, was made a First Lieutenant in the Ordnance Department. In July, 1905, he was transferred back to the Cavalry with the same rank, and was detailed as Captain of Ordnance one year later. His transfer back to the Cavalry came the following year, but he returned to the Ordnance Department in 1908. He was then assigned to Rock Island Arsenal until June, 1912, when he was again detailed to the Cavalry. In 1913 he returned to the Ordnance Department and has been in that branch of the service since. In 1915 he was promoted to the rank of Major in the Ordnance Department, and shortly before the United States entered the war he was made a Lieutenant-Colonel.

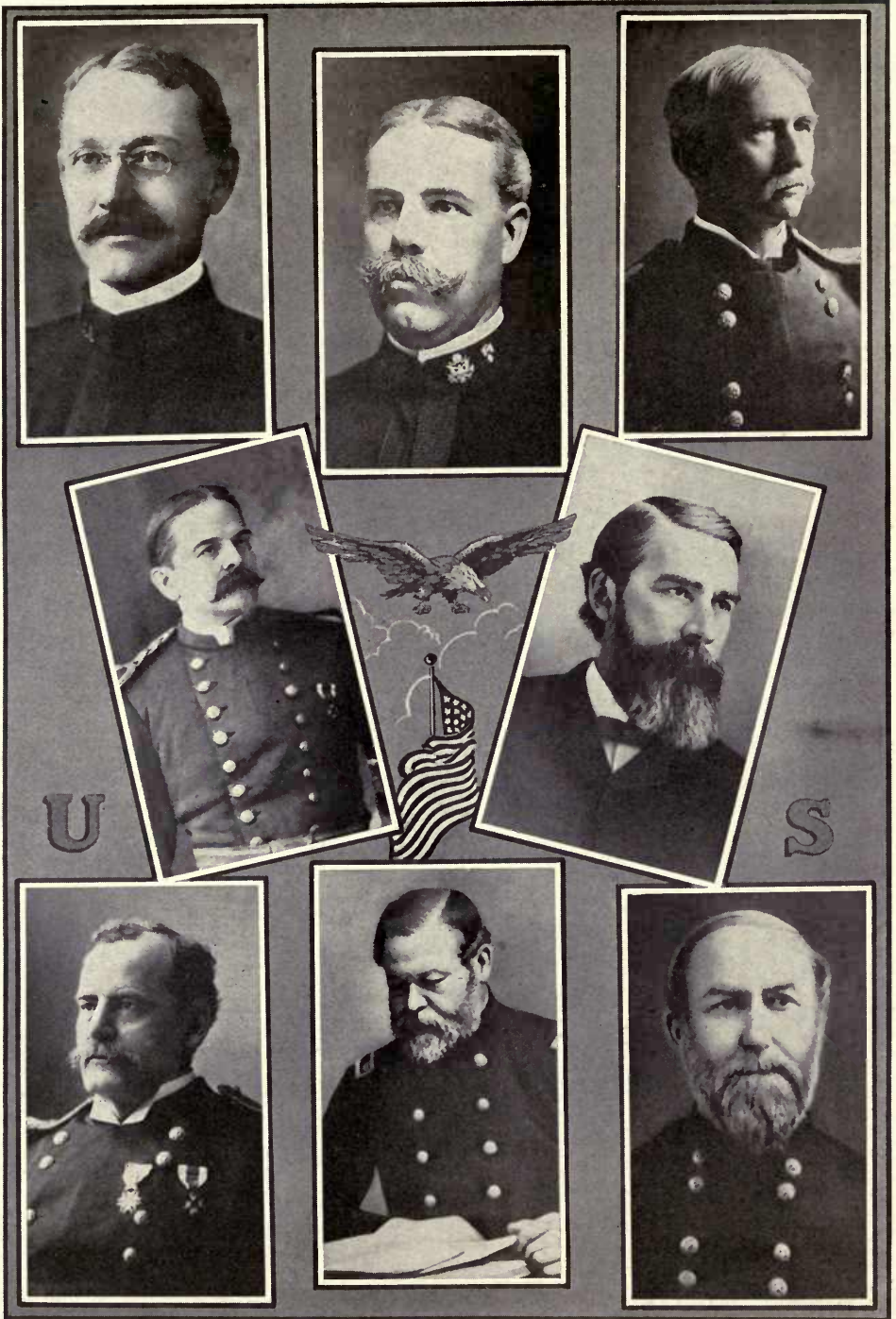
When the Expeditionary Forces of the United States went abroad, Colonel Jordan was sent to France, where he was placed in charge of the construction of Arsenals. For more than one year he was so engaged and was then brought back to the United States, with the rank of Colonel, and placed in charge of the Artillery Section in the office of the Chief of Ordnance.

He assumed command of the Rock Island Arsenal on January 20, 1919, and continued to serve in this capacity until June 1, 1921, when he was relieved of its command and assigned to duty as Chief Ordnance Officer, American Forces in Germany, stationed at Coblenz.

COLONEL LEROY T. HILLMAN, ORDNANCE DEPARTMENT

Colonel Leroy T. Hillman, Ordnance Department, was born in Warren, Ohio, April 30, 1879, and was appointed to the United States Military Academy from Indiana in June, 1896. Upon his graduation he was appointed a Second Lieutenant of Artillery in 1900, and received the First Lieutenancy in the same branch in 1901. He was detailed to the Ordnance Department with the same rank in 1904, and was made a Captain of Ordnance in 1906. He was transferred to the Artillery in 1908. His rank of Captain in the Artillery dated from January, 1907. He was again transferred to the Ordnance Department in 1909, and in 1911 received his Majority.

During his time as Major he was appointed a member of a special examining board for officers who applied for detail in the Ordnance Department. His promotion to a Lieutenant-Colonelcy came in September, 1917, when he was sent to France, representing the Ordnance Department. After six months service abroad, he was returned to the United States, where he received his full Colonelcy and was assigned to succeed Colonel George W.



ROCK ISLAND ARSENAL COMMANDANTS PRIOR TO THE WORLD WAR

Upper row—Left to right, Col. F. E. Hobbs, 1907-1911; Col. S. E. Blant, 1897-1907; Col. A. R. Buffington, 1892-1897.

Middle row—Col. J. M. Whittemore, 1889-1891; Col. T. G. Baylor, 1886-1889.

Lower row—Gen. D. W. Flagler, 1871-1886; Gen. T. J. Rodman, 1865-1871; Maj. C. P. Kingsbury, 1863-1865.

Burr as Commandant at Rock Island Arsenal. He remained in command of the latter post until his death, which occurred at the Arsenal on December 29, 1918.

BRIGADIER-GENERAL GEORGE W. BURR

Brigadier-General George W. Burr entered United States Military Academy June 15, 1884, and on graduation was given a Second Lieutenant's commission, June 11, 1888; he was made a First Lieutenant of Ordnance January 10, 1893; commission as Captain followed on April 7, 1899; he was commissioned a Major June 25, 1906, and a Lieutenant-Colonel October 23, 1910.

In 1911 General Burr was assigned to command of Rock Island Arsenal, and while in command of the post was promoted to the rank of Colonel. General Burr served as Commandant of the Arsenal until February, 1918, when he was transferred to Washington, where he became the representative of the Ordnance Department in purchasing heavy artillery and munitions from the British Government and was assigned as Chief Ordnance Officer on the staff of Major-General Biddle in England. On August 8, 1918, he was appointed Brigadier-General in the National Army and assigned as Chief of the Engineering Division of the Ordnance Department. In December, 1918, he was appointed Assistant Director of Purchase, Storage and Traffic, and on March 5, 1919, was promoted temporarily to the grade of Major-General. He now holds the rank of Brigadier-General and is Chief of the Field Service in the office of the Chief of Ordnance.

COMMANDING OFFICERS, ROCK ISLAND ARSENAL, FROM DATE OF ITS ESTABLISHMENT, JULY 11, 1862, WITH INCLUSIVE DATES OF SERVICE

| | |
|--|--------------------------------|
| Major C. P. Kingsbury..... | July 27, 1863 to June 14, 1865 |
| Major T. J. Rodman..... | Aug. 3, 1865 to June 7, 1871 |
| Captain D. W. Flagler..... | June 15, 1871 to May 12, 1886 |
| Colonel T. G. Baylor..... | May 12, 1886 to Nov. 8, 1889 |
| Colonel J. M. Whittemore..... | Nov. 8, 1889 to Mar. 14, 1891 |
| Colonel A. R. Buffington..... | Jan. 21, 1892 to Mar. 3, 1897 |
| Captain S. E. Blunt..... | Mar. 3, 1897 to Aug. 3, 1907 |
| Lieutenant-Colonel F. E. Hobbs..... | Aug. 3, 1907 to Apr. 12, 1911 |
| Lieutenant-Colonel George W. Burr..... | July 7, 1911 to Feb. 15, 1918 |
| Colonel L. T. Hillman..... | Mar. 4, 1918 to Dec. 29, 1918 |
| Colonel Harry B. Jordan..... | Jan. 20, 1919 to June 1, 1921 |
| Colonel D. M. King..... | June 3, 1921 to |

COLONEL JOHN T. THOMPSON, U. S. A., RETIRED

Colonel John T. Thompson (retired), whose activities as an Ordnance Officer were closely allied with the development of the small arm, first served at Rock Island Arsenal in 1891 as a Lieutenant of Ordnance under Colonel Buffington, then its Commandant, and again in 1904, when as a Captain, he was assigned as Assistant Officer to the Commanding Officer, Colonel S. E. Blunt, in charge of the manufacture of the rifle, the production of which, following the establishment of the small arms plant at the Arsenal, was to be undertaken in quantity.

Colonel Thompson entered the U. S. Military Academy July 1, 1878, and graduated in 1882 as a Second Lieutenant of Artillery; his promotion to the grade of First Lieutenant followed January 20, 1889; in December, 1890, he was transferred to the Ordnance; he was promoted to Captain June 15, 1898; to rank of Major on June 25, 1906; Lieutenant-Colonel on January 21, 1909, and Colonel October 30, 1913.

When war broke out Colonel Thompson retired and became associated with the Remington Arms Co. in the manufacture of rifles (Model 1914) for the British Government. On our own entrance into the war Colonel Thompson re-entered the service as Chief of the Small Arms Division, office of the Chief of Ordnance, and was the prime moving spirit in the production of the Model 1917 U. S. Rifle. He later became Director of Arsenals, in which capacity he was charged with directing for the Chief of Ordnance the operations of the Arsenals as manufacturing plants and military establishments, and handling of all matters of general administration.

At the cessation of hostilities he again retired. Since that time his energy has been devoted in perfecting the Thompson sub-machine gun, of which he is the inventor. This weapon, the inventor claims, considering its small size, the number of blows it can hit in a given time, is the most effective portable weapon yet invented. The Thompson sub-machine gun is being manufactured by the Auto Ordnance Corporation, of New York.

MAJOR-GENERAL C. C. WILLIAMS

The present Chief of Ordnance, Major-General C. C. Williams, entered the U. S. Military Academy on June 17, 1890, graduating June 12, 1894, as a Second Lieutenant of Artillery. He was commissioned a First Lieutenant of Ordnance October 4, 1898. On June 14, 1902, he was promoted to the rank of Captain, and it was during the period of his Captaincy, some two years later, that he was assigned to duty at Rock Island Arsenal as assistant to the officer in charge of work in the Armory shops, at that time being equipped for the manufacture of the rifle.

While on duty as Inspector of Ordnance at the works of the Bethlehem Steel Co., which assignment followed his relief from duty at the Arsenal,

he was promoted to the rank of Major. He was made a Lieutenant-Colonel April 6, 1915. When the expeditionary forces of the United States were ordered to France, General Williams was one of the first ordnance officers sent abroad, where he served as Chief Ordnance Officer, A. E. F. On August 5, 1917, he was appointed Brigadier-General in the National Army, and on May 17, 1918, was assigned to duty as Acting Chief of Ordnance. On July 16, 1918, he succeeded Major-General William Crozier as Chief of Ordnance, the latter having on that date been appointed Major-General in the line of the Army.



Col. John T. Thompson, retired, who during the war served as chief of the small arms division and director of Arsenals, and who was twice stationed at Rock Island Arsenal.

Other Arsenals



To give an adequate understanding of the relative importance of Rock Island Arsenal, it is necessary to furnish a basis of comparison with other similar institutions in the United States. There are, altogether, eight Arsenals, an Armory and a Reserve Depot under the jurisdiction of the Ordnance Department, which is charged with the task of providing and caring for all military supplies. Arsenals and Armories are manufacturing establishments, while depots have only facilities for storage. Rock Island Arsenal is the largest plant of them all, and its uses are more diversified, the others specializing in certain kinds of ordnance stores. This Arsenal also produces small arms, a work carried on nowhere else except at the Springfield Armory, and, besides, its store-houses shelter the greatest single collection of ordnance supplies in the country.

In connection with the manufacture of field artillery, tests by proof firing are necessary. So the Ordnance Department has established proving grounds. That at Aberdeen, Md., is the largest. Facilities for emergency use of the same sort exist at the Savanna grounds, an adjunct of Rock Island Arsenal, and at Erie, Ohio.

Practically all ordnance manufacturing, except, of course, in emergencies, is done at the Springfield Armory and the four main Arsenals—at Rock Island, Frankford, Watertown and Watervliet—other Arsenals doing repair work only, in addition to storing and issuing supplies.

SPRINGFIELD ARMORY

Principal work done at the Springfield Armory is in connection with the manufacture of the U. S. army rifle, model of 1903, and its spare parts and appendages, bayonets, bolos and trench knives.

The Armory was established at Springfield, Massachusetts, in April, 1778, as a laboratory for the preparation of ammunition to be used in the Revolutionary War. In 1794 it was made a National Armory for the manufacture of small arms, and has continued in this capacity since. In the World War the output attained a rate of 6,000 rifles a week. The value of the Armory, which occupies 297 acres of ground, is estimated at \$12,229,000.

Before the Armory at Rock Island was opened, in 1905, all rifle manufacturing was done at Springfield, and in 1915 reduction of appropriations by Congress made it necessary to again center production at the latter place. During the World War Springfield and Rock Island together could not

supply enough arms. Since that conflict the Rock Island Armory has done only repair work, Springfield being able to meet peace time needs of the army. With a great supply of rifles on hand, it is unlikely that the present type of weapon will again be manufactured at Rock Island.



Regulation uniform adopted for women workers at Arsenal during the war.

WATERTOWN ARSENAL

Watertown Arsenal is located at Watertown, Mass. Its activities include manufacture of gun forgings, seacoast gun carriages, railway mounts

and high explosive and armor-piercing projectiles. It stores and issues parts for seacoast artillery carriages and target material.

This Arsenal was established under act of Congress dated February 8, 1815. It embraces 87.4 acres, valuation of land, buildings and equipment being \$20,631,000. The civilian personnel numbered over 3,000 during the late war.

WATERVLIET ARSENAL

Watervliet Arsenal is located within the city limits of Watervliet, N. Y. Its main function is the manufacture of both light and heavy guns, and accessories. The site was acquired in 1813, and comprises 144 acres. The value of its lands, buildings and equipment is \$12,029,000.

During the World War employees numbered 3,300 and production in 1918 was 578 completed guns, ranging from 1.457-inch to 16-inch. There were relined or modified 161 guns, ranging from 6 to 16-inch types.

FRANKFORD ARSENAL

Frankford Arsenal is located 10 miles from the center of Philadelphia, Pennsylvania. It manufactures small arms ammunition of all kinds, metal components of artillery, trench warfare ammunition, and fire control and range-finding instruments, including optical parts. This Arsenal was acquired May 27, 1816. It covers 91.5 acres, and the value of its land, buildings and equipment is estimated at \$24,084,000. Over 5,000 workers were employed during the World War.

PICATINNY ARSENAL

Picatinny Arsenal is in Morris county, New Jersey, within 5 miles of Dover. Its work is the manufacture of powder, high explosives and metal components for the loading of the same. Experimental work is also done in development of ammunition.

Picatinny Arsenal was established in 1880. It comprises 1,615 acres, the valuation of land, buildings and equipment being \$8,965,000. Number of employees during the late war reached 1,500 and the production of powder in 1918 was 2,369,200 pounds.

SAN ANTONIO ARSENAL

Located within the city limits of San Antonio, Texas, San Antonio Arsenal is a pre-war ordnance establishment, equipped for storing, maintaining and issuing all classes of ordnance goods, and with facilities for repairing stores used by troops in that section of the country. The site comprises 19.65 acres. It was acquired in 1859. There are 235,640 feet of storage space, and value of the establishment is placed at \$998,000.

AUGUSTA ARSENAL

Augusta, Georgia, is the home of Augusta Arsenal. Here are stored and issued ordnance material other than ammunition for the 4th Army Corps.

Minor repairs are also made, shop equipment being sufficient to care for all kinds of ordnance, including small arms, field and coast artillery, etc. The Arsenal embraces what formerly was known as the Augusta Ordnance Supply Depot, located several miles from the Arsenal, and now the main storage plant. There are 100 acres of land, of which the government owns 70, the other 30 being leased. This Arsenal was established in 1826.

BENICIA ARSENAL

Benicia Arsenal is located one mile from Benicia, California. It stores and issues ammunition and other supplies for the 9th Army Corps area, and collects and forwards ordnance supplies for the army in the insular possessions and Alaska. It manufactures cast iron projectiles, all classes of target material and smokeless powder for seacoast armament, and repairs ordnance material. Though title to this Arsenal was not finally acquired until October 10, 1862, a portion of its present site was used for ordnance purposes as early as 1851. It covers 339 acres, the valuation of land being \$140,000 and of buildings and equipment \$1,489,000.

RARITAN ORDNANCE RESERVE DEPOT

The Raritan Ordnance Reserve Depot is located on the Raritan river, about thirty miles west of New York City, and five miles northeast of New Brunswick, N. J. At this establishment are stored, issued and maintained ordnance supplies for troops of the 1st, 2nd, and 3rd Corps areas. There is also stored a reserve supply of ammunition and components. Dock facilities accommodate lighters for loading ocean-going vessels. The Depot was acquired in October, 1917. It comprises 2,159 acres. The land is valued at \$680,000 and buildings and equipment at \$14,073,000. Raritan has taken over activities of the former New York Arsenal.

ERIE PROVING GROUND

Location of the Erie Proving Ground is seven miles west of Port Clinton, Ohio, on Lake Erie. It has storage space and maintains facilities for tractors, automotive vehicles and heavy artillery, and in addition, in case of emergency, proof firing may be done there. It was acquired March 25, 1918. Of the 1,218 acres included, 1,165 are owned by the government and 53 by the State of Ohio. Valuation of land is \$231,000, and of buildings and equipment \$5,527,000.

ABERDEEN PROVING GROUND

The Aberdeen Proving Ground is located 35 miles northeast of Baltimore, Maryland. It was acquired December 14, 1917. There are 70,000 acres, half of which is under water. Valuation of land is \$3,553,000, and of buildings and equipment \$13,728,000. In addition to facilities for proof firing of guns and carriages, this establishment has a field service storage area with space under roof of 480,000 square feet.

Resources of Tri-Cities



AVAILABILITY of workers in numbers, qualifications and training suited to its needs was vital to the successful operation of Rock Island Arsenal in the World War, just as it must be in any future military crisis in which the country may become involved. At no time during the conflict was there any serious difficulty in recruiting shop and office workers and building tradesmen as rapidly as they could be utilized. Most of them came from the surrounding cities, Rock Island, Moline and East Moline, Illinois, and Davenport and Bettendorf, Iowa. All were housed without much inconvenience, though the government undertook a project to provide homes in all five cities. This was begun in 1918, in anticipation of a prolonged struggle; in all 565 houses being finished, none, however, being completed at the time the armistice was signed.

The five cities named, together with their suburbs, generally known as the Tri-City community, have a combined population of over 150,000, according to the 1920 census. Of this number, according to a recent private survey, 73,000 are aged between 15 and 45, and 46,000 males and 13,000 females work for wages. Industrial workers number 14,000 and trades employes 8,000. Diversity of employment offered in the community affords opportunity for a wide variety of training, and the people are well above the average, taking the country over, in education and wealth. The percentage of families with an income of \$3,000 or more is 7.06, against an average of 1.94 per cent for the entire United States. The percentage with incomes between \$1,800 and \$3,000 is 23.60, while that for the entire country is but 11.06 per cent.

The Tri-City community is the center of a large area of rich, fertile, and thickly populated country. From Chicago the distance by rail is 181 miles, and from the Missouri river, on the west, it is 316 miles. North by river to St. Paul it is 397 miles, and south by river to St. Louis 332 miles. This is the largest population center between the points named. Consequently an immense business in distributing commodities is carried on.

Diversity of manufacture and magnitude of trading area make for stability and minimize danger of temporary depressions to which communities depending upon a limited number of lines of commerce and production are subject.

There are a number of concerns in the Tri-Cities which do business all over the world, and valuable advertising for the community is gained there-

by. This is the center of the manufacture of agricultural implements—Deere & Company, the Moline Plow Company, and Rock Island Plow Company being leaders in their field, with a combined capital of more than \$100,000,000. Users of plows everywhere associate with them the name Moline. Rock Island's renown is carried abroad by the trans-continental railroad which bears its name, as well as by the greatest Arsenal in this country, and in many respects the most complete and spacious military manufacturing and storage establishment on the globe. A number of large industrial concerns perform a similar service for Davenport, East Moline, and Bettendorf.

The handicap of being located a thousand miles from tidewater has not prevented more than a dozen Tri-City manufacturing establishments from doing an extensive foreign business. Among them, in addition to the farm implement concerns already named, may be mentioned the Western



City of Rock Island, seen from Arsenal clock tower.

Pump Company, Davenport Locomotive Works, Gordon-Van Tine Company, Red Jacket Manufacturing Company, Victor Animatograph Company, Linograph Company, Purity Oats Company, and Western Flour Mills, of Davenport; Rock Island Manufacturing Company, Phelps Manufacturing Company, Franks Manufacturing Company, and Standard Textile Products Company, of Rock Island; Williams, White & Company and National Licorice Company, of Moline; and the Troy Laundry Machinery Company, the E. & T. Fairbanks Company, of East Moline; and the Bettendorf Company, of Bettendorf.

The famous Velie Motor Cars, manufactured by the Velie Motors Corporation; the "R & V," manufactured by the R. & V. Motor Company, and the "Stephens," manufactured by the Moline Plow Company, are known internationally as high-class automobiles, backed by reliable, progressive and time-tried concerns.

The largest washing machine factories in the world are located in Davenport, Iowa—the Voss Bros. Manufacturing Company, the White Lily Manufacturing Company, and the Brammer Manufacturing Company. This industry had its birth in Davenport.

The Gordon Van-Tine Company is the largest distributor of ready-cut houses in the world. The Victor Animatograph Company, making moving picture projectors and slides, is also the largest of its kind anywhere. About one-third of the machinists' vises used in the world are supplied by the Rock Island Manufacturing Company, which furnished 150,000 vises for use by the allied armies in the World War. Williams, White & Co. lead in production of machine shop and foundry tools. The Bettendorf Company has the largest shops in the locality devoted to a specified line of production, being one of the largest manufacturers of steel freight cars in the world. Scores of local concerns send their products to all parts of the United States.

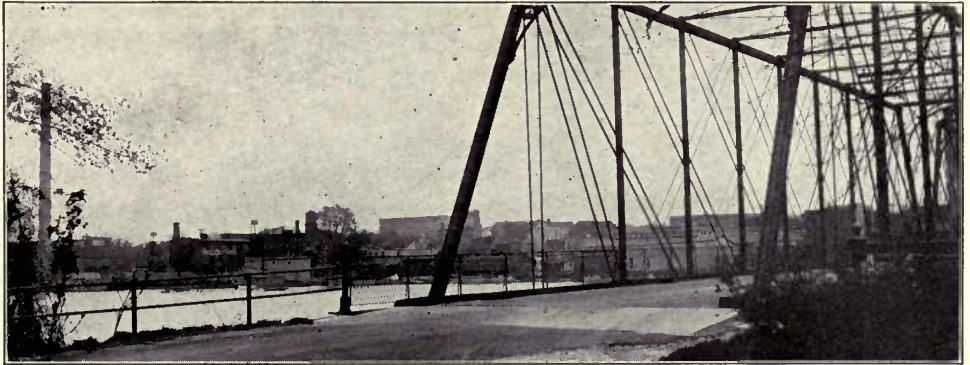
Few communities are better served in the matter of transportation. Three trans-continental railroad lines reach the Tri-Cities, and two others, having connecting links, cross the Mississippi within 50 miles. Of minor branches and interurbans there are several, while the end of 1922 is expected to witness the completion of at least one hard road giving access to the permanent highways of the east. Last year a million dollars was spent building hard roads radiating from the city of Davenport, while extensive work of the same sort, to be undertaken in the immediate future, is planned on both sides of the river. The Tri-City Railway Company lines ramify into all parts of the urban community, which is also bound together by hundreds of miles of paved streets. Two bridges cross the main river, rail, vehicle and foot traffic being carried free of tolls by the Rock Island bridge, government owned and controlled.

In connection with transportation advantages, the facilities afforded by the Mississippi river must not be overlooked. Though water-borne traffic on the inland streams has greatly declined from that of a few decades ago, competent authorities agree that the railroads have about reached their physical limits, and that the day of the return of the water carriers is not far distant. Everything points to an early demand for use of boats to handle the bulkier and heavier commodities that rail lines are expected to relinquish as the business of the country outgrows their facilities for expansion. Foreseeing such a situation, the city of Davenport has expended a million dollars in levee improvement to facilitate the handling of freight to and from river craft. In addition to connection with all points on the Mississippi and its navigable tributaries, this locality, by means of the canal about to be built by the State of Illinois and the existing Illinois and Mississippi canal, will be able to ship by water east through the Great Lakes to all ports thereon, and, eventually, no doubt, to the seaboard.

Water power, available in a limited quantity with present facilities, and potential, in an amount sufficient to supply all future industrial needs, is another important asset of the Tri-City district. As was pointed out by Mr. E. S. Putnam, of Davenport, during the World War, when the govern-

ment was seeking a site for a nitrogen fixation plant, the Rock Island rapids make possible a hydro-electric plant developing as much as 100,000 horsepower. Within 60 miles distant, at the east, as was shown by the same authority, there are extensive coal deposits, where steam power can be most economically generated in any amount desired to supplement the water power. Transmission from the mines by high voltage wires would be a simple problem.

It may be taken for granted that the Tri-City community is well supplied with schools, churches, welfare organizations and other means of promoting spiritual advancement and culture. Among the schools are several sectarian institutions, including Augustana College and Theological Seminary, St.



Looking south from Island end of Moline bridge.

Ambrose College, St. Katharine's School, and the Villa de Chantal, all of which draw pupils from a wide area. The Palmer School of Chiropractic, with its 3,000 students, representing practically every civilized country on the globe, should not be overlooked.

It is hardly necessary to state that the cities located on the river shores adjacent to Rock Island Arsenal are progressive, that they are modern, well kept and sanitary, with many parks and scenic features, the beauty of which is being constantly enhanced by judicious expenditure of money and effort. Recreation has not been slighted. There are fine theatres, and art, music, and sports, both amateur and professional, are well supported. The Rock Island Arsenal Golf Club maintains an eighteen-hole course on the Island itself that is accounted one of the finest in the country and has been the scene of several celebrated tournaments. The club-house, costing \$50,000, was built and the links were laid out and are maintained by civilian members, but the Arsenal Commandant is ex-officio president of the organization and in full charge of the premises. The course utilizes some of the lower ground and that adjacent to the officers' quarters, and the Arsenal is in no-wise jeopardized, nor is the military reservation encroached upon. Facili-

ties are afforded for outdoor exercise which regulations require army officers to take.

Growth of the cities surrounding the Arsenal has been rapid ever since they passed from the village state, more than half a century ago. Permanent improvements annually made range, normally, between five and ten millions, tending always upward. Population of the five municipalities increased from 96,117 in 1910 to 146,880 in 1920, a rate of growth far above the average the country over, being more than fifty per cent.

Total bank deposits in the Tri-City community were \$82,000,000 at the close of 1921, reflecting the financial depression by only a slight decline from the figures of the preceding year. Davenport enjoys the reputation of having the greatest banking resources of any city of its size in the country.

The community is a great jobbing center, its territory comprising nearly all of Iowa and a large part of western Illinois; retail stores rank with the best anywhere, and there are many of them, always in keen competition. Davenport has a million dollar office building and the largest hotel in the State of Iowa. A hotel nearly as large is in course of erection in Moline. There have been few serious labor controversies to interrupt the good order and progress of the community.

Though there are five cities with separate municipal governmental units and trading centers, the fact remains that the citizens of each one enjoys the advantages that all have to offer. Boundaries join on both sides of the river, and the people are closely drawn together by mutual interests. There is, in fact, a maximum of intercourse and a minimum of rivalry and friction, offering all the advantages of a single large city of 150,000 and eliminating some of the disadvantages. Big things can be and are successfully undertaken, commercially, industrially, educationally and in the way or recreation—things that no single city of the five could hope alone to support. To take a single instance, consider the Mississippi Valley Fair and Exposition, which, though ostensibly a Davenport enterprise, has made a phenomenal success of the two annual fairs thus far given, having the distinction of being the first organization of its class to win recognition in its initial year by the International Association of Fairs and Expositions.

Though the subject might be treated at greater length, it is believed that enough has been told to show that Rock Island Arsenal's surroundings are such as to insure an ample supply of trained labor and of necessary materials to provide for its maintenance in a high state of efficiency at all times and under all conceivable circumstances.



View up the river from head of Island, with Bettendorf car shops in the distance.

Henry W. Horst Company

The present Henry W. Horst Company is the outgrowth of a concept formed in the mind of a twelve-year-old boy, when its president, Mr. Henry W. Horst, was a lad in the old country. Not that he saw Rock Island, nor that he saw concrete road building or many of the other projects which today form integral parts of the large construction work his company now carries on, but that there was ever before him from these early days, America—the country of first promise—the building industry, for which he had a natural talent, and the determination to excel in building work, and in a company of his own. Filled with these visions, and backed by a strong re-



HENRY W. HORST



A. E. HORST

ligious faith and an unshaken belief in himself, the then embryo constructor never permitted discouragements, struggles or setbacks to dim the ardor or divert the energies with which he, as a youth, a young man and a mature man, continuously pressed forward toward his goal.

Apprenticed under old-country guild rules at the age of 14, this future American man-of-affairs served faithfully for three years, devoting a part of the time, as per guild requirements, to the study of bookkeeping and drafting, and using spare hours to add to his already considerable knowledge of foreign language.

He emigrated to the United States at seventeen years of age, finding his way to Rock Island, Illinois, destined at a later date to become the center of his far-reaching labors. Keeping the fixed purpose of service through a com-

pany of his own ever before him, the youth followed carpentry, continuing in this line through early manhood, gradually working toward his end through sub-contracting, chiefly in the Middle West.

Mr. Horst feels today that outside of his faith in an all-wise God, no one thing contributed more largely to his ability to cope with difficulties than seven years of pioneering on the Kansas prairies, homesteading, helping to build towns then in their infancy, and at the same time laying the foundations of his own fine family. In Oakley, Logan County, Kansas, Mr. Horst first entered the contracting business. Buildings there, completed in 1886, still stand to the credit of this step in the development of his purpose.

Returning to Rock Island in 1892, Mr. Horst soon joined forces with another contractor, but only to sever relations after one year's united efforts, during which time a splendid church edifice was erected.

In March, 1893, he entered into a co-partnership with Mr. Emil Peterson. This partnership lasted eight years, which time was largely occupied with the building of residences. Already the time element, so dominant in all Henry W. Horst Company construction, was making itself felt, many fair-sized residences having been erected during this period in thirty days each. Usually the houses built during this period were designed by Mr. Horst himself, who worked long and incessantly during these years of struggle.

1900 marked the establishment of the individual business of Henry W. Horst. For a number of years Mr. Horst not only constructed buildings, but kept his own accounts, acquiring his first bookkeeper in 1903. By this time, however, his work was so well organized that he found it possible for the first time to visit his aged mother and to tour Europe, taking with him his oldest son and later business partner. Offices had already been removed from the residence of Mr. Horst to a small building on the same lot. Later they were moved into a fine down-town location. Before this latter move, the Company's first prospectus, an attractive booklet of 28 pages of illustrations, was published in 1907. In 1911, in order to accommodate the growing business, Mr. Horst purchased the lot on which the present spacious Horst building stands. The building was erected in 1912.

By this time the second member and present manager of the company, A. E. Horst, had graduated from the University of Illinois, and had become superintendent of construction. After three years of this joint work, the present company was organized and incorporated. A second and larger booklet was published, and a new and larger period of development was entered upon.

During this period Mr. Horst, who had at one time built sod houses and had gone through such experiences as that of having brought into Rock Island its first concrete mixer and having constructed Rock Island's first reinforced concrete office building, saw his company develop to the point of covering such work as residences, business blocks, industrial buildings,

railroads, highways, housing projects, large government contracts, etc. Among the accomplishments of the company the following may be cited:

I. Government Work.

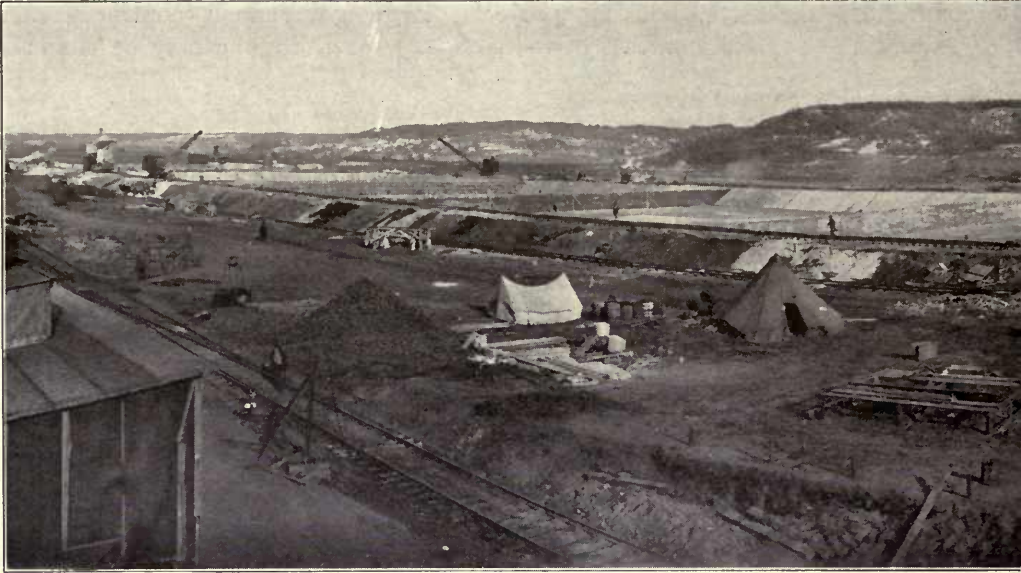
1. A number of important buildings on the Rock Island Arsenal, among which are the Standard Forging building and the Heppenshall building, now known officially as Shop "O" and Shop "Q", respectively.

2. Officers' Quarters and Barracks buildings. Eleven buildings, mostly large brick and concrete structures, for housing and caring for the military units located on the Government reservation at Proving Ground, Illinois. This project was completed 30 days ahead of scheduled time, much to the satisfaction of Government inspectors and contractors alike.

3. Railroad. Sixteen miles of standard gauge railroad with a dozen spurs, built on government property at Proving Ground, Savanna, Illinois.

4. Nitrate Storage Pit. One of the most unique of the Henry W. Horst Company's varied bits of construction, this mammoth pit, the size of three city blocks, (1600'x200') and with sloping 17-foot sides, all of reinforced concrete, having seven cross-walls, was designed for the storage of 10,000 carloads of nitrate for the manufacture of explosives. Situated in a veritable sand desert, this huge project required for construction some 150 cars of sand, 250 cars of stone and gravel, 50 cars of cement and 100 cars of miscellaneous materials. 70,000 cubic yards of dirt had to be moved. Undertaken in the late fall of 1920, just about the time of the keenest railroad transportation difficulties, this pit, with the 16 miles of railroad mentioned in the last paragraph, were completed before Christmas—three days ahead of scheduled time—the schedule having been prepared before the transportation difficulties had presented themselves.

5. Housing Projects. Here again the Henry W. Horst Company record-breaking time achievements came to the fore. This war-time Government contract was to furnish 460 homes for Government workers in the United States Arsenal at Rock Island. Time was, of course, an important element. The houses were in six groups in three localities, one in Moline, two in East Moline and three in Rock Island. Although the contract was signed in the fall, the seventh of October, this project, said to be the second largest of some thirty-eight such Government Housing Projects in the country, was the first one finished. 460 permanent and very well appointed homes were completed, including decorating, in 117 days—an unparalleled record.



U. S. STORAGE PIT AT SAVANNA, ILL.—REINFORCED CONCRETE PIT, T

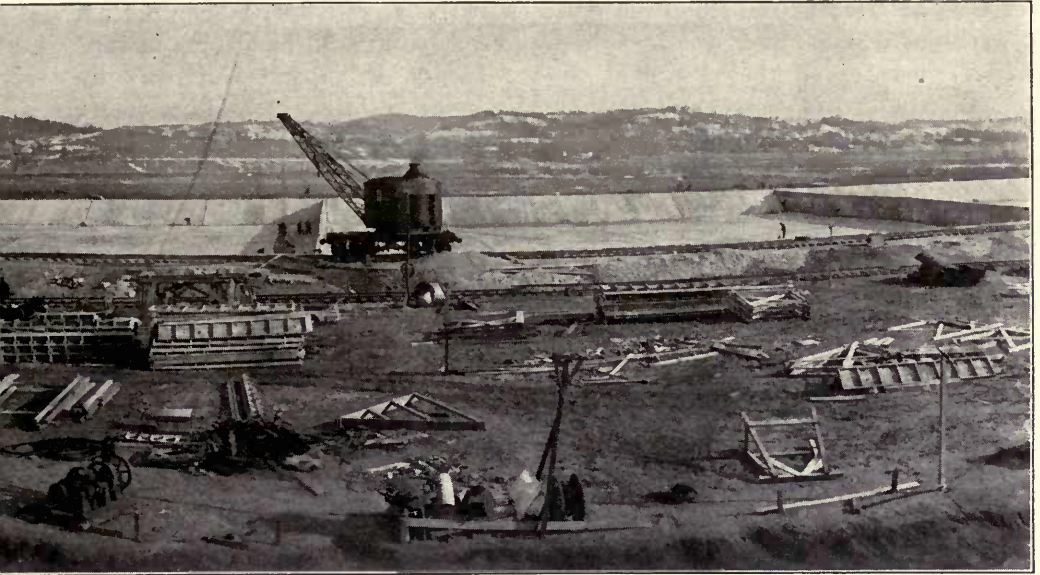
6. Hangars at Chanute Field, including boiler house and heating system for 11 hangars at Chanute Field, Rantoul, Illinois.

II. Concrete Highways.

With 13 miles of concrete road in the home state of Illinois built in slightly more than one year as a beginning, the company soon branched out to build such roads in neighboring states, as Iowa and Wisconsin, until now its reputation for "smooth-riding" roads has spread through the east, the company at this time having under construction three fine concrete roads in Pennsylvania. A nearby state has recently given the company the record of having built the best-riding road in its limits.



SECTION OF U. S. GOVERNMENT HOUSING PROJECT IN TRI-C



THREE CITY BLOCKS, FOR THE STORING OF 10,000 CARLOADS OF NITRATE.

III. Industrial Buildings.

Here the list grows so large that there can at best be but a touching of the work accomplished. Outstanding are such projects as the Deere Harvester Plant in East Moline, where five large buildings were under construction at one time; the Root & Vandervoort-Wagner Ordnance plant, a huge two-story brick building with monitor bay and crane way, all turned over complete in 70 days; the Deere Foundry and Service building, Moline Power Plant, Crescent Macaroni and Cracker factory, Davenport, Iowa, etc.

IV. Miscellaneous. (Business Blocks, Schools, Clubs, Residences, etc.)

As samples of business blocks in the Tri-Cities, such buildings may

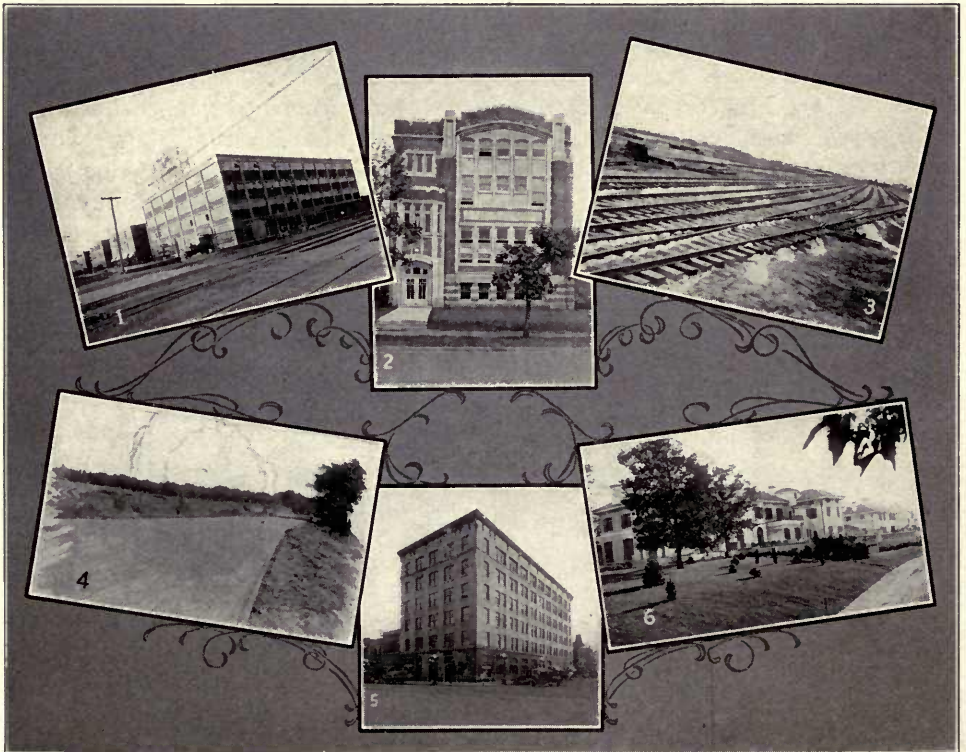


HOUSES COMPLETE, INCLUDING DECORATING, ALL IN 117 DAYS.

be cited as the Robinson building, Rock Island, for the completion of which, under unusually trying circumstances, a handsome reward was given the president of the Henry W. Horst Company by the owner of the building; the Reliance building in Moline, where a bonus for speedy completion was awarded the Company; the Safety building, Rock Island, the Watch Tower Inn (completed in fifty days). Typical schools are the Washington school and the Immanuel Lutheran school and hall, both in Rock Island. Among residences are the Huber residence, Rock Island, and the Soverhill residence in Moline, both perfect in every appointment; and in the line of clubs, the Rock Island Club is outstanding.

For further record of construction the reader is referred to the Henry W. Horst Company's booklets of recent years.

As evidence of continued wide-awake management, under the younger Mr. Horst, the Company, just as this history goes to press, has succeeded in getting through the LeClaire Canal, before its completion, barges conveying material to a point on the Iowa side of the Mississippi, where they are opening a new highway project. The Company thus becomes pioneer users of the Canal.



TYPICAL OF VARIED LINES OF WORK.

1. Industrial—Deere Harvester Buildings. 2. Schools—Immanuel Lutheran. 3. Railroads. 4. Concrete Highways.
5. Business Block—Safety Building. 6. Residences—Huber Home.

"Seventy Years of Service"

INTRODUCTORY:—The following sketch of the Rock Island railroad, as it relates to the Arsenal on Rock Island, has been compiled from the story of the Rock Island Lines, entitled, "Seventy Years of Service—from Grant to Gorman," written by F. J. Nevins, and published by that railway, incident to the celebration of its Seventieth Anniversary on October 10, 1922. Copies of "Seventy Years of Service" may be obtained by writing Passenger Traffic Department, Rock Island Lines, LaSalle Station, Chicago, Illinois.



MOVING westward through America, the "Star of Empire" has closely followed the lines of the great railroad systems. The steamboat and the ox train sufficed for the needs of the early settlers, but fell far short of affording transportation facilities required for the upbuilding of the inland industry of the Great Middle West.

The steam locomotive came in time to prevent the United States from falling apart into two or more separate political units. The steel rail linked our far flung settlements together and still holds them in a union that depends absolutely upon efficient and economical transportation.

The Chicago & Rock Island Railroad, now known as the Chicago, Rock Island and Pacific Railway, was the first railroad to connect the Mississippi river with the Great Lakes and with the rail systems then being developed in the east. It was the first to bridge the "Father of Waters" at any point, and the first to reach out into the western country beyond, then the land of the Indian and the buffalo.



James E. Gorman, President

Seventy years ago the Mississippi constituted a formidable barrier to the growth of the great land lying west of the Trans-Mississippi states. Little do we realize now how great an obstacle the river was to the westward movement of human beings and goods necessary to the development of the territory lying beyond the shores of this mighty stream. As yet, it was unspanned by bridges and the art of the railroad bridge builder was in its infancy, comparatively speaking.

Slow and uncertain ferries, often propelled by horse power, afforded the only means of crossing. Westward traffic sought out the places where topographical conditions offered the easiest approach on both sides, and at those points settlements sprang up. When the railroads came, the favored points of intersection of land and water transportation lines took on new impetus and rapidly became cities.

This is what happened when the first railroad pushed through to the Mississippi in 1854. The "Chicago & Rock Island" found three healthy villages—Rock Island and Moline, Ill., and Davenport, Iowa—at its crossing point with the Mississippi. It made them cities in a surprisingly short period. Had the builders of the road selected a different route, the twenty-odd square miles now lying in their corporate limits would still be used mostly for agricultural purposes. Without the Rock Island railroad there is small likelihood that Rock Island Arsenal ever would have been established.

Therefore, the story of the building of the "Chicago & Rock Island" railroad, with its pioneer feat of bridging the Mississippi, forms an integral part of the history of the World's Greatest Arsenal. It is a significant fact that preparation of this book was undertaken while the Rock Island Lines were planning observance of their 70th anniversary, falling on October 10, 1922.

It has been generally assumed that the name of this great railroad system was taken from the city of Rock Island, but this is not the case. It was the Island, the site of old Fort Armstrong, which suggested the appellation for the road, just as it did later for the city of Rock Island. As a matter of fact, when the rail line was first conceived in the minds of a few enterprising citizens of northern Illinois and western Iowa, the town of Rock Island was still known as Stephenson, the name selected by its founders.

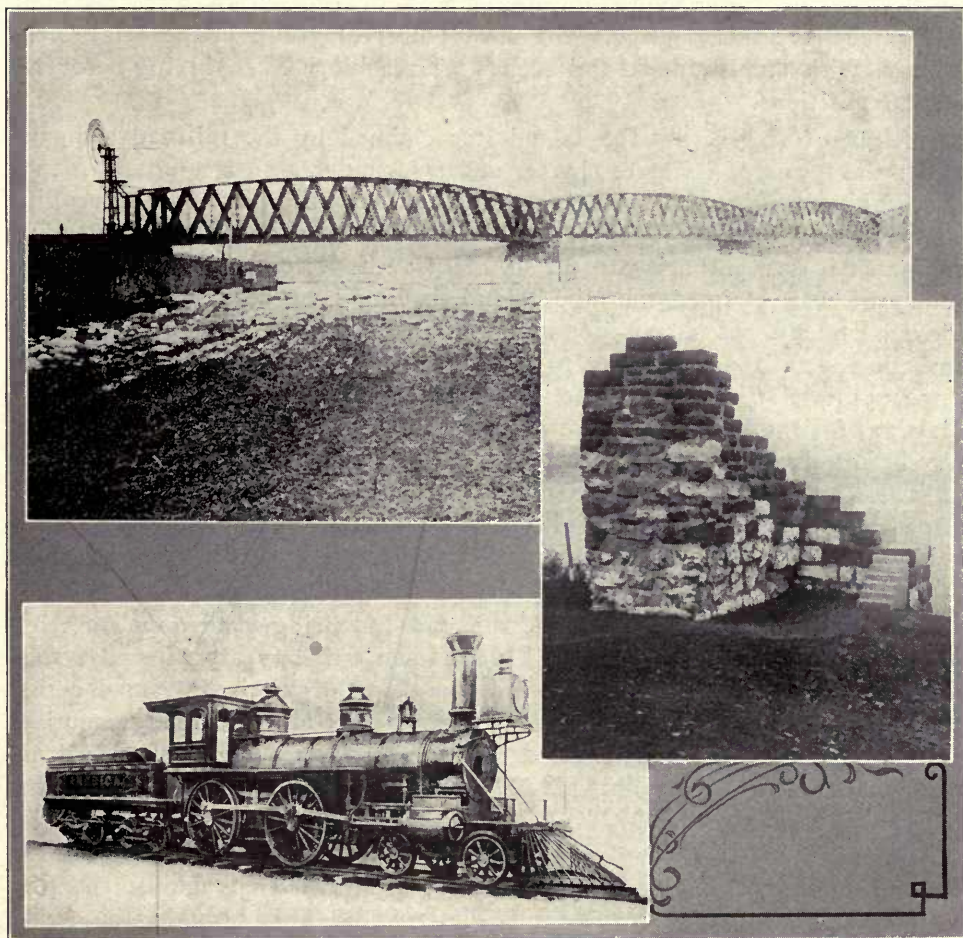
Soon after the Indian menace to white settlers had been removed in the Black Hawk war, a dozen men whose homes were in the district between Chicago and Davenport interested themselves in the project to build a railroad connecting the Mississippi at Rock Island with the Illinois river at LaSalle—the western end of the Illinois and Michigan canal, the water route west from Chicago. In 1845 application was made to the Illinois legislature for a charter for the "Rock Island & LaSalle Railroad Company." February 27, 1847, a company was formed under that name and with \$300,000 capital. Judge James Grant, of Davenport, was the first president.

There was plenty of local enthusiasm, but sales of stock dragged. A railroad-building scheme financed by the state of Illinois had just failed miserably, after \$10,000,000 of the tax payers' money had been sunk. So the Rock Island & LaSalle did not at first find much favor among those with money to invest. Discovery of gold in California in 1848 eventually furnished the impetus which set the project in actual motion.

In 1850 congress was asked for a right of way through public lands and the Illinois legislature was petitioned for extension of charter rights necessary to make Chicago, instead of LaSalle, the eastern terminus. The name became the "Chicago & Rock Island Railroad Company." Since the line between Peru and Chicago would compete directly with the state-

owned canal, a stipulation was forced by the legislature upon the railroad company requiring it to pay to the canal trustees sums equal to canal freight charges on all commodities except live stock carried by rail between the points named.

October 1, 1851, construction was started by Farnum & Sheffield, of New Haven, Conn., and the first passenger train was run from Chicago to Joliet on October 10, 1852. Late that year, at a banquet in Davenport, a project



Above view shows first bridge across Mississippi River. View to right is Island abutment of bridge, preserved as memorial. View to left is of the famous Rock Island "Silver Engine" of the early seventies.

to build a line through Iowa to the Missouri river and to bridge the Mississippi at Rock Island was informally launched.

The Mississippi & Missouri Railroad Company was formed under the laws of Iowa, February 22, 1852. In May following, the first rail was laid

on the Iowa side. January 17, 1853, the Illinois legislature granted a charter to the "Railroad Bridge Company," formed by those interested in the rail lines it was planned to connect. July 16 of the same year John Warner, the contractor, began work on the first pier on the Iowa shore of what was to become the first bridge across the Mississippi.

River transportation interests naturally viewed prospective rail competition with apprehension. Therefore, they united for the purpose of obstruction. At first the idea of bridging the river was merely ridiculed as foolhardy. Later more forcible means of opposition were adopted. Rivermen were then, perhaps, the most powerful group in the Mississippi Valley, with ample funds and means of reaching those in high governmental positions.

Right of way across the Island was claimed by the railroad company under the terms of its state charter and also under act of congress, giving use of necessary space through public lands to all railroad and turnpike companies. The Iowa legislature had formally sanctioned the undertaking so far as it had authority to do so. However, Jefferson Davis, then secretary of war, claimed that the Island, having been set aside for use of his department, was not public land and the state had no rights therein. He forbade the railroad company to lay tracks or build a bridge there. Next came application for an injunction in the federal court for the northern district of Illinois, made at the request of the secretary of war. Hearing was before Judge John McLean in July, 1855, title of the case being "The United States vs. the Railroad Bridge Company, et al." The federal district attorney contested both the right-of-way on land and the building of the bridge, which was held an obstruction to navigation, but the court held with the defendant, and denied the motion for injunction.

In the meantime, work on the railroad and bridge had gone on without interruption, and on April 21, 1856, nearly two years after the road through Illinois had been completed, the first locomotive steamed across the "first bridge" to the Iowa shore. Next day a train of three locomotives and eight passenger cars crossed. The aggregate weight of this train was 67 tons. Trains weighing 2,200 tons now daily, almost hourly, cross the bridge at Rock Island.

Two weeks after the bridge was opened, the steamer Effie Afton became unmanageable just above the draw span, drifted against the pier and took fire. Boat and span were destroyed. This brought the wrath of the rivermen to a climax. Suit for damage followed. Judge McLean again presided, the case being "Hurd, et al vs. the Railroad Bridge Company." Abraham Lincoln, after visiting Rock Island to familiarize himself with the situation, and especially with the river currents at the bridge, appeared for the defense. It was one of the last cases in which he took part before turning his attention to the political movement which later carried him into the presidency of the United States, and served to call national attention to Mr. Lincoln.

A vast mass of evidence was presented to prove the bridge an obstruction to navigation. Lincoln handled the issue with his usual skill and secured disagreement of the jury, thereby exceeding the expectations of his clients. Public sentiment admittedly was averse to the defense.

About this time congress took a hand in the controversy, ordering an investigation to determine if the bridge were, in fact, a serious obstruction to navigation. The committee on commerce conducted the inquiry and decided in the affirmative, but added that in its opinion the courts were fully qualified to deal with the situation. Congress concurred in the finding.

Encouraged by the report of the committee, the river interests made one more fight. James Ward, a St. Louis steamboat owner, started an action in the United States Court for the southern district of Iowa to have the bridge declared a nuisance and secure an order for its removal. This the court, in due time, did, Judge John M. Love finding the structure "a common and public nuisance," and ordering destruction of the three northern piers with their superstructure, which lay within the jurisdiction of Iowa. This order was not carried out, because the United States Supreme Court, in December, 1862, reversed the finding of the District Court. That ended the litigation, which had been watched with interest all over the country, involving, as it did, questions which presented themselves wherever railroads were compelled to cross important navigable streams.

Much that is of interest necessarily has been omitted from this brief outline of events attending the pioneer work of building the Rock Island Lines. With the later history of the system the present generation is more or less familiar. How the road first planned merely to connect two inland waterways, scarcely 100 miles apart, has grown into a great system of 8,122 miles, extending its service to the Pacific coast and forming the leading artery of commerce through the most productive areas of the Middle West; how it always has kept abreast of or a little in advance of the times, mechanically, and in meeting the needs of its territory; how it has built up the Tri-City community about Rock Island and made the development of the Arsenal there possible, need be no more than referred to here. Its tracks form a network, many miles long in the aggregate, in the



Leon M. Allen, Vice-Pres. and Gen'l Traffic Mgr.



General Offices and Chicago Terminal Rock Island Lines

district about the Island, and its great locomotive repair shops at Silvis, nearby, are among the largest in the land.

Having exclusive access to the Island, the Rock Island railroad is, and always has been, the right arm of the Arsenal. This was again made plain during the World War, when thousands of carloads of material and finished products were handled in a manner that was entirely satisfactory. After the armistice was signed, thousands of carloads of war material were returned there for storage.

Always the Rock Island Lines have been closely identified with the community surrounding the Island which gave the system its name. This desirable condition has been furthered by the personal contact of a number of high executive officers of the company with the Tri-Cities. Judge James Grant, a Davenport man, was president of the original company. R. R. Cable, later identified with the road as president and chairman of the board of directors, made his home in the city of Rock Island for many years. Leon M. Allen, now vice-president and passenger traffic manager, began his career in Davenport, and naturally feels a strong personal interest in the locality.

The Rock Island road was founded by men of broad vision and keen foresight. Those who have managed it have been able and enterprising. Service has been their watchword. They have realized that in the up-building of its territory lay the railroad's opportunity for growth.

The historian's part is not only to record events, but to indicate causes. The story of the Rock Island Lines is an interesting story. It involves the typical play of forces which have made the United States the greatest nation on earth. It tells how the "Star of Empire" came to the Mississippi river, and beyond.

The Tri-Cities and The Burlington Railroad

In the development of the business community embracing the cities of Davenport, Rock Island and Moline, together with East Moline and Bettendorf, and known as "The Tri-Cities," a distinctive factor of constantly increasing importance has been and is the Chicago, Burlington & Quincy Railroad, which serves this great region through four gateways—its two lines from Chicago, one via Mendota, Prophetstown and Denrock, formerly known as the Illinois Grand Trunk; the other via Aurora, Shabbona, Sterling and Barstow to East Moline, formerly known as the Chicago & Rock River Line; its line from East St. Louis, formerly the Rockford, Rock Island & St. Louis, and the Davenport, Rock Island & Northwestern, with its Crescent bridge, in which the Burlington owns a one-half interest.

A brief sketch showing how these four important Burlington lines entered into the transportation business in the Tri-City territory is of absorbing interest.

I

The C. B. & Q. Railroad (Burlington Route) was born in Aurora, Illinois, with four lines diverging east, west, north and south.

The Burlington is the shortest rail line between Chicago and Rock Island—the distance from Chicago via Mendota and Denrock to and into Rock Island being 169 miles. This route is over the Burlington's main line from Chicago to Mendota, thence to Denrock over the old Illinois Grand Trunk (incorporated in 1852 as the Joliet and Terre Haute, and re-organized in 1859, but not actually built to Denrock until 1871), and thence into Rock Island in 1879.

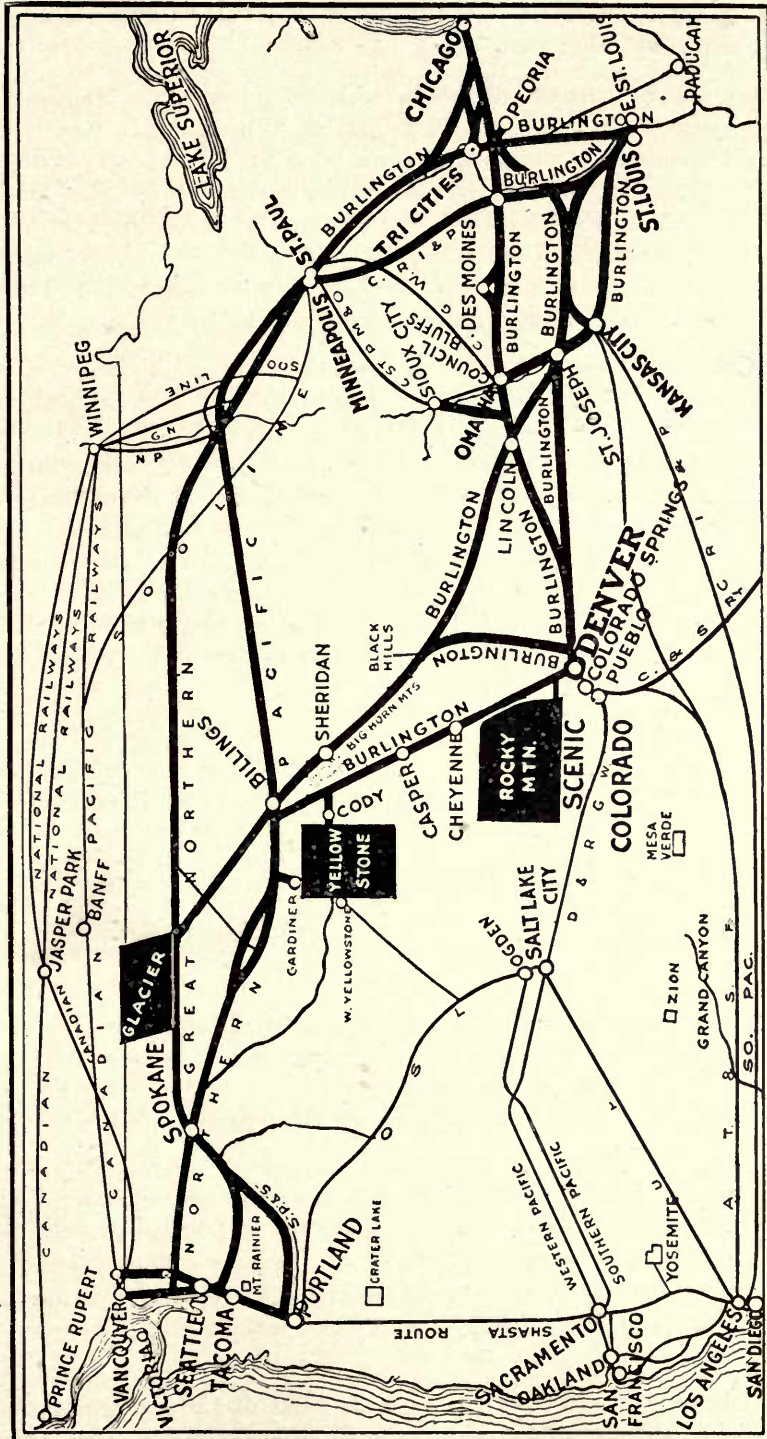
II

The Burlington's other line from Chicago comes in by way of Sterling and Barstow to East Moline, then into Davenport over the Crescent bridge. This line from Aurora to Shabbona is the old Chicago & Iowa; from Shabbona, as the old Chicago & Rock River, it heads for Rock Falls and Sterling, thence to Barstow and into East Moline, and then into Moline, utilizing a part of the old Rockford, Rock Island and St. Louis.

The Chicago & Rock River was organized in 1867, completed to Sterling in 1884, and provided an additional Burlington-all-the-way Tri-City-Chicago line. Thousands of cars of freight are annually handled over these two lines.

III

The story of the 300 miles of Burlington rails stretching south from the Tri-Cities to East St. Louis is filled with human interest. That splendid railroad is the product of the genius and courage of a distinguished citizen of



CHICAGO, BURLINGTON AND QUINCY RAILROAD

Iowa—Judge George Greene—who did more to develop Cedar Rapids and its industries than any other man.

The original company, called the Rock Island & Alton Railroad, which had authority to build "from Rock Island to Whitehall, in Green County, Illinois, and thence to Illinoistown" (now East St. Louis), was incorporated by a special act of the Illinois Legislature, February 14, 1855. This was a "paper" railroad. In 1859 its name was changed to St. Louis, Alton & Rock Island. That company secured a large part of the right of way, and in 1860 had built a railroad grade between Beardstown and Whitehall. Then came the Civil War, which stopped all railroad building.

After the war Judge Greene conceived the idea of building a north and south railroad from Rockford, via Rock Island, to St. Louis, and incorporated his company as the Rockford, Rock Island & St. Louis. This was a part of the great movement for railroad building after the war, which culminated in the panic of 1873. Judge Greene's Rock Island road went down with a crash. The mortgage was foreclosed, and in 1876 the line was sold at public auction to Heymann Osterberg, who represented the Holland bondholders. They re-organized the company under a new name—the St. Louis, Rock Island & Chicago—and sold the road to the Burlington, which, in 1879, built into Rock Island from Port Byron Junction (seven miles), thus bringing the Tri-City territory into their system.

From Concord, below Beardstown, north, this line is utilized by the Burlington as part of its important through coal route, over which thousands of cars of southern Illinois coal are carried annually to St. Paul, Minneapolis, and the great Northwest.

Judge Greene lost his money, but his railroad remains to serve the public for all time.

IV

It was a business stroke of the Burlington to promote the construction of the Davenport, Rock Island & Northwestern, including the Crescent bridge, organized in 1884 as a bridge company by citizens of Davenport, who secured an Act of Congress authorizing the construction of the bridge.

But the company had no money with which to build, and the project hung fire for ten years. In February, 1895, the name was changed to Davenport & Rock Island Bridge, Railway & Terminal Company, its articles amended to provide for a railroad also from the foot of Perry street across the bridge into Rock Island. In 1898 the name was changed to the present company. The bridge cost \$1,500,000 and was opened for business on January 1, 1900.

The money to build the bridge and the lines of railroad connected with it was furnished through the credit of the Burlington and St. Paul companies

jointly, and those two companies operate not only the bridge but the railroad. Under the name "Davenport, Clinton & Eastern," these two companies built a line 34 miles long between Clinton and Davenport, which is also used jointly. Burlington passenger trains between Minneapolis, St. Paul and St. Louis use this route through Davenport, Rock Island and Moline.

About the same time, pursuant to other plans for developing a great terminal system to serve the Tri-Cities, the companies named organized railroads in Illinois to extend these lines to East Moline and other points in Rock Island County.

As a result of all these activities, the Burlington is in an enviable position to provide a highly important and genuinely useful transportation service to and from the hearts of Davenport, Rock Island and Moline—prepared to serve the public with the necessary facilities to enable it to receive food and other essentials, raw materials, forward finished products, and travel to and from all parts of the world. In this Tri-City territory the Burlington and its interests own in round number 208 acres of land occupied by industrial tracks and terminal facilities which reach all important industries, enabling the road to serve them cheaply with the very best quality of Illinois coal and at the same time with its own rails placing them in close touch with the markets of Chicago, St. Louis, St. Paul, Minneapolis, Peoria, Omaha, Denver, St. Joseph, Kansas City, and all points on its 9,389 miles of road reaching into eleven great states, as well as all points on all connecting lines.

The Tri-Cities have a great future, and the Burlington is prepared to promote the interests of the Tri-Cities by providing a businesslike and dependable transportation service.

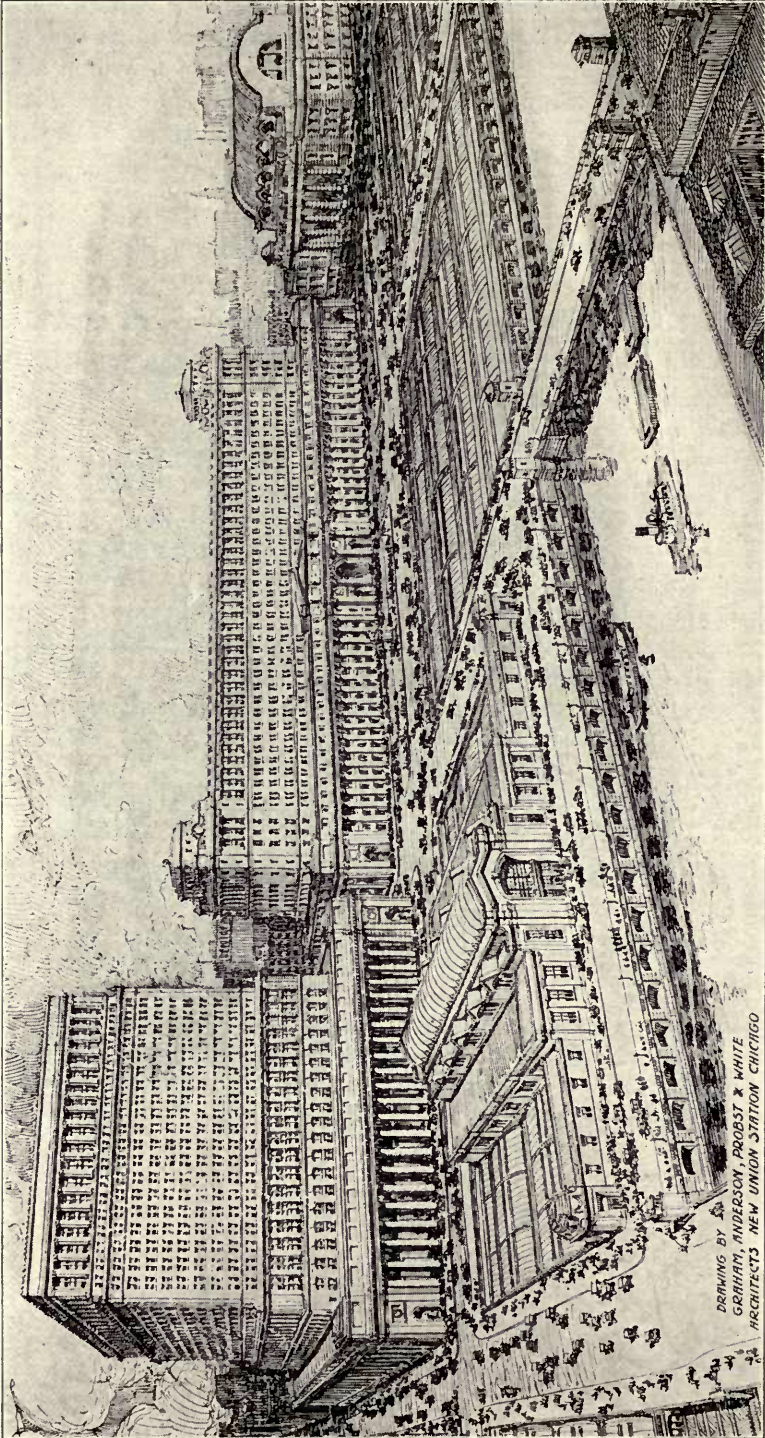
Tri-City passenger business of the Burlington is in charge of the following:

M. H. Teed, Passenger and Ticket agent, foot of Perry street. Phone 743, Davenport.

G. H. McEwen, Ticket Agent, 20th Street Station. Phone 764, Rock Island.

H. S. Fristoe, Ticket Agent. Phone 860, Moline, Moline Passenger Station.

H. W. Crawford, Division Freight Agent, is located in the 20th Street Station, Phone 679, Rock Island.



DRAWING BY
GRIHAM, ANDERSON, PROBST & WHITE
ARCHITECTS NEW UNION STATION CHICAGO

NEW UNION STATION
The Chicago Terminal of the C., B. & Q. R. R. and the C., M. & St. P. R. R.

The Chicago, Milwaukee & St. Paul Railroad

Men are deeply interested only in those things which touch and become a part of their lives. The more intimate and constant the association, the greater the interest.

Breathes there a man with soul so dead that the sight or sound or a moving railroad train does not thrill some fibre of his being, or awaken at least a faint yearning for change of scenery, for travel or adventure? Tied down to his daily routine behind desk or counter, the whistle of a passing locomotive suggests to the city man the free out-of-doors and restful rural scenes, while the same sound brings to the farmer or villager visions of the busy marts of trade and centers of industry, with their bustling crowds and hum of traffic. The man in the freezing north thinks of the balmy south, while the man in the torrid clime thinks of places where there is deep shade, or where cooling breezes blow. Few among us fail to sense in the sound a subtle invitation, and in some measure to respond to it.

So much for the romantic side. Getting down to brass tacks, the whistle of a locomotive means to nine-tenths of our inland population something rather more practical, if more prosaic. It means bread and butter, clothing, shelter, fuel. It means practically all the necessities of life, with the comforts and the luxuries thrown in. Without the railroad this productive and thriving Middle West would now be but little farther advanced than it was when our forefathers of the covered wagon found it. Small wonder, then, that the story of the building and operating of our great railroad systems is one of universal interest.

More than half a century has been required for the building of the Chicago, Milwaukee & St. Paul Railway as it is today—half a century filled with stirring events, with struggle and conquest over the forces of nature and rival transportation interests. From a small beginning, it has reached out mile by mile, first over the upper Mississippi valley, then over the Missouri valley, then across the plains and mountains, finally pushing its lines through to the Pacific coast. Wherever it has gone it has been a builder of wealth and population, bringing civilization to regions that but for its coming would have remained little more productive or inviting than the desert.

In 1863 the Milwaukee & St. Paul Railway Company was formed, and purchased at foreclosure sale 105 miles of railroad, extending from Portage, Wisconsin, to LaCrosse, on the Mississippi. Though it was the ambition of the promoters to unite the Wisconsin metropolis with the rapidly growing community at the head of navigation on the Mississippi, it was some time before their line reached either point. Access to Milwaukee was gained by purchase of a number of short lines, but the company operated wholly within the state of Wisconsin for a number of years.

The first stockholders' meeting was held in 1865. Alexander Mitchell was the first president and S. S. Merrill the first general manager. Both

held office many years, the property growing into a trunk line railway under their administration.

In 1867 two lines being built from McGregor, Iowa, to St. Paul, by way of Austin, Minn., were bought, and in November of that year a road was opened for business, being the first to connect Milwaukee with the Twin-Cities, St. Paul and Minneapolis. At first a ferry was used to transfer cars across the Mississippi between McGregor and Prairie du Chien. The company changed its name to the "Chicago, Milwaukee & St. Paul" in 1872, and the following year it completed its own line to Chicago.

At the close of the nineteenth century the Milwaukee system embraced more than 8,000 miles of track, its rails criss-crossing Wisconsin, Iowa, Minnesota and South Dakota, and reaching up into North Dakota and down into Missouri. It had bridged the Mississippi river at six places and touched the Missouri at almost as many points.

Coming of the Milwaukee to Moline and Rock Island was over the old Western Union line between Savanna and Port Byron. That road, promoted by Milwaukee interests, was completed in 1870, purchasing the Chicago, Rock Island & Pacific's stub line between Port Byron and Port Byron Junction, now East Moline, and using the Rock Island's tracks and terminals in the two cities. In 1881, the Western Union was absorbed by the Milwaukee, though the latter did not secure terminals of its own until 1900.

Prior to 1874, the Davenport & St. Paul Railroad Company was organized to construct a rail line from Davenport to St. Paul. This corporation built north from Davenport to Fayette, Iowa, with a branch from Eldridge, about eleven miles from Davenport, to Maquoketa, and crossing the C. M. & St. P. line at Oxford Junction. The company was reorganized in 1876, under the name of Davenport & Northwestern, and the property was transferred to the C. M. & St. P. in 1879.

Through co-operation with the Chicago, Burlington & Quincy, the Milwaukee eventually came into possession of a well-planned terminal system covering the Tri-Cities, including the suburbs of East Moline and Bettendorf, and also the joint ownership of a bridge across the Mississippi river and a line along the river to Clinton, Iowa. Several corporations were formed to execute plans for this development. The Davenport, Clinton & Eastern was organized in 1895 and completed the road from Davenport to Clinton in 1898. The bridge was built by the Davenport & Rock Island Bridge, Railway and Terminal Company. The different corporations were later merged as the present Davenport, Rock Island & Northwestern, the property being jointly owned and operated by the Milwaukee and Burlington companies.

In 1901 the Milwaukee completed a cut-off between Muscatine and Ottumwa, Iowa, and began operating its southwest service from Chicago

to Kansas City via the Tri-Cities. Tracks of the Rock Island are used between Davenport and Muscatine. Terminal yards were built at Nahant, just west of Davenport.

After the Spanish-American war, giving the United States a foothold in the Orient, the growing importance of Pacific coast trade was brought to the attention of middle western railroads. The Milwaukee, however, was the only one among them that saw fit to reach out for this business with a line of its own through to the western slope. Several years were spent in making surveys, and in April, 1906, building of the new trans-continental line was begun. This extends from Mobridge, S. D., westward across the Dakota prairies, the Montana plains and three great ranges of mountains, the Idaho panhandle, the eastern Washington hills and valleys and the Cascade mountains, ending on Puget sound at Seattle and Tacoma. The last spike was driven in July, 1909, making the completion of 1,500 miles of heavy construction. Freight service was inaugurated at once, passenger trains followed two years later, after the road had been brought to a high state of perfection and thoroughly tested. About seven hundred miles of this road, including sections with the heaviest grades, have since been electrified. The company was one of the first to make so extensive a change in its motive power, and the undertaking attracted the attention of railroad men all over the world. The economies effected have more than justified the added investment.

The Chicago, Milwaukee & St. Paul owns and operates its own sleeping and dining cars. It was the first to introduce electric lights on trains and the first to operate solid steel trains in trans-continental service. Its position has been one of leadership in every department of railroading. It now has 10,635 miles of track, traversing a rich agricultural territory, the greatest grain growing belt in the world, and placing it in touch with the world's markets, east and west. With its four lines radiating from them, and its comprehensive terminal system, it offers the Tri-Cities the best of service.

Officers of the Chicago, Milwaukee & St. Paul Railway are:

Mr. H. E. Byram, President; Mr. B. B. Greer, Vice-President, in charge of operation; Mr. R. M. Calkins, Vice-President, in charge of traffic; Mr. H. B. Earling, Vice-President, Seattle, Wash.; Mr. E. D. Sewall, Vice-President, Chicago; Mr. C. B. Ferry and Mr. George G. Mason, Vice-Presidents, New York City; Mr. J. T. Gillick, General Manager, Chicago; Mr. Macy Nicholson, General Manager, Seattle; Mr. H. E. Pierpont, Traffic Manager, Chicago.

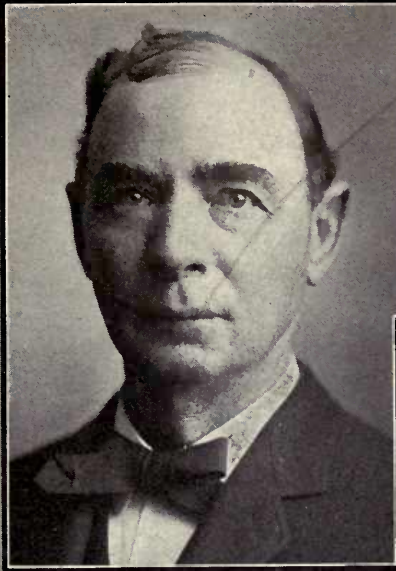
The Walsh Construction Company

Half a century ago, when the original shop buildings were in course of construction, a young Davenport, Patrick T. Walsh by name, worked at Rock Island Arsenal as stonecutter. Marks of his chisel may be seen to this day upon many a block in those durable walls, for he spent eleven industrious years there, serving his apprenticeship and becoming a skilled workman.

More than forty years later the Walsh Construction Company, which this same young man had organized and made a power in its field, and to which he had given his life, came to the aid of the national government in the trying days of world conflict, and helped to complete Rock Island Arsenal as it stands today. Manned, equipped and organized for doing big things promptly and well, and still animated by the spirit of Pat Walsh, it quickly turned from peace work to war work. Many of the new storage and other buildings that sprang up on the Island during and immediately after the close of the war stand as monuments to its efficiency and patriotism.

Strangely enough, there is something more than a casual connection between the employment of Pat Walsh as stonecutter at the Arsenal and the services rendered during the World War by the company bearing his name. If the young man had not been a building tradesman on the Island, it is more than possible that there never would have been a Walsh Construction Company. For young Walsh lost his job. They said he was an agitator. He led a fight for an eight-hour day, winning the contest, but losing his standing with the bosses. And so, thrown upon his own resources, with a family to support, he became a contractor.

At first his undertakings were small, and his work gave little evidence of his latent abilities. From stone cutting he turned to dirt moving. He dug cellars and sewers, laid water mains, and gradually prepared himself for more ambitious things. Finally, after some years, during which he had managed to accumulate a little capital, he secured a contract to make a fill on the Chicago, Burlington & Quincy railroad at Galva, Illinois, and thus entered upon an era of railroad construction which probably has not been equalled by any other contracting organization in the United States. Thousands of miles of track have been laid and millions of yards of earth and stone have been moved. Single operations undertaken by the Walsh companies have involved the expenditure of millions of dollars. The reputation of Mr. Walsh as a builder and the magnitude of his resources may be judged by the fact that he was one of the few construction men asked to bid on the excavating of the Panama canal when it was planned to have the work done by private contract. Had that method been followed, there is



PATRICK T. WALSH,
Founder of the Company



THOMAS J. WALSH,
President



HENRY C. KAHL
Vice-President

little doubt that the Walsh organization would have figured prominently in the enterprise that connected the two oceans at the Isthmus of Panama.

For many years railroad construction of all kinds has been given special attention by the Walsh companies. Not infrequently, however, they have gone out of their particular field to erect buildings and bridges and to do canal, harbor and dock work. Besides the Arsenal work already referred to, some of the most notable undertakings in the Tri-Cities are the Kahl building and the upper four floors of the Blackhawk hotel in Davenport. Walsh companies have operated at one time or another in nearly every state in the Union. A fully equipped organization is maintained, capable of almost any enterprise in the line of construction.

In addition to work done at Rock Island Arsenal during the war, the Walsh Construction Company was extensively engaged in the erection of storehouses at the Savanna Proving Grounds, which are an adjunct of the Arsenal. The Symington plant at Chicago, another large supply depot, was also completed for the War Department, and much equipment was rented to the American International Ship Building Corporation for use at the Hog Island ship yards.

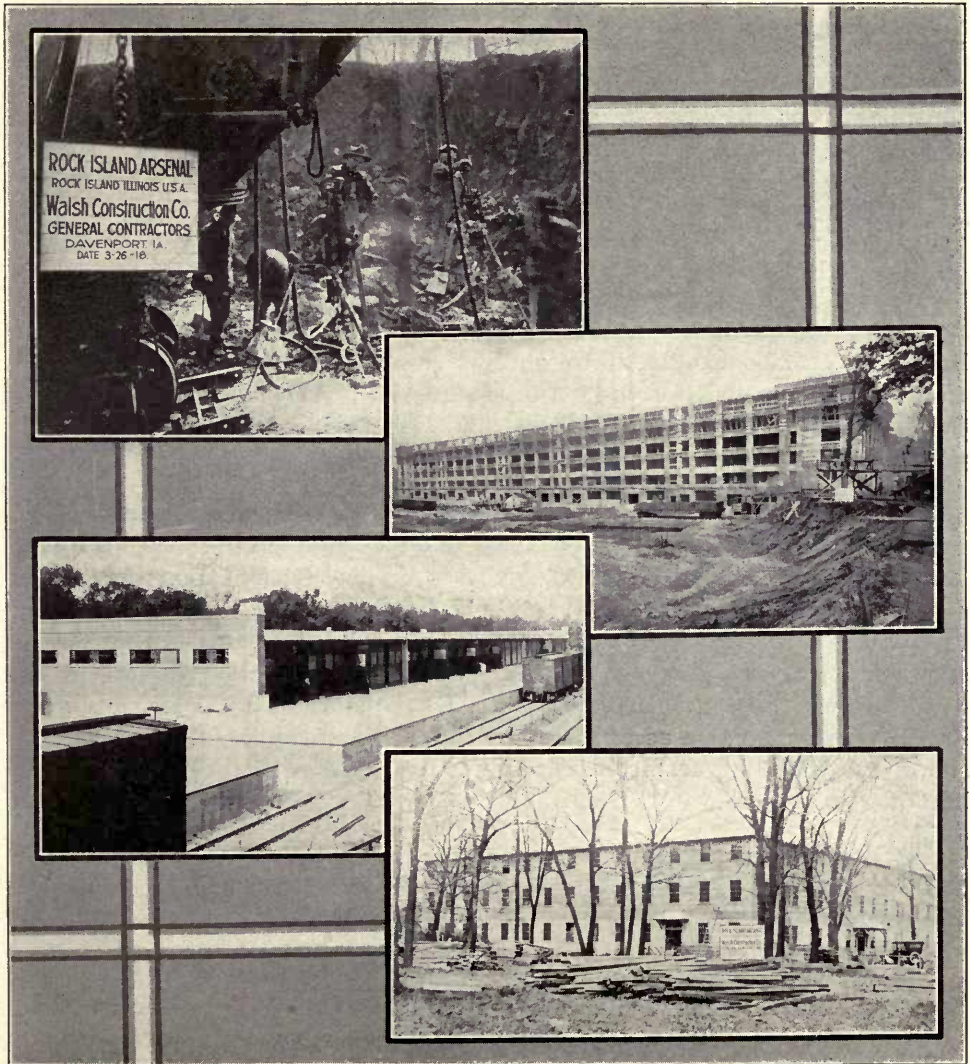
At Rock Island the company built a concrete general storage building, five vehicle storehouses, office building No. 2, civilian hospital, ward and isolation hospital, and bakery, and remodelled barracks "B" and "C" and the Y. M. C. A. building; the total cost being approximately \$3,000,000.

In its earlier days the Walsh organization did considerable street paving, a number of the leading thoroughfares in the Tri-Cities having been improved. Latterly little attention has been paid to street and highway work. Most of the more recent railroad construction has consisted of widening cuts and fills, reducing grades, double tracking, and building yards, freight and passenger stations, engine houses, car shops and bridges. Much of the construction work of the New York Central is done by this firm. Other lines with which the company has had extensive business relations include the Hudson River road; Big Four; Cleveland & Youngstown; Erie; Chicago, Milwaukee & St. Paul; Chicago & Northwestern; St. Louis & San Francisco; Illinois Central, and New York, Chicago & St. Louis. During the current year (1922), the Walsh Construction Company undertook its largest contract in the building for the Hudson River Road of a bridge across the Hudson at Castleton, N. Y., together with grading on both sides of the river. This is a \$6,000,000 job.

P. T. Walsh died March 16, 1916, at the age of sixty-one. In every good work in the community he had been a leader, and his interests were many. His company he left in capable hands of his own selection and training, and his influence is scarcely less potent now than when he was present in the flesh.

While Mr. Walsh was the dominant figure in all his enterprises, himself doing a prodigious amount of work, it was his faculty for selecting and

attracting other good men, and of uniting them into a highly efficient organization, that made his great accomplishments possible. The loyalty of employees, from the humblest shovelman to the highest paid engineer, was proverbial. That loyalty was won by a magnetic personality and retained by living up to every agreement with his men. The Walsh crews always fared a little better than any others doing the same kind of work. They were better paid and provided with better food and quarters. The Walsh equip-



WORK DONE BY THE WALSH CONSTRUCTION COMPANY AT ROCK ISLAND ARSENAL

Upper left--Drilling for foundation of six story concrete warehouse.

Lower left--Typical one story artillery vehicle storehouse, one of eight completed by this company, dimensions of each being 150x500 feet.

Upper right--View of six story reinforced concrete warehouse during period of construction.

Lower right--Temporary office building.

ment was never allowed to deteriorate. Mr. Walsh knew from experience in the years of his humble beginning that a man must be well fed, comfortable and satisfied with his conditions in order to give good service. Another influence that kept the organization keyed to a high pitch was the knowledge among those capable of larger responsibilities that they would be given their chance. Merit did not long remain unrecognized or go unrewarded. Many a man who started in an humble capacity with Mr. Walsh rose to a place of leadership and affluence, some directing branch companies bearing their own names. Among the auxiliary concerns thus formed were the Kahl Construction Company, the Walsh-Kahl Construction Company, the Walsh-Hogan Construction Company, the McGrath Construction Company, the T. J. Walsh Construction Company and the Walco Construction Company. The subsidiary concerns were merged in 1899, and incorporated under the laws of Iowa, and with the present name, P. T. Walsh being first president.

Present officers of the Walsh Construction Company are: President, T. J. Walsh; Vice-President, H. C. Kahl; Treasurer, E. P. Walsh; Secretary, M. A. Kennedy. The president and treasurer are sons of the founder of the concern. Headquarters are maintained in Davenport, with branches at Syracuse, N. Y.; Cleveland and Sydney, Ohio; and Chicago. Work east of Buffalo, N. Y., is handled through Syracuse; the Cleveland branch looks after general construction in nearby territory, while Sidney covers the field farther west. The Chicago office deals with building construction in all parts of the country.

The Company works on a departmental plan, which has been evolved during a long experience and has been found best adapted to the needs of the business. The financial, accounting and insurance department is under the direction of the president, secretary and treasurer. Railroad construction, including grading, concrete and bridge work, is handled through the president and vice-president, assisted by district and field superintendents on each contract. Each branch organization, when placed on a job, is complete in itself, carrying its own accounts, and with full facilities for the purchase of supplies, expediting traffic, handling repairs, etc., reporting direct to the headquarters office.

In general, the plan is designed to give elasticity. Each division, while working through one central control, is adapted to promote action by the local man in charge, so that emergencies may be quickly and efficiently met.

Necessarily the amount of equipment owned and controlled by the Walsh Construction Company is large. It includes standard gauge steam shovels, revolving shovels, drag lines, standard gauge twelve-yard dump cars, standard gauge 50-ton locomotives, Jordan air spreaders, camp cars, elevator grade outfits, teams, locomotive cranes, concrete mixers, together with necessary derricks, pumps, boilers, hoist engines, concrete cars, etc. Equipment is grouped in units, and is seldom moved except from one job to another.

Rock Island Plow Company

The Rock Island Plow Company, one of the foremost agricultural implement concerns in the world, maintains and operates extensive factories and warehouses in the city of Rock Island; branches are located at Minneapolis, Minn., Sioux Falls, S. D., Omaha, Neb., Kansas City, Mo., St. Louis, Mo., Oklahoma City, Okla., Dallas Tex., Denver, Colo., and Indianapolis, Ind. Its products are also handled by jobbers at various other places in the United States, and it is represented in many foreign countries. Its implements are found in every quarter of the globe where modern agricultural methods are followed.

The business was started in 1855, in a small blacksmith shop, by Charles Buford and R. N. Tate, under the firm name of Buford & Tate. This was the year after completion of the Rock Island Railway to the Mississippi River, and the city of Rock Island thereby assumed a new importance as a gateway to the great west, where millions and millions of fertile acres lay waiting for the coming of the plow. There was opening a vast market for agricultural implements, and the goods produced by Buford & Tate found a ready sale.

The first walking plows were made with patented steel shares and moldboards and were warranted to scour in all kinds of soil, and they did scour, thus securing the approval of the farmer, an approval retained to this day. Cultivators, harrows and stalk-cutters were also made from the beginning. The Black Hawk two-horse four-shovel cultivator was the first of its kind, and this style of implement has been of inestimable benefit in the production of corn.

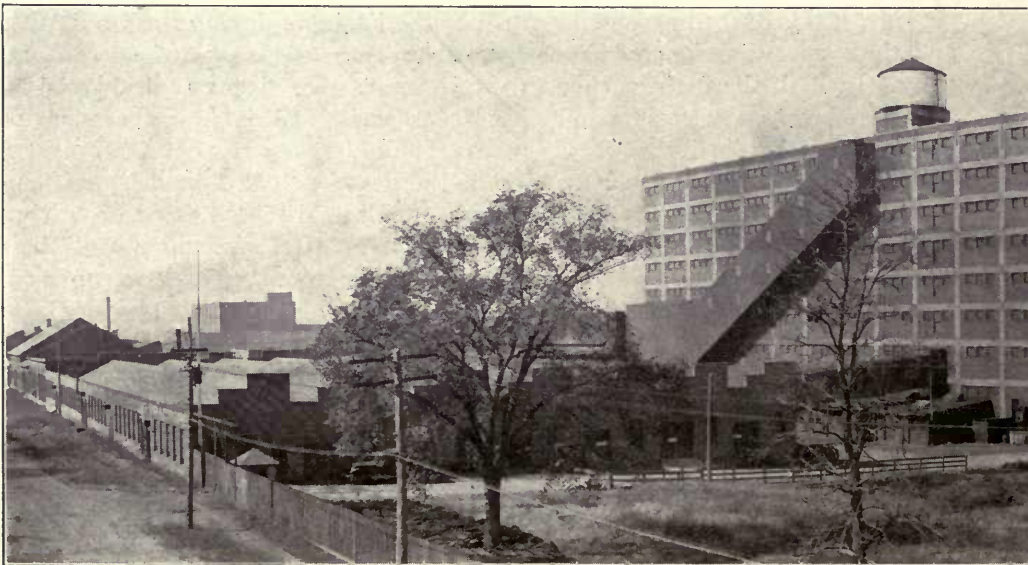
Mr. B. D. Buford assumed control of the business during the Civil War, and the name was changed from Buford & Tate to B. D. Buford & Company. In 1881, the factory, then grown to impressive size, was destroyed by fire. Heavy loss was sustained by the owners, and it was necessary to re-organize the business in order to rebuild. The re-organization was effected in 1884, by the incorporation of the present Rock Island Plow Company. The late P. L. Mitchell and his son, Phil Mitchell, were prominent in the re-organization. In 1907 and 1910 the Mitchell family and their associates sold the bulk of their holdings in the company to a group composed of F. C. Denkmann, J. P. Weyerhaeuser, W. H. Marshall, T. B. Davis and S. S. Davis. Under the new control large additions were made to the capital, the manufacturing and storage facilities were increased, new branch houses were established, and the business greatly expanded.

In 1911 the "Great Western" line of cream separators, manure spreaders and litter carriers was acquired, and their manufacture was commenced at Rock Island; in 1912 the well-known "C B & Q" line of hay tools was taken over; in 1916, the patents pertaining to the "Rock Island Heider" tractor

were purchased, the factory machinery was moved to Rock Island, and soon after a large modern factory of saw tooth design was built and devoted exclusively to the manufacture of tractors. The popularity and consequent demand for the tractor soon forced the doubling of the factory in which it was made. The outstanding characteristics of the "Rock Island Heider" are its power, durability, reliability, ease in operation, and the facility with which it can be changed into a stationary power plant. The production of the tractor naturally led to the manufacture of specially designed plows, harrows and other implements for use with it. More recently the company has developed a winch attachment for the tractor, making it a very successful machine for pulling rods and pipe in oil wells; and it has begun the manufacture of a motor cultivator embodying novel and valuable features, and also the manufacture of a combination power unit, adapted to plowing, harrowing and cultivating, and to use as a stationary power plant.

The original small shop has now grown into a plant with forty acres of floor space for manufacturing and warehouse purposes. The factories are equipped with the best of modern machinery and contain many special machines invented by the company's employees to facilitate the economical production of goods of the highest standard. Among the special machines may be noted the automatic machine for making and ruling check rower wire for corn planters. This machine never fails to arrest the attention of visitors to the factory.

HOME PLANT OF THE



The company has been unusually fortunate in securing and retaining the services of exceptionally skilled workmen and mechanics, who have taken pride in producing goods of the finest quality. Many gifted inventors have contributed their ideas to the improvement of old and the creation of new implements. The moldboard plow was for years considered well-nigh perfect, yet in 1913 an expert of the company, by a new application of certain scientific principles, produced the "CTX" plow, the supreme triumph of plow making. The company was the first to produce a practical hay-loader—a machine which has relieved the farmer of much of the back-breaking labor of the hay field; it produced the first frameless sulky plow, and the first frameless lister—notable improvements in those tools; it was the first to make the disc harrow efficient by adding scrapers to clean away the soil adhering to the discs; and it has been the first in many other improvements, always striving to produce implements that would lessen the toil of the farmer and add to his prosperity.

The present officers of the company are:

President—S. S. Davis.

First Vice-President—J. P. Weyerhaeuser.

Second Vice-President—T. B. Davis.

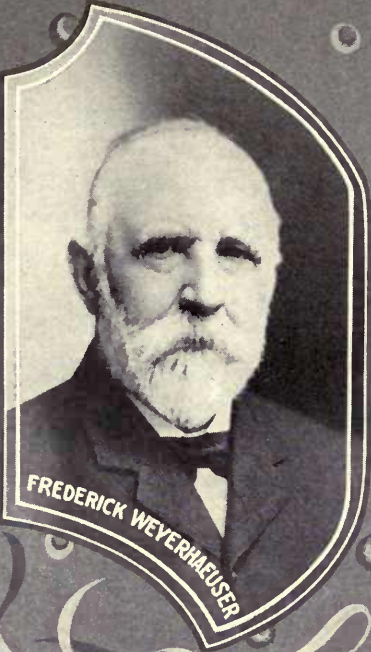
Treasurer—F. C. Denkmann.

Secretary—C. E. Sharpe.

D PLOW COMPANY



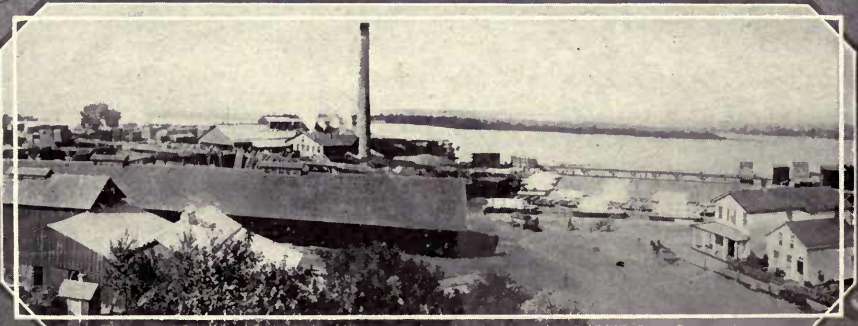
PIONEER ROCK ISLAND LUMBERMEN



FREDERICK WEYERHAEUSER



FREDERICK C. A. DENKMANN



THEIR FIRST SAWMILL

Weyerhaeuser & Denkmann Company

Two men of marked capacity for sound, clear thinking, for hard, persistent work, and for getting things done in a big way united their interests, in 1860, when Frederick Weyerhaeuser and F. C. A. Denkmann, brothers-in-law, formed a partnership at Rock Island for the manufacture of lumber. From a small beginning this firm expanded rapidly, becoming in time, national in its scope, with large interests in many states and exerting a leading force in the organizing of both manufacture and sale of lumber and its products.

Mead, Smith & Marsh, operating a mill at what is now Fourth avenue and First street, Rock Island, succumbed during a financial panic in the late 50's, and Weyerhaeuser & Denkmann bought their holdings and began sawing lumber. At first the senior partner conducted a retail yard at Coal Valley, Mr. Denkmann running the mill. The original capacity was but eight thousand feet a day, but it was doubled the first year and greatly increased thereafter. The first band-saw used in the west was operated here.

Control of the old Porter Skinner mill on Sylvan Slough in Rock Island was acquired in the 70's. Out of this holding there grew the present Rock Island Sash & Door Works and the Rock Island Lumber Company. Late in the 80's the mill of Renwick, Shaw & Crossett, at Davenport, was bought. It was operated for a number of years, but burned in 1901 and was not rebuilt. A retail yard has since been conducted on the site.

For some time logs were bought at the mills from logging firms, but this method of getting raw material was not satisfactory, so standing timber in Wisconsin was acquired, and from that time on the firm cut and rafted all its own logs.

Rafts at first were floated down the river, guided by oars. About 1874 Weyerhaeuser & Denkmann bought the steamer, "C. J. Caffrey," which became one of the first raft boats used on the Mississippi for propelling rafts.

Most of the timber, of course, was cut on the small branches of the river. It was run down in drives to places where boats could go. Weyerhaeuser & Denkmann at first cut white pine on the Chippewa river, rafts being assembled at Beef Slough, Wisconsin.

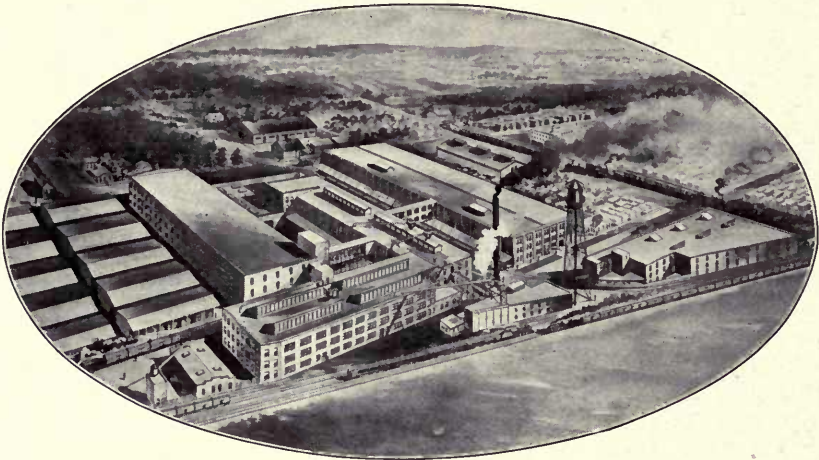
Exhaustion of timber supplies that could be profitably rafted brought about, in a period of a few years, the abandonment of the many sawmills along the Mississippi. Weyerhaeuser & Denkmann operated their mill at Rock Island till November, 1905, when the last log was sawed.

The Weyerhaeuser & Denkmann Company was incorporated in 1902. Mr. Denkmann died March 2, 1905, and Mr. Weyerhaeuser in April, 1914. The business, with its many ramifications, is now conducted by their descendants.

The Rock Island Sash & Door Works

Economic pressure has forced many changes among lumber and lumber products concerns during the last generation. Exhaustion of former supplies of raw material have made it necessary to open new timber areas, to change locations and processes of manufacture and to substitute new varieties of wood for those which were becoming increasingly difficult to secure. The lumbering business of today has survived a rapid evolution which has forced numerous erstwhile competitors to the wall.

Dating back to the earliest days of lumbering on the Mississippi, the Rock Island Sash & Door Works has successfully met the vicissitudes of time and remains today one of the foremost industrial concerns of



Rock Island Sash & Door Works, Rock Island, Illinois

its kind. When raw material in the Wisconsin and Minnesota pineries became scarce its owners acquired stumpage elsewhere. When logs could no longer be profitably rafted down from the north they found other means of transportation. Early in the history of the concern manufacture and sale of rough lumber was subordinated to the production of finished goods, and in this line all competition has been successfully met from the beginning. For many years the output has consisted exclusively of sash, doors and various other kinds of millwork, both plain and veneered. The Crown door which it makes is standard among builders all over the country.

It was in the early 50's that Porter Skinner established what is now known as the Rock Island Sash & Door Works. Then, and for years afterward, raw material was brought, in the form of logs, rafted down the Mississippi from the north. The millsite was advantageously located* on the banks of the river, with ample slack water in which to hold logs

in storage. Early in the 60's Mr. Skinner sold a half interest in his business to others, and the firm name was changed to that of Gray, Cropper & Company. In 1868 the original owner disposed of his remaining interests to Weyerhaeuser & Denkmann, who already were extensively engaged in lumbering in the locality, and the name was changed to Anawalt, Denkmann & Company. Incorporation took place in 1878 as the Rock Island Lumber & Mfg. Company, and the name was changed to the present one in 1897. This last reorganization took place about the time that timber supplies adjacent to the headwaters of the Mississippi failed and the rafting of logs became impossible. The old mills were abandoned, and since that time sawing of the rough lumber has been done mostly at the sources of supply and the lumber brought to Rock Island by rail.

Weyerhaeuser & Denkmann are among the largest lumber operators in the United States. In their hands the Rock Island Sash & Door Works has been ably conducted. It has been built and developed with a view of permanence. Never has it been more efficiently managed than in the last fifteen years, during which it has reached into new fields, found new



Southern Distributing Branch — St. Louis Sash & Door Works, St. Louis, Missouri

markets, improved its products and its processes. Its sources of supply are adequate for a long time and its goods sell on their merits throughout a wide area. In the last dozen years, in spite of periods of business depression, it has gone on steadily, without closing the plant or materially reducing the number of employes.

Like many another lumbering concern, the Rock Island Sash & Door Works has had its baptism of fire. Unlike many others, however, it rose from the ashes and with a better plant than ever, one which was not only built for permanence, but was much larger than the old one. The fire came in October, 1908, under conditions which all lumbermen dread. Originating outside the plant during a dry season, it came on at dead of night, fanned by a high wind. Successful resistance was impossible. Only those parts of the establishment which were outside the direct path of the

flames escaped. Not even the proverbial charred embers remained—only ashes and twisted steel, with a few blocks of masonry.

Not disheartened by the loss, the owners at once decided to rebuild. The new buildings were constructed mostly of brick and concrete and on a much larger scale. Every precaution to protect the plant against future fire losses was taken. Sprinklers were installed and a large steel tower built to provide an ample supply of water at all times and under all circumstances. Economical handling of materials during the process of manufacture also was taken into account, the new plant being considered a model among lumbermen. Everything is now under roof, no lumber being stored out of doors. Facilities for receiving raw material and those for shipping finished products are not excelled anywhere.

The factory of the Rock Island Sash & Door Works, with its houses for drying lumber and storing finished goods occupies four city blocks of land, including a frontage of two city blocks on the river. The property is bisected by railroad tracks used by three trans-continental lines. The location is central for the shipment of raw material, which is drawn from all points of the compass, and also for the distribution of manufactured goods in an area unexcelled anywhere on earth in productivity and buying power. A considerable share of the output is distributed through the St. Louis Sash & Door Works, a branch concern efficiently operated under the same excellent management as the main plant. Four hundred and seventy-five men are regularly employed in Rock Island and one hundred and fifty in St. Louis.

Officers of the company are:

President—F. C. Denkmann.

Vice President—J. P. Weyerhaeuser.

Vice President, Treasurer and General Manager—Charles Esplin.

Secretary and Assistant Treasurer—A. C. Hansen.

Directors—F. C. Denkmann, J. P. Weyerhaeuser, Charles Esplin, E. P. Denkmann, F. E. Weyerhaeuser, R. W. Weyerhaeuser, J. H. Hauberg.

From a One-Story Six-Forge Shop

The John Deere factory in Moline was built in 1847, on the site of the present John Deere Plow Works.

It was a one-story, six-Forge shop used for making John Deere plows.

For ten years previously John Deere had been a plow manufacturer at Grand Detour, Illinois, where, in 1837, he had designed and built the world's first successful steel plow. He sold out his interests at Grand Detour and re-established his plow-making business in Moline, in order to get the advantages of better water power and better river transportation.

Moline at that time was a thriving little manufacturing village. A dam had been built in the river, creating an abundant supply of water power. Clustered on the shore and utilizing this water power were numerous saw mills, a large flour mill, a foundry and machine shop and a fanning mill factory. John Deere's little factory was the first implement-making enterprise in the village.

Numerous hardships were encountered by the new industry.

There were no banks in the country. Real money was a scarce article. A great deal of what little money was in circulation consisted of English, French and Spanish coins. Consequently, at the outset, the factory sometimes had serious difficulty in securing money with which to buy steel; and pay-day for the employees did not come at regular intervals. Plows were deposited with the merchants in Moline, Rock Island, Davenport and Muscatine, and the plow factory gave its employees orders on those stores for what they needed. Plow merchandising was done by leaving plows to be sold on commission by merchants of the surrounding territory. No money could be collected until the merchants had sold the plows and collected the money for them. Sometimes the factory had several thousand dollars' worth of plows in the hands of merchants, but not even a hundred dollars in the factory safe. One of the most critical times in the life of John Deere came one day in his first year at Moline, when it was necessary to raise \$200 in cash, and early investigation indicated that there was not that much money in town.

There were no railroads. A four-horse stage coach was the main means of overland transportation. It took from 36 to 48 hours to go to Chicago and much longer to go to St. Louis. The route to St. Louis was up the river road to Albany, east to Dixon and thence down through the center of the state to St. Louis.

River transportation, though fairly sure, was painfully slow. Steel for the plow factory was shipped from Pittsburg, down the Ohio to Cairo, Illinois, and thence up the Mississippi to Moline. Plow shipments were made

up and down the river to the more thickly settled sections, and wagons and teams were sent overland to transport the goods to interior communities.

In spite of many handicaps, however, the John Deere plow-making business expanded steadily. In 1852 the output rose to 10,000 plows—a notable figure for those days. Better times came with the rapid settlement of the great agricultural section of America, the building of railroads and the westward surge of commerce and money.

Larger buildings were erected, the output increased, and John Deere plows became known the world over. They were leading instruments in

JOHN DEERE FACTORIES AND WHAT THEY MAKE



DEERE & MANSUR WORKS
MOLINE, ILLINOIS
Corn Ploughs, Cotton Pickers, Blue Blowers, Steel Cultivators, Steel Casts, and Steel Tools

JOHN DEERE PLOW WORKS
MOLINE, ILLINOIS
Steel Plows, Listers, Cultivators, and Harrows



JOHN DEERE WAGON WORKS
MOLINE, ILLINOIS
Farm and Municipal Wagons, Trucks and Trimming Cars



JOHN DEERE HARVESTER WORKS
EAST MOLINE, ILLINOIS
Grain Binders, Corn Binders, Mowers and Sulky Rakes



WATERLOO BOY TRACTOR WORKS
WATERLOO, IOWA
Kerosene Tractors and 25 HP Engines



MARSEILLES WORKS
EAST MOLINE, ILLINOIS
Water Sprayers, Valve Connectors, Corn Washers, Saws and Boiler Flues



UNION MALLEABLE IRON WORKS
EAST MOLINE, ILLINOIS
Malleable Castings for John Deere Factories



WATERLOO BOY ENGINE WORKS
WATERLOO, IOWA
Kerosene Engines, stationary and portable



VAN BRUNT WORKS
HORICON, WISCONSIN
Grain and Harrow, Sulfur Balls and Various Lines of Fertilizer Containers



DAIN WORKS
OTTUMWA, IOWA
Steel Drill Bits, Drills, Spring Chains, Riv. Listers, Sulfur Balls and Pistons



SYRACUSE CHILLED PLOW WORKS
SYRACUSE, NEW YORK
Chilled Plows, Cast Iron, Steel, and Castings for the Harrows, and Spring Tools



JOHN DEERE WORKS
WELLAND, ONT. CANADA
Hay Tools, Seeders, Soil Light, Blowers, and Implements for the Field



FORT SMITH WAGON WORKS
FORT SMITH, ARKANSAS
Farm Wagons and Trucks, Cotton Gins and Other Tools for South and West



RELIANCE BUGGY WORKS
ST. LOUIS, MISSOURI
Buggies, Carriages, and Spring Wagons



MOLINE LUMBER WORKS
MALVERN, ARKANSAS
Lumber for John Deere Factories

changing the grass-matted haunts of the buffalo into fruitful acres. Much of the soil of Iowa, Kansas, Nebraska and the Dakotas, which now feeds a great part of the world, was first turned with John Deere plows. They came into wide use among the "colonos" on the broad plains of South America, among the Hottentots of South Africa, among the bushmen of Australia and on the great plains of Russia. Commerce throughout the world grew because of greater harvests produced through the use of John Deere plows.

Today there are few farms in America on which John Deere implements have not been used. The little one-story, six-forge John Deere shop of 1847 has become the Deere & Company of today, owning and operating fourteen John Deere factories and thirty-two John Deere branch houses.

The John Deere Plow Works, the direct descendant of the little shop and the parent factory in the John Deere organization of today, is the largest steel plow plant in the world. Its floor space is 1,500,000 square feet, or 35 acres. It produces 450,000 complete implements every normal year, or three implements every minute. It uses annually 50,000 tons of iron and steel, 2,500,000 gallons of fuel oil, 35,000 tons of coal and coke and 1,000 tons of oil and paint.

Two other large John Deere factories—the Deere & Mansur Works and the John Deere Wagon Works—are located in Moline, and the Marseilles Works, the John Deere Harvester Works and the Union Malleable Iron Company are located in East Moline.

Other John Deere factories are the Waterloo Boy Tractor Works, Waterloo, Iowa; Van Brunt Works, Horicon, Wisconsin; Dain Works, Ottumwa, Iowa; Syracuse Chilled Plow Works, Syracuse, New York; John Deere Manufacturing Co., Welland, Ontario, Canada; Fort Smith Wagon Works, Fort Smith, Arkansas; Reliance Buggy Works, St. Louis, Mo., and Moline Lumber Works, Malvern, Ark.

John Deere branch houses engaged in facilitating the economical distribution of John Deere implements are located at Minneapolis, Minn; Moline, Illinois; Des Moines, Iowa; Milwaukee, Wisconsin; Bloomington, Illinois; Omaha, Nebraska; Sioux Falls, South Dakota; Kansas City, Missouri; Oklahoma, City, Oklahoma; Denver, Colorado; St. Louis, Missouri; New Orleans, Louisiana; Nashville, Tennessee; Dallas, Texas; Atlanta, Georgia; Portland, Oregon; Spokane, Washington; Seattle, Washington; Boise, Idaho; San Francisco, California; Indianapolis, Indiana; Columbus, Ohio; Lansing, Michigan; Baltimore, Maryland; Syracuse, New York; Winnipeg, Manitoba; Saskatoon, Sask.; Regina, Sask.; Calgary, Alberta; Lethbridge, Alberta; Edmonton, Alberta; Welland, Ontario.

An export department, conducting a large business with foreign countries, is located at Moline.

United Utility Service

Transportation, Power, Light, Gas and Heat

Had it lacked the aid supplied by the united utilities of the Tri-Cities during the World War, the effectiveness of the Rock Island Arsenal would have been seriously curtailed. Street railway transportation for the many thousands of Arsenal workers, additional electric power to meet the demand for manufacturing purposes, and gas for the treatment of metals were absolutely necessary. The need for these services was urgent and unexpected, yet the capacity was available in all three cases and was supplied at low cost.

Official records show that the Arsenal and the Tri-Cities shared with Chicago the distinction of being the only manufacturing centers in the United States during the early part of 1918 where the lack of capacity of the public utility companies did not hamper the industrial expansion required to meet war needs, and recognition of this fact at Washington had much to do with the volume of war orders received by the Tri-Cities. Should the country again be called upon for military supplies to the same extent as was recently necessary, the showing made by the local Arsenal and Tri-City industrial concerns will warrant the confidence they will receive.

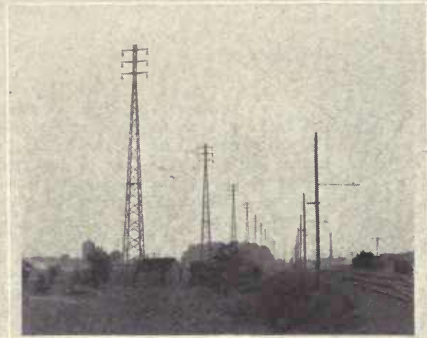
While it is true that there is now a water power development at Rock Island Arsenal sufficient for its ordinary requirements, yet it is necessary, as is the case with all other low head hydro-electric developments, that it be supplemented by a steam plant equipped to assume the load on momentary notice, due to failure on account of high water, low water, or ice. The Arsenal, having no steam power generating plant of its own, obtains this assurance of a constant energy supply from the power company serving the Tri-Cities, and when the demand for power required for war activities exceeded the capacity of the Arsenal station, the excess energy necessary was supplied on call. Energy was transmitted to the Arsenal over 4,800-volt transmission lines owned and maintained by the government.

The company's power house is located in Moline, directly across Sylvan Water from the main Arsenal shops, and adjoining the government's property. This plant is equipped with steam units having a maximum capacity of 61,000 horsepower, supplemented by hydro-electric energy purchased from the Moline Water Power Company and the hydro-electric plant of T. B. and S. S. Davis, on Rock river, these developments having a maximum capacity of 4,000 and 2,500 horsepower, respectively. At such times as the output of the government station exceeds the Arsenal requirements, this surplus is taken over by the power company. Approximately eighty per cent of the annual Tri-City power output is generated by steam, the balance coming from the hydro stations.

Industrial expansion in the Tri-Cities prior to 1918 had reached a point which would soon require additional electrical generating capacity, which led the power company, early in 1917, to order a 25,000 horsepower steam turbine, with the necessary boilers, auxiliaries, etc., this unit being received and installed in 1918, in time to meet the war demand. When ready for operation



Gas Works Peoples Power Co. Moline Ill.



Typical High Tension Transmission Line



Interior Substation "B" Peoples Light Co. Davenport, Ia.



View of Power House Interior Showing Large Turbo-Generator Moline Ill.

the new turbine cost approximately \$1,250,000. As this is written, plans are under way for an additional installation of 32,000 horsepower, to cost in the neighborhood of \$1,500,000, which will increase the total power available for the Tri-Cities and the Arsenal to nearly 100,000 horsepower.

Gas for the Arsenal is produced by the Peoples Power Company at their gas works adjoining the electric plant in Moline, and is distributed through high pressure mains to the various buildings on the Island. Prior to the war the Arsenal used coal and oil for manufacturing purposes, but the convenience and practically unlimited supply of gas, together with results of research work which proved that gas was in many ways more efficient and economical, led to the abandonment of the coal and oil burners and their replacement by gas. The average war-time gas consumption of the Arsenal was approximately 5,000,000 cubic feet per month, far in excess

All communications must be addressed to "The Commanding Officer, Rock Island Arsenal, Rock Island, Illinois."

ROCK ISLAND ARSENAL

HLN/eb

ROCK ISLAND, ILLINOIS December 6, 1922.

B. J. Demman, Pres.,
Tri-City Railway & Light Co.,
Moline, Illinois.

Dear Sir:

In accordance with your recent request for statement of the activities at this Arsenal in connection with the late war of the associate utilities corporations under your charge, I have to inform you that your service included not only the providing of transportation facilities for Arsenal employees but the furnishing in large quantities of power and gas used in the plant's manufacturing operations.

The cooperation which the Tri-City Railway Company gave and the service it rendered throughout the period of the war, when the transporting of Arsenal workmen became a perplexing problem, enabled the Government to afford to its industrial workers facilities in this connection which few communities in other less congested industrial fields enjoyed.

The emergency incident to the war created, in some instances, demands in excess of the Arsenal's facilities. This was particularly true in the case of gas and electric power, both of which it was necessary to purchase in large quantities. At the outbreak of the war the increased demand for electric power made the modernizing of the Arsenal Power Plant necessary, and during the period of reconstructing the plant the purchase of power to supplement that which the Arsenal generated became necessary. The purchase of said power from the Moline-Rock Island Manufacturing Company (one of your associate companies) at a time when the requirements for power were heaviest enabled the Arsenal to pursue continuously its extensive production program, not otherwise possible had this contract not existed.

This was also true in the gas supplied by the Peoples Power Company. The increased manufacturing operations caused a consumption of twenty-five million cubic feet of gas during the fiscal year 1921 which the latter company furnished without interruption.

Respectfully,

D. M. King

D. M. King
Colonel, Ord. Dept., U.S.A.
Commanding.

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Tri City Ry & Light Co.

of the normal requirements. To supply this and other rapidly increasing local demands, the company installed additional producing and distributing equipment at an expenditure of more than \$300,000.

Street railway service to and from the Arsenal is furnished by the Tri-City Railway Company of Iowa and the Tri-City Railway Company of Illinois. With a line through the heart of the Island, connecting with

WM. BUTTERWORTH, PRES. W. H. VAN DERVOORT, VICE-PRES. W. A. ROSENFELD, VICE-PRES. JOS. W. BETTENDORF, VICE-PRES.
 PRESIDENT GEER & COMPANY PRESIDENT R. & V. BRUSHBRINK CO. PRES. ROCK ISLAND BRIDGE & IRON WORKS PRESIDENT THE BETTENDORF CO.
 MOLINE, ILLINOIS EAST MOLINE, ILLINOIS ROCK ISLAND, ILLINOIS BETTENDORF, IOWA

TRI-CITY MANUFACTURERS' ASSOCIATION

CHAS. E. WHITE
 DESIRE A COMPANY
 CHAIRMAN GOVERNING BOARD

SKINNER ANNEX
 SUITE 9

JOSEPH L. HECHT
 FRANK B. HECHT
 VICE-CHAIRMAN GOVERNING BOARD

H. A. JANSEN
 SECRETARY AND TREASURER

MEMBER OF CHAMBER OF
 COMMERCE OF THE UNITED
 STATES OF AMERICA

MOLINE, ILLINOIS,
 December 7, 1922.

Mr. B. J. Denman, President,
 Tri-City Railway & Light Company,
 Davenport, Iowa.

Dear Sir:

In recently reviewing the war activities of the manufacturers of the Tri-Cities, the record of your company during that period was brought forcibly to my attention.

About twenty-eight of our largest factories had direct contracts with the government for the manufacture of war supplies, and other local companies were also manufacturing munitions and other war supplies. The requirements of these companies for gas, electricity and transportation service were so great as to cause government officials to question whether the service available would be sufficient for the needs of these manufacturers, especially when they had in mind the tremendous increased demand for service made on your company by the Arsenal and also that production had broken down in many places in the East through lack of sufficient supply of gas, electric and street railway service.

Mr. Charles E. Stewart, Chief of the Power Section at Washington, testified before the Committee on Interstate and Foreign Commerce of the House of Representatives that there was a satisfactory surplus of power, gas and street railway service in the Tri-City District, which, with the exception of Chicago, was the only district in the country where it was recommended that additional orders for war supplies be placed. This, of course, meant a great deal to our community and our manufacturing interests especially.

That your company was in a position to meet so completely these large demands for gas, electricity and transportation service is cause for public thanks. That you were able to so well and so rapidly increase your facilities as they were still further demanded and that you failed in no respect to render satisfactory service is cause for additional commendation. The value of such a company as yours to the community cannot be overestimated. The record of your company during the war gives all possible assurance of the ability to furnish any future needs of these communities, no matter how great.

Very truly yours,

H. A. Jansen
 Secretary-Treasurer.

H.AJ/B.

a double track system at the west end of the Island and on Forty-second Street, Rock Island, it is in position to handle an almost unlimited number of workers, as was demonstrated during 1917, 1918 and 1919, when respective yearly totals of 1,731,557, 3,231,471 and 2,126,144 passengers were carried to and from the Arsenal. A maximum number of 50 cars was required to transport this huge and unprecedented traffic. The pre-war needs of the

Arsenal had been met with five cars, and the additional traffic necessitated the purchase of forty-five additional cars for this service alone. In addition to the expenditure for these cars, 2.31 miles of track were laid on the Island, bringing the total Island track mileage to 4.62.

The public utility companies referred to in the foregoing as serving the Rock Island Arsenal so ably in time of need are owned and operated by the Tri-City Railway & Light Company, a holding company organized in 1906 with a capital of \$30,000,000, the operating headquarters of which are located at Davenport. This was a consolidation of the utilities of the Tri-Cities, which had heretofore been operating independently. The present officers and directors of the Tri-City Railway & Light Company are as follows:

President—B. J. Denman, Davenport.

Vice-President—Richard Schaddelee, Grand Rapids.

Vice-President—H. R. Tobey, New York City.

Vice-President and Treasurer—F. T. Hulswit, Grand Rapids.

Vice-President, Ass't Sec'y and Ass't Treasurer—H. E. Weeks, Davenport.

Secretary—H. E. Littig, Davenport.

Assistant Secretary—L. H. Heinke, Grand Rapids.

Directors—Officers and William Butterworth, Moline; G. M. Averill, Cedar Rapids, Iowa; Joe R. Lane, Davenport; C. N. Chubb, Davenport; R. B. MacDonald, Moline; J. G. Huntoon, Rock Island; Wm. Chamberlain, Cedar Rapids.

The operating companies serving the Tri-Cities are as follows:

Tri-City Railway Company of Illinois—Street railway service in Rock Island, Moline, East Moline, Silvis and contiguous territory; T. C. Roderick, Rock Island, Vice-President and General Manager.

Tri-City Railway Company of Iowa—Street railway service in Davenport, Bettendorf and Rockingham, Iowa; R. J. Smith, Davenport, Vice-President and General Manager.

Peoples Light Company—Serves Davenport, Rockingham and Bettendorf, Iowa, with gas and electricity; steam heating plant serving downtown section of Davenport; C. N. Chubb, Davenport, Vice-President and General Manager.

Peoples Power Company—Serves Rock Island, Moline, East Moline and Silvis with gas and electricity, in addition to wholesaling energy to a number of small towns in the immediate neighborhood; R. B. MacDonald, Moline, Vice-President and General Manager.

Clinton, Davenport & Muscatine Railway Company—Electric inter-urban connecting the three towns forming its name. Clark G. Anderson, Davenport, General Manager.

According to the 1920 census the total population of the territory served by the foregoing companies was 137,000. Electric customers total 30,368 and gas customers 28,791, these patrons being supplied with electricity over 1,859.3 miles of wire line and with gas through 445.33 miles of gas main (reduced to three-inch equivalent). Transportation lines in operation include 104.16 miles of single track equivalent street railway and 64.56 miles of interurban track.

The annual coal consumption of the Tri-City utilities is approximately 125,000 tons, or 2,500 carloads; which, if placed end to end, would form a train 30 miles long. Gas manufacture requires 600 cars of coke and 550 cars of oil each twelve months. The working forces of the various operating companies total about 1,200 men and women.

The amount expended by the operating companies for improvements, betterments and extensions in the ten-year period from 1912 to 1922 aggregated \$7,975,436. This large amount of capital required to take care of utility expansion in the Tri-Cities has been furnished by the United Light & Railways Company since 1912, when it acquired the Tri-City Railway & Light Company. In the last two years capital to finance local requirements has been provided to a constantly increasing extent through customer ownership of United Light securities, which have been sold almost exclusively to utility patrons by company employes, the company's prior preferred stock now being sold to Tri-City residents at a rate in excess of \$700,000 per year. Company and consumers have thus become partners in the upbuilding of their community, and the confidence engendered by a better understanding of the mutuality of interests is evidenced by the spirit of wholehearted co-operation and general good will now prevailing.

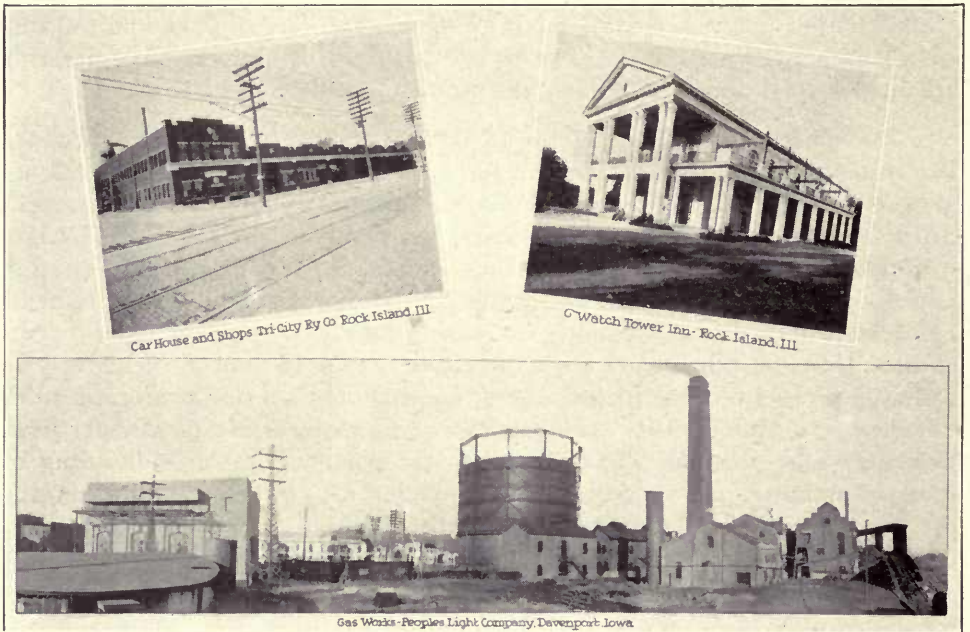
The Tri-City Railway & Light Company has always pursued a progressive policy, its aim being to anticipate public needs and thus encourage the growth of the cities it serves. In its endeavor to maintain the closest possible relations with the public by keeping them informed of the practical problems involved in the operation of its properties the company feels that it has succeeded to an unusual degree.

The utility companies of the Tri-Cities, prior to their consolidation in 1906, were developed for the most part by home capital. The story of their progress forms an interesting chapter of local history, and the aggressive enterprise of the three communities can be shown in no better way than by the steady improvement in utility service.

For the beginning of the history of Tri-City utilities we must go back to 1843, when what was known as the Sears dam was constructed to develop water power at Moline. Because of the crude methods of distribution prevailing at that time, the use of energy generated there was limited to the immediate vicinity of the plant, resulting in the erection of several small factory buildings at each end of the dam, which formed the nucleus of

Moline's later industrial development. When more efficient electrical transmission became available some forty years later the water output was taken over by the Peoples Light & Fuel Company (predecessor to the present Peoples Power Company) for general distribution throughout the community.

Gas plants were established about the time the three cities were emerging from the village state, the Rock Island Gas, Light & Coke company first



Car House and Shops Tri-City Ry Co Rock Island, Ill

Watch Tower Inn - Rock Island, Ill

Gas Works - Peoples Light Company, Davenport Iowa

furnishing service in 1855, and the Davenport Gas Light & Coke Company three years later. The first alternating current generator in what was then termed the west was installed in Rock Island in the early 80's. One of the first, if not actually the first, electric street car successfully operated in the United States was run on the Brady Street line in Davenport, in August, 1888. The first electric street car was operated on Arsenal Island for exclusive Arsenal service December 28, 1899.

Since the purchase of all local utilities by the Tri-City Railway & Light Company in 1906, the economies and efficiencies resulting from unified operation have evidenced themselves in a higher degree of service at a lower cost to the consumer than is enjoyed in other cities of similar size and wealth throughout the country.

The R&V Motor Company

Second only in importance to Rock Island Arsenal in the Tri-City field in the actual production of war munitions, the R. & V. plant in East Moline rendered valuable service to the United States and its allies during the world conflict. Ammunition and ordnance were manufactured in quantity, a great shop being built especially for this work, and large numbers of tools were supplied to other private concerns engaged in filling War Department orders. The contribution of this industry toward the cause of the allied governments may be summarized as follows:

Shells, 8-inch high explosive and 8-inch gas, to the number of hundreds of thousands, delivered to the British and the United States governments; hundreds of guns, of 4-inch and one-pound size, and large numbers of mounts, sights and gun stands for 3-inch and six-pounder guns.

Large numbers of specially designed machine tools for manufacture of ammunition was furnished to the British government and Canadian and American contractors.

Great numbers of motors manufactured for use in tractors.

Enlistment and induction into the military service of 460 employes of various degrees of mechanical and technical skill.

Liberty bond subscriptions amounting to \$1,077,060, exclusive of first loan.

War saving stamps purchases of more than \$18,000.

Services of W. H. VanDervoort, president, as member of Munitions Standard Board and the National War Labor Board.

Some of the things it was necessary to do in order to manufacture munitions on the scale indicated were:

Construct the buildings used for the shell shop.

Equip the shell plant with specially designed machinery, produced chiefly in the engineering company's own plant.

Organize a force capable of producing hundreds of 8-inch shells daily.

Replace one of the important buildings, the heat treating plant, which was destroyed by fire.

Organize a great corporation to handle the ordnance contracts in conjunction with the Wagner Electric Manufacturing Company of St. Louis.



W. H. VAN DERVOORT,

for many years head of the great R & V business in East Moline, which was named with the initials of himself and his associate, Mr. O. J. Root. Mr. Van Dervoort's death in 1921 was in a large measure the result of overwork during the war, when he served as a member of the National War Labor Board and the Munitions Standard Board, in addition to directing the R&V production of ammunitions and ordnance. He was internationally known as an engineer and automobile manufacturer.

Build an ordnance plant with 130,000 feet of floor space and equip it with more than 400 specially designed machine tools.

Replace hundreds of workers who entered the service, and in addition recruit new help for the added departments till the total number of employes approached 3,000.

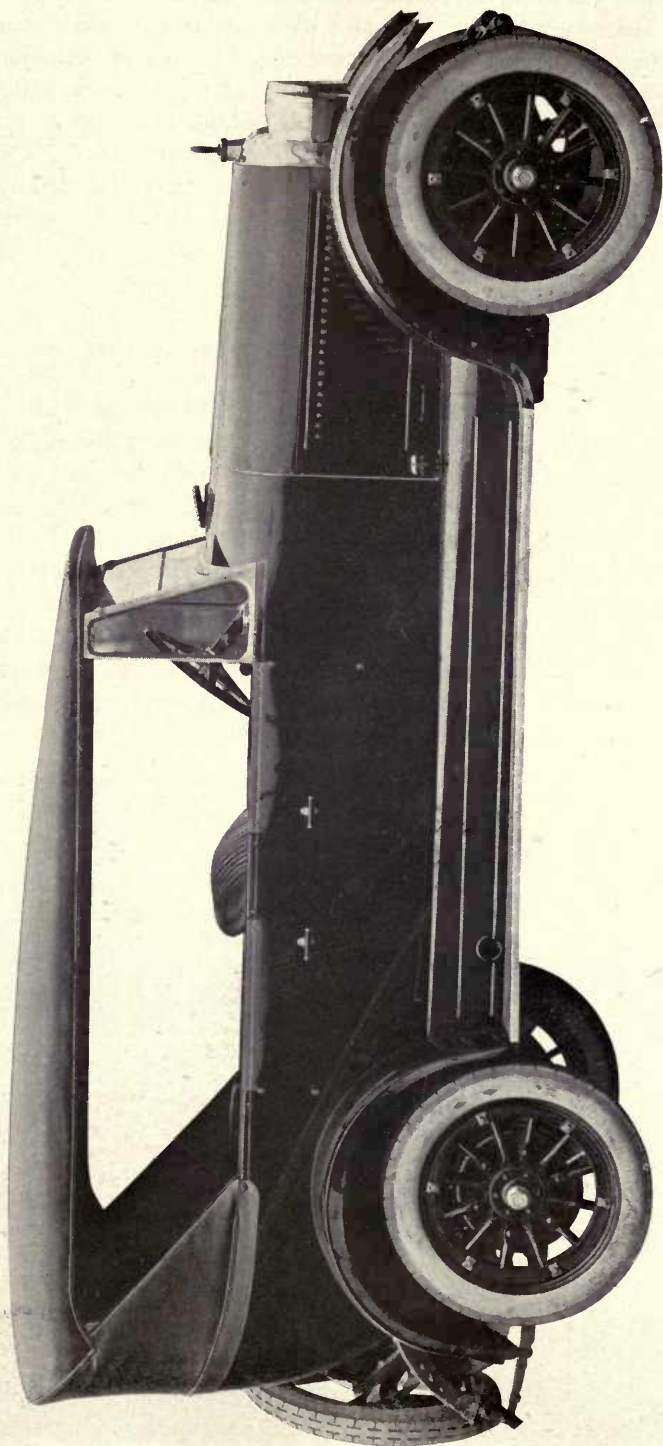
In order to keep the shops working to full capacity night and day, which was the rule during the war, women workers were introduced, the maximum number employed being 500.

The help problem brought with it the one of housing workers in the near vicinity. The company financed the building of two hotels that were conducted under the auspices of the Y. M. C. A.; and mainly because of its needs, East Moline was included in the cities where government house building projects were approved, the number of dwellings constructed there being 111.

The R&V plants, operating now under the name of the R&V Motor Company; always have been leaders in the industrial field. In the early days when the manufacture of stationary and portable farm engines was its principal business, the Root & VanDervoort Engineering company became a major factor in that industry. It contributed materially to the development of internal combustion gasoline engines, and sold hundreds of thousands of them for use in all agricultural countries of the world. In 1904, when it took up automobile manufacturing, it quickly won like recognition, its products being repeatedly winners in economy and reliability runs. When, in 1913, it adopted the Knight engine as its automobile power equipment, it developed an engine that broke all world's records in an endurance test and established marks still unbeaten and unchallenged. In the bus motor field, where the power equipment requirements are most severe, it won immediate recognition.

When the United States entered the World War it found the R&V company with a plant and equipment ready for immediate service, and this fact gave the company a great advantage in securing contracts as well as in supplying tools and patterns to other concerns. Long before this country became involved, the British government had turned to the United States for munitions, and the R&V company was one of the private manufacturers which undertook the work on a large scale. It made high explosive and gas shell, supplying Great Britain with great quantities of them. On the completion of its contracts, the R&V management, convinced that ultimately it would be called upon again by either the United States or Great Britain for further supplies of ammunition, sealed its shell shops and kept intact its equipment. Up to this time, in addition to executing its contracts for shell, it had designed new machinery which greatly increased manufacturing efficiency in the making of shell, and had, at the suggestion of the British government, sold large numbers of shell lathes to other manufacturers.

Thus it happened that when Uncle Sam entered the struggle he found the R&V plants ready to produce on very short notice, and so they became



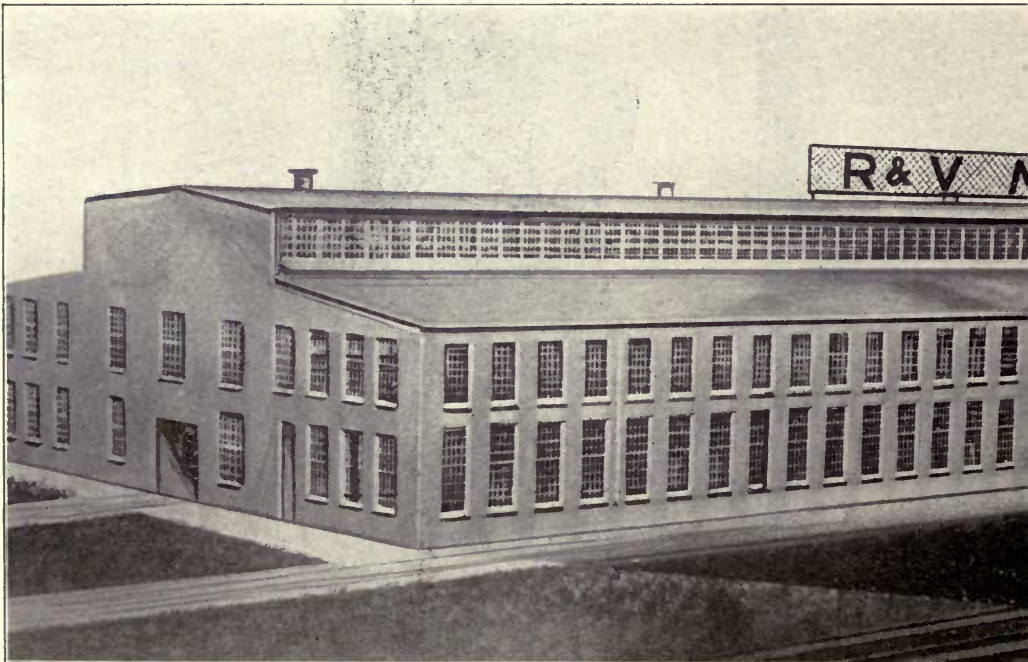
R&V KNIGHT SIX

This is the latest model of a long line of high grade motor cars built by the East Moline factory since it first entered the automobile business in 1904. It is known as the Model II, and is being put on the market in 1923.

the most important auxiliary to Rock Island Arsenal in munition production to be found in this community. Troops were at once placed on guard to protect the company's facilities for the making of shell and ordnance, and in a short time the plant was again engaged in war production. At first, attention was devoted mainly to machining the 8-inch gas shell. Then came a proposition to undertake the production of naval ordnance. To provide adequate facilities for this, a great new building was constructed. It was 706 feet long and 165 feet wide. Thus equipped, the R&V company for many months produced three-fourths of the 4-inch guns supplied by private manufacturers for the United States Navy. One contract completed, others were awarded, and sights and mounts for 3-inch rifles and 1-pound guns for submarine chasers were added to the 4-inch guns which the company originally undertook to produce.

How well the R&V organization served the United States and its allies may be judged from the fact that of all the shell machined, 227,000 in number, only 159 were rejected by government inspectors; and of the 1,165 guns built, not a single one failed to pass the very exacting tests to which they were subjected, and every one was accepted by the navy.

Farm and tractor engine production, being considered necessary in the campaign for more foodstuffs, was continued during the war, and at the close of the conflict the company turned again to this field, as well as resuming the building of automobiles, which had almost ceased. In pursuance of its policy of constantly advancing its standards, it shortly brought out a six-cylinder Knight motor, a type not then being produced by any other



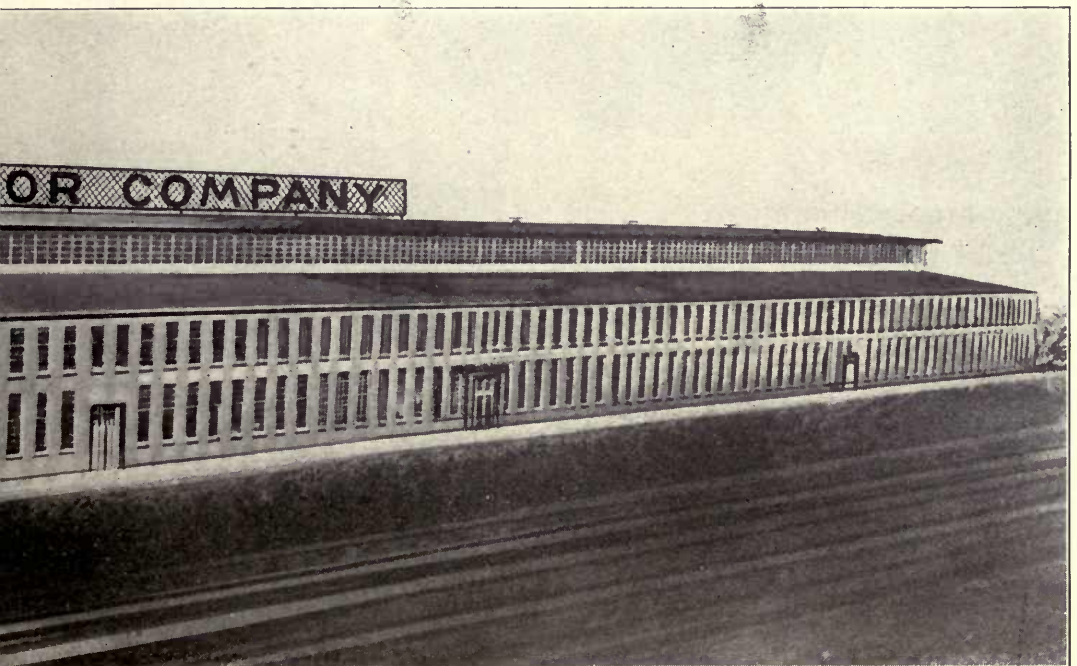
PLANT OF THE R & V MOTOR COMPANY—This fine building was originally built to handle the production of the R & V Knight automobile. It is one of the best arranged

manufacturer in this country. It also put on the market a new four-cylinder model, a great step forward in this class, in which it had been a leader for a number of years.

Not only did the R&V institution successfully weather the acute industrial depression which followed the war, but it made real progress. It liquidated its heavy inventories and advanced its position in the industry, passing more than thirty important companies which previously had exceeded it in volume of sales. It was one of only four companies which in 1921 sold a greater number of cars than in 1920, and the only one to double in 1921 its 1919 aggregate sales.

Not content with these achievements, the company set about the task of developing an engine that, in performance, should mark a new era in the six-cylinder automobile field in this country. This motor, placed in a new and greatly improved car, is to be put on the market in 1923. Exhaustive preliminary tests proved that it would meet every expectation, with a volume and flexibility of power and smoothness of operation that previously had been the unrealized dream of every automotive engineer.

The Root & VanDervoort Engineering Company grew from a one-room upstairs specialty shop in 1897. It progressed only because of the capacity of those who have directed its affairs and their superior ability in engineering development. Its war service is attested by the volume of business it did with the United States government and its allies. The highest achievement of the R&V industry is its Knight-Six motor and car.



of naval ordnance. After the war it was converted into an automobile factory for the manufacture of the most perfectly lighted manufacturing plants in the middle west.

The Federal System of Bakeries

About six years ago a man stood in front of a bakeshop looking at some tempting rolls and cakes displayed on a dirty shelf in a dingy, unkempt bakery. As he stood there thinking of the conditions under which these delicious-looking cakes and rolls were probably made, there came to his mind the picture of a spotlessly clean, well lighted bakery, with the baked



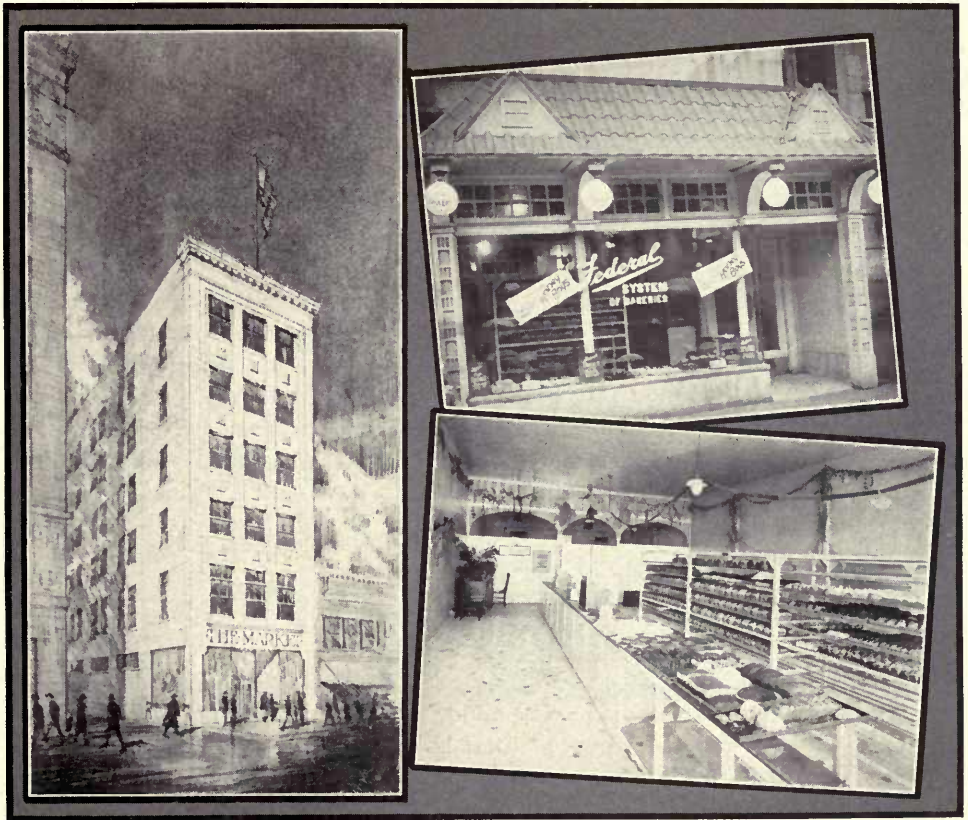
J. Reed Lane, President

products made in a rotary oven "right before your eyes." That man was Milton Feder. With this idea in mind, he secured a patent on a revolving oven and organized the "Chatterton System of Bakeries."

The first bakery of this system was opened in Oakland, California, and proved a big success. People flocked to the store, attracted by the novelty of seeing the brown, crispy loaves baked right before their eyes. Several more shops were opened in California, and then it was decided to make them a national institution. In 1918 the company was reorganized under its present name, Federal System of Bakeries of America, with headquarters in Chicago, to standardize and supervise these bakeries. A few months later the offices were moved to New York.

In the fall of 1918 two Federal stores were opened in Davenport by W. C. Swigart and Wm. R. Doran, which were later purchased by L. J. Yagge and A. J. Faerber. These stores proved immediate successes.

About this time J. Reed Lane, of Davenport, became interested in the novel methods employed by this company and the apparent favor with which they were meeting. He acquired interests in the company and was elected Treasurer. Other Davenport men followed his lead, and in January, 1920, the city of Davenport became the home office of the company. Mr. Lane was elected President and Wm. L. Mueller, Joe R. Lane, Maurice Hemsing,



Left—Federal System of Bakeries New Home in Davenport. Right—Exterior and Interior Views of Typical Federal Bakery.

A. J. Faerber, Charles Shuler, G. Watson French, Ed. C. Mueller, Milton Feder, T. J. Walsh and J. W. Bettendorf, directors. The central location of the home office offered many advantages. It not only enabled the officers of the company to keep in closer touch with the stores in all sections of the country, but placed them in direct contact with the wheat-producing and milling centers of the country.

In the fall of 1919 a Federal School was established in the old St. Luke's Hospital, at 8th and Main streets, Davenport. Here men were given a

thorough course in technical and practical baking and merchandising which fitted them not only to operate Federal stores under sanitary and modern methods, but how to make good bread.

Federal bakeries are installed under a license system with a royalty clause attached. In return for this royalty, the licensees are given service under the supervision of twelve departments, Sales, Equipment, Purchasing, Stores and Traffic, Operating, Sales Promotion and Advertising, Auditing, Installation, Insurance, Chemistry and Research, Mail and Record, Legal and Executive. Each department is organized to give prompt service under the direction of an expert in his line of work. All advertising is done on a national scale and is handled direct by the home office. Similar suggestions and methods of advertising are thus distributed to every Federal Bakery. A monthly magazine, "The Sunlight Magazine," keeps all managers and employees familiar with general conditions and methods of improvement of their stores.

"Quality and Service" is the watchword of Federal Bakeries. Standard formulas used in all stores call for the best ingredients, substitutes being absolutely prohibited. Only the best of flour is used, which is tested before use in the company's laboratories at the Federal School. Not only are the raw materials analyzed under the direction of one of the leading chemists of the country, Dr. J. Sluyter, but a sample loaf of bread is forwarded monthly from each store to the laboratories to be tested for quality. Each loaf must receive a rating of over 95 per cent before the store can be awarded a certificate of Federal quality. From Maine to California and from Toronto, Canada, to Tampico, Mexico, the patrons of Federal bakeries are assured of a uniform quality of baked goods of the highest type obtainable.

It is not too much to say that the Federal System of Bakeries of America, Inc., dominates the baking field, setting its standards for quality and service. In 1921 the estimated total business done by Federal bakeries amounted to \$20,000,000. The loaves of bread baked daily, if placed end to end, would cover a distance of seventy-five miles. "The proof of the pudding is in the eating"—and the Federal System of Bakeries has established over 400 bakeries in some three hundred towns in a period of five years and is steadily developing new territory until its slogan "Bringing Home the Bakin'" is a household expression in every home throughout the United States.

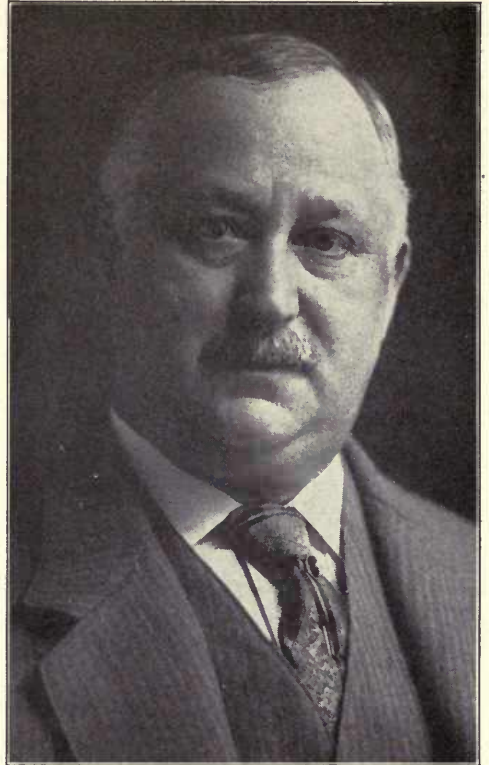
The Bettendorf Company

We often marvel at the rapid mechanical advancement of this age. To refer to it is to deal in the trite and common-place. And yet it has been achieved in the face of many handicaps, not the least of which is nature's failure to implant in the average individual of inventive turn enough of the practical to enable him to utilize to best advantage the product of his genius.

This defect in man's make-up has been responsible for a prodigious waste of capital and time in connection with really workable ideas that never got beyond the formative stage, and has deprived the race of the earlier use of an untold number of devices that would have lightened toil, increased production and made life generally more worth the living.

The patent office at Washington is a morgue for the dead hopes of inventors who did not realize till too late that it requires the application of business principles to successfully make and sell even the most perfect and useful inventions. In all too many cases those who have lived to see the products of their genius in general use have been deprived of their just rewards by reason of their inability to grapple as successfully with the practical as with the theoretical end of their enterprise, others reaping the harvest that rightfully was theirs.

The late W. P. Bettendorf was one of the conspicuous exceptions found in the modern industrial field to the rule laid down in the foregoing. Not only was he possessed of rare mechanical ingenuity, but he was resourceful to a marked degree in applying his ideas, and highly successful in organizing, manufacturing and selling, and in financing his undertakings. Further than that, he was fortunate in having a brother, J. W. Bettendorf, who, when the former was called from earth at the very height of his activities, was able to carry on and bring the industry to the place of leadership in its field which it now occupies. The capabilities of J. W. Bettendorf are no less marked than those of the founder of the concern, and under his administration the company has greatly expanded, becoming by far the largest single



W. P. Bettendorf, Founder of the Company

industry in the Tri-City community. Its shop buildings cover 24 acres of ground and its annual business runs well into the millions. It is one of the principal manufacturers of railway equipment in the country, specializing in steel freight cars. Over one and one-half million Bettendorf truck side frames are now in use.



J. W. Bettendorf, President

The foundation of the great Bettendorf industry was a practical idea, and, strangely enough, it had nothing to do with railroad equipment. It brought into existence a new type of metal wheel and the machinery for making it, both being the product of the genius of W. P. Bettendorf.

In 1886, Mr. Bettendorf, then a young man, brought his ideas and the letters patent protecting them to Davenport, near three great agricultural implement factories, and set about forming a company to begin production. Here his efforts were as successful as they had been in dealing with the mechanical end of the undertaking. In a short time the first shops were in operation. The type of wheel made, it may be added, was soon recognized as ideal for use

on agricultural implements and the concern which Mr. Bettendorf founded remains today the largest exclusive makers of metal wheels in the world.

As soon as his first venture was well on its way toward success Mr. Bettendorf set about looking for new problems to solve. His active mind shortly developed a steel gear for farm wagons. Closing out his interests in the metal wheel concern, he formed another company to manufacture farm wagons. This also prospered greatly and soon assumed large proportions. Then, gradually, he turned to the making of railroad equipment, in which steel was being used in rapidly increasing quantities. First, the I-beam car bolster was invented, and later the one-piece cast steel truck frame and other steel parts for freight cars were perfected. Finding a ready demand for these lines, the company decided to turn its entire attention to their production, looking forward, even then, to the making of complete cars. Its growth from that time on was phenomenal.

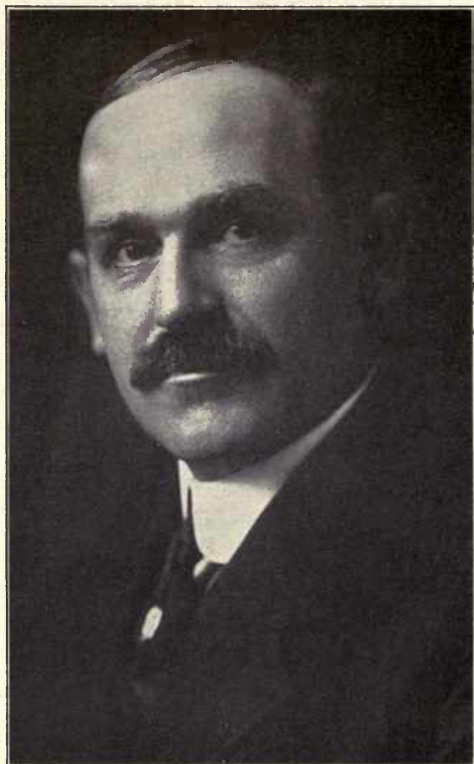
Early in the manufacturing career of W. P. Bettendorf his brother, J. W. Bettendorf, became associated with him, and as the business grew

the latter, in an executive capacity, took an increasing share of the responsibility. His versatility and steady devotion to the firm's interests prepared him for the part he was ultimately to play and entitle him to much credit for the earlier, as well as for the later, successes the concern achieved.

In 1902 the industry had outgrown its quarters, and so forty acres of land just beyond the eastern limits of the city of Davenport, and on the banks of the Mississippi river, were purchased, and the first factory buildings there were erected. This was a fortunate move, for additional room was available as it was needed. The plant has been gradually built up during the intervening years to its present immense proportions. To provide a place of residence for factory workers, a town-site was laid out adjacent to the shops and named Bettendorf. This has now grown into a city, with a city's improvements and advantages.

First experiments in the manufacture of cast steel trucks had begun with the forming of the Bettendorf Axle Company in 1895, but slowness in the development of the process of making intricate steel castings deferred the perfecting of the Bettendorf invention. Not till 1903 were truck side frames actually produced, and then in only a small way. Their use soon proved their superiority, and arrangements were made with one of the principal steel castings manufacturing firms for quantity production. As time passed and the new frame became more and more popular, castings orders were placed with other makers.

To secure uniformity of product in the various foundries it was necessary for the Bettendorf company to supervise the making of the castings, and to install in each plant its specially designed hydraulic straightening presses, by which the various parts were aligned and tested. In pursuance of the same object, elaborate records were kept of the performance of thousands of trucks in use. This made possible, also, a more intelligent selection of materials and the prevention of defects. As a result of these precautions, Bettendorf products rapidly built up a reputation for strength and reliability, and a fund of experience was gained which was of im-



J. H. Bendixen, Vice-President and Sales Manager

mense value later when the company undertook the making of all its own parts. It became evident that open hearth steel was best adapted to the casting of steel car frames, and that certain qualities must be incorporated to resist the shocks and stresses to which cars in service are subjected. Perceiving finally that the most economical and satisfactory way to get desired results was to do its own casting, the company, in 1909, began the erection of a foundry, which was placed in commission during the following year.

Built originally with three twenty-five-ton furnaces, the foundry has been enlarged from time to time till it now has seven units which make all castings for car trucks, and together have an annual capacity of 320,000 side frames and bolsters.

In the arrangement and equipping of its foundry the Bettendorf company scored a great mechanical and engineering triumph. Based as it was upon experience obtained in a wide field and under varying circumstances, it embraces features not found elsewhere, and turns out a superior product. Exceptional strength and uniformity in all parts of the same casting, as well as between the separate pieces, is insured by treatment in specially designed annealing furnaces, which is also a purely Bettendorf creation. Proof of the effectiveness of the Bettendorf process is to be had in the exceedingly low percentage of replacements because of defects.

While the Bettendorf industry was at the height of its expansion program, W. P. Bettendorf was called by death, the end coming June 3, 1910. For a time it was feared that the loss of his leadership would permanently check the growth and usefulness of the concern in which he had played so important a part. Such forebodings, however, were ill-founded. J. W. Bettendorf, the surviving brother, proved equal to the heavy task laid upon his shoulders. Assuming the added responsibilities, he went ahead with



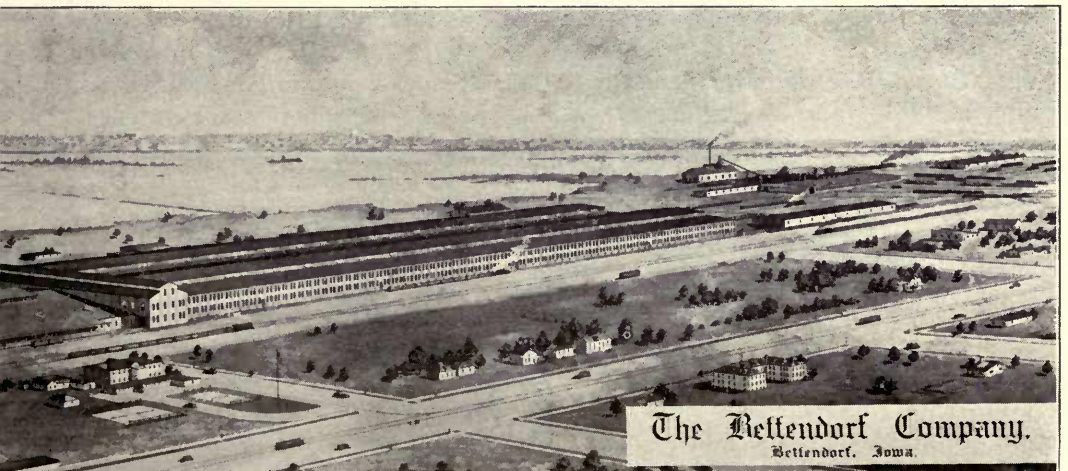
Birdseye View of Bettendorf Plant with

the plans for enlargement, and the achievement of the company since has been largely due to his efficient direction. In 1913 a reorganization on a broader basis took place, with J. W. Bettendorf president, J. H. Bendixen vice-president and manager of sales, and a large and competent staff of subordinate officers.

During the World War the company felt that it could do its bit more effectively in manufacturing railroad equipment, then so badly needed, rather than by rebuilding much of its shop equipment for the production of munitions. It filled an order from the United States Railroad Administration for 3,000 box cars and supplied trucks for 30,000 other cars, which was its major contribution to the industrial effort of this country. In addition, it gave some attention to the machining of artillery recuperators and the making of trench mortar forgings. Had the war continued another year, it is probable that munition manufacture would have been undertaken on a much more extensive scale. At the time the armistice was signed the concern was working on an order for casting and machining wheels for four-wheel drive trucks. This order, which was for equipment for 7,500 vehicles, was not completed, and special machinery installed for the work was thereafter useless. Plans were in hand at the time hostilities ceased for the assembling of 1,500 Mark VIII tanks, involving the handling of a vast amount of material, but no actual work was done.

As in the case of other industries, the Bettendorf organization was handicapped by withdrawal of some of its best men to enter the service. The number who went from its shops and offices to take up arms was 124.

The company specializes in one type of car truck, upon which it stakes its reputation and in which it embodies the best materials and methods of construction that Bettendorf brains can devise and Bettendorf resources provide. The present plant has a capacity of 320,000 side frames and bolsters and 30,000 underframes, or 12,000 completed cars per year.



Mississippi River and Illinois Shore in Distance.

Augustana College

Augustana College is one of the early educational institutions of Illinois. Pioneer settlers who came from the East and from Northern Europe to the upper Mississippi valley in the 40's and 50's at once felt the need of an institution for general education and for the training of ministers and



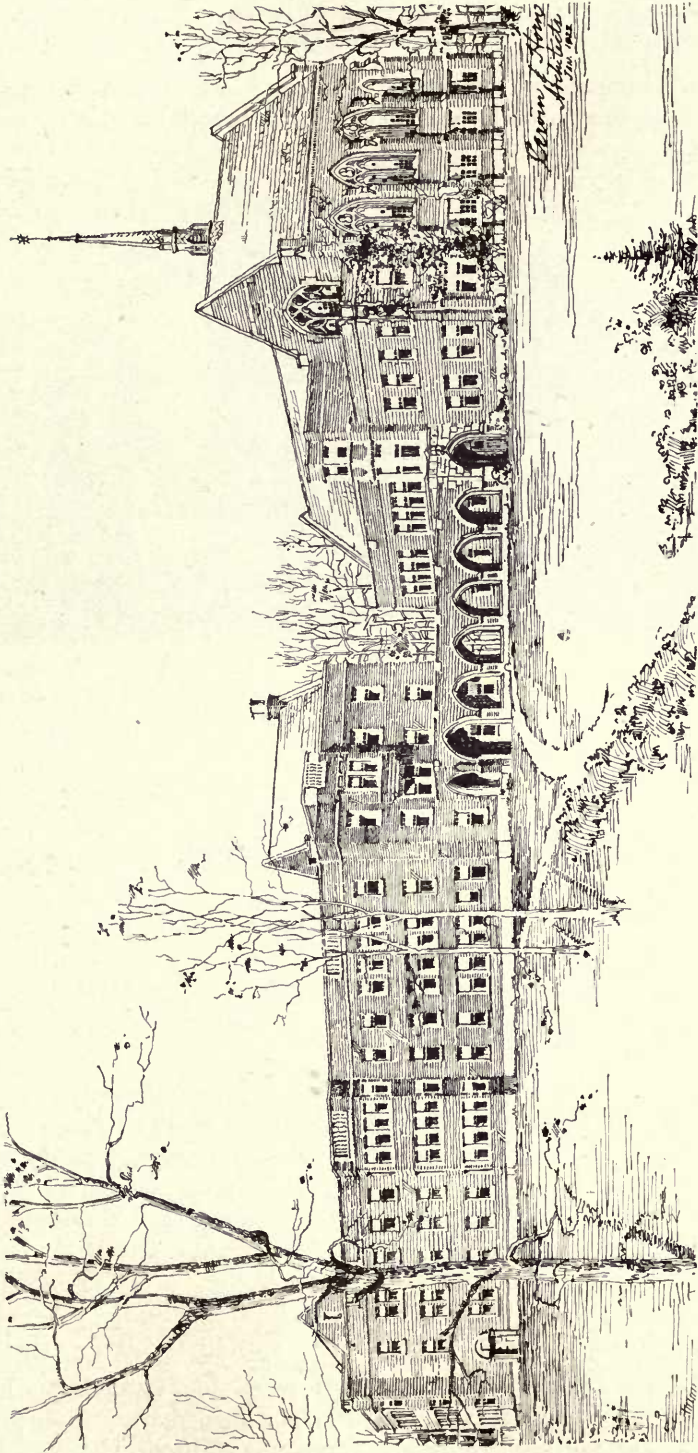
Older College Buildings

teachers. Augustana College and Theological Seminary was founded by these pioneers in 1860.

From the beginning Augustana College felt it to be its duty to serve the state and community, as well as the church. During the Civil War the growth of the institution was impeded, as the prospective students enlisted in the Union army. After the close of this war the development has been steady, and the College has now grown to number a thousand students.

During the years 1860-63 this institution was located in Chicago; during the following twelve years it was located at Paxton, Ill., and in 1875 Augustana College found its permanent home at Rock Island. The buildings comprise Old Main, Dormitories, one for young men and one for young women, and Science Hall. The gymnasium is one of the best buildings for its purpose in the state, with running track and swimming pool. On account of its size (90x140), it is also used as an auditorium, the acoustics being perfect. Citizens of Rock Island and Moline assisted generously in contributing to the expenses for erecting this gymnasium.

The most beautiful building on the grounds is the Denkmann Memorial Library, erected by the children to the memory of the parents, Mr. and Mrs. F. C. A. Denkmann. In this library building are housed the administrative offices of the Augustana College. Four stories of modern stacks give ample room for the books; the offices of the library are on the second floor. In the beautiful architecture of this building, the reading-room has been ac-



Seminary Buildings in Course of Construction at the close of 1922. (From Architect's Drawing.)

centuated both as to size (50x120) and by beauty of decoration, so that it is one of the finest reading rooms of any College in our country.

Two buildings are now being erected at a cost of approximately \$300,000.00, for the Theological Seminary, one constituting the main building,



Denkmann Memorial Library

the other the Seminary dormitory. Plans are maturing for the procuring of funds and for the erection of additional buildings, greatly needed for the right development of the College.

The present grounds cover an area of about 36 acres. The buildings (of which there are eight), and the grounds represent a value of \$494,000.00. The Endowment and Trust Funds amount to \$656,991.16, making the total value of the institution above a million dollars.

When President Wilson in 1917 called for volunteers, so great a number of Augustana students, including the whole band, enlisted, that this institution, according to the records at Washington, stood first on the list of American colleges as to the number of students enlisted in proportion to the attendance.

The roster of the 1921 catalog shows that twenty-six states of the Union and two foreign countries (Canada and Sweden) sent pupils to Augustana. The graduates of the college department now number 850; from the Theological Seminary one thousand young men have gone forth to serve the church in the ministry. In all, about ten thousand students have been wards of Augustana College during the sixty-two years of its existence; these former students are now found in all departments of American activity, in the halls of Congress, on the judge's bench, in the ministry, in law, in business, on the farm, and in foreign parts.

The fall term begins during the first week in September; the spring term in the second week of January. Further information is furnished by the President, Dr. Gustav Andreen, Augustana College, Rock Island, Ill.

The McCarthy Improvement Company

The history of street paving in the middle west might be written in the life story of P. F. McCarthy, president of the McCarthy Improvement Company, of Davenport. Mr. McCarthy started his active career as water boy with Edwards & Walsh, thirty-odd years ago. That firm laid most of the first paving placed in the main streets of the Tri-Cities.

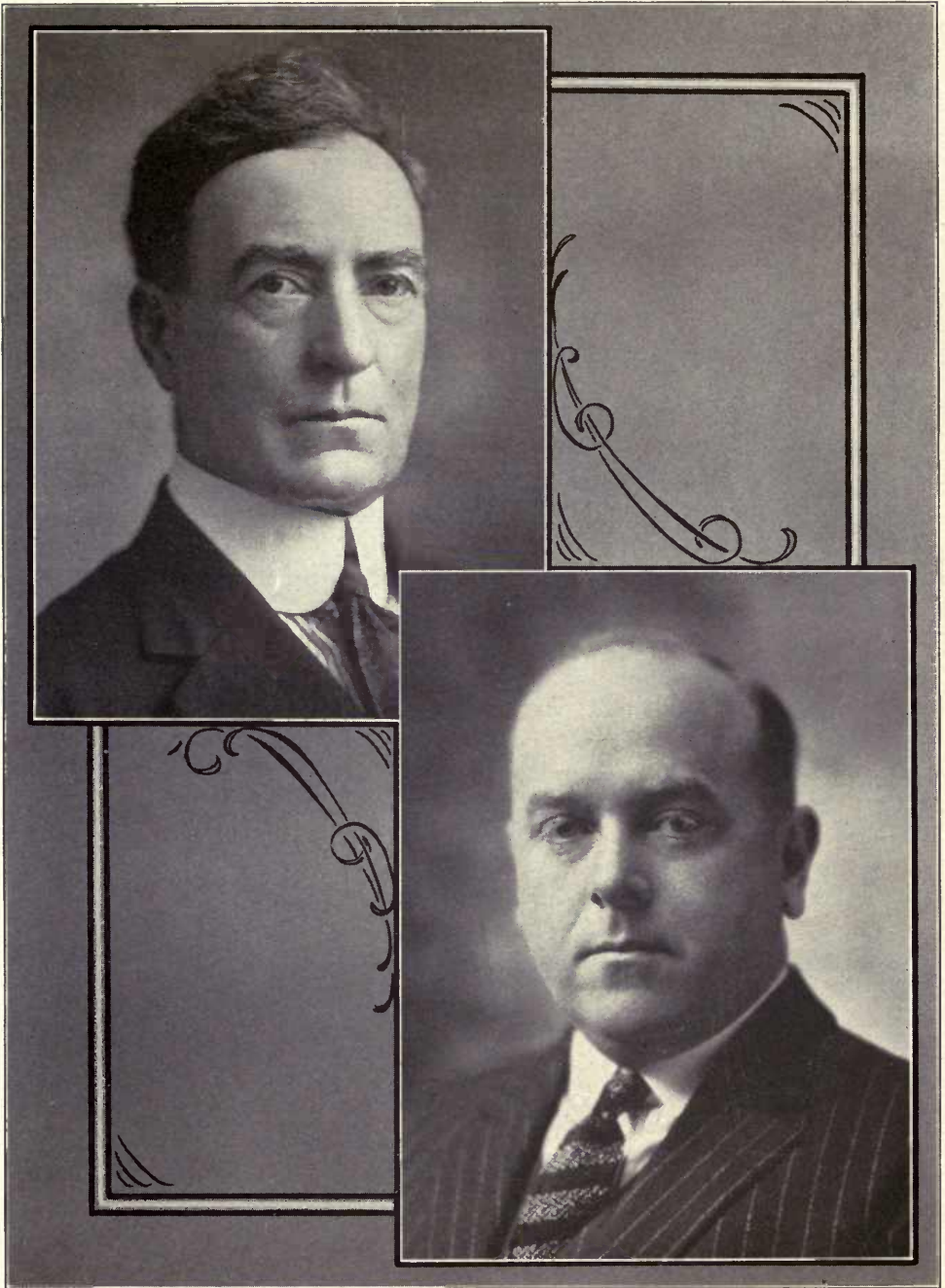
In those days brick was exclusively used, and it wasn't very good brick, either, according to modern standards. It would not have long stood up under present day traffic. Vitrified paving blocks were then unknown and concrete foundations had not come into vogue. The foundation was of stone, broken by hand on the ground. On this was placed a sand cushion, and then sometimes only one, but usually two, courses of brick. The lower course was laid flat, and culls were considered good enough for this layer.

The first concrete base was made with hydraulic cement and mixed with shovels. Then came mixing machinery, crude, but much more economical than hand methods. That was the era of the wheelbarrow, which was used to feed the mixer and distribute the concrete. Always there was an incline up which the material was pushed to be dumped into the hopper. Now there is scarcely a wheelbarrow in use on any paving job. Hand labor is reduced to a minimum.

Introduction of the motor truck has revolutionized the paving business. Materials are assembled at central points and conveyed to the scene of operations as they are needed. In the case of concrete, the ingredients are elevated by machinery and dumped into trucks, which carry them to the mixers on the scene of operations. Sometimes mixing is done at central plants, where supplies may be prepared for several jobs in progress at the same time. This plan has been successfully followed by the McCarthy Improvement Company when the haul was as great as seven miles.

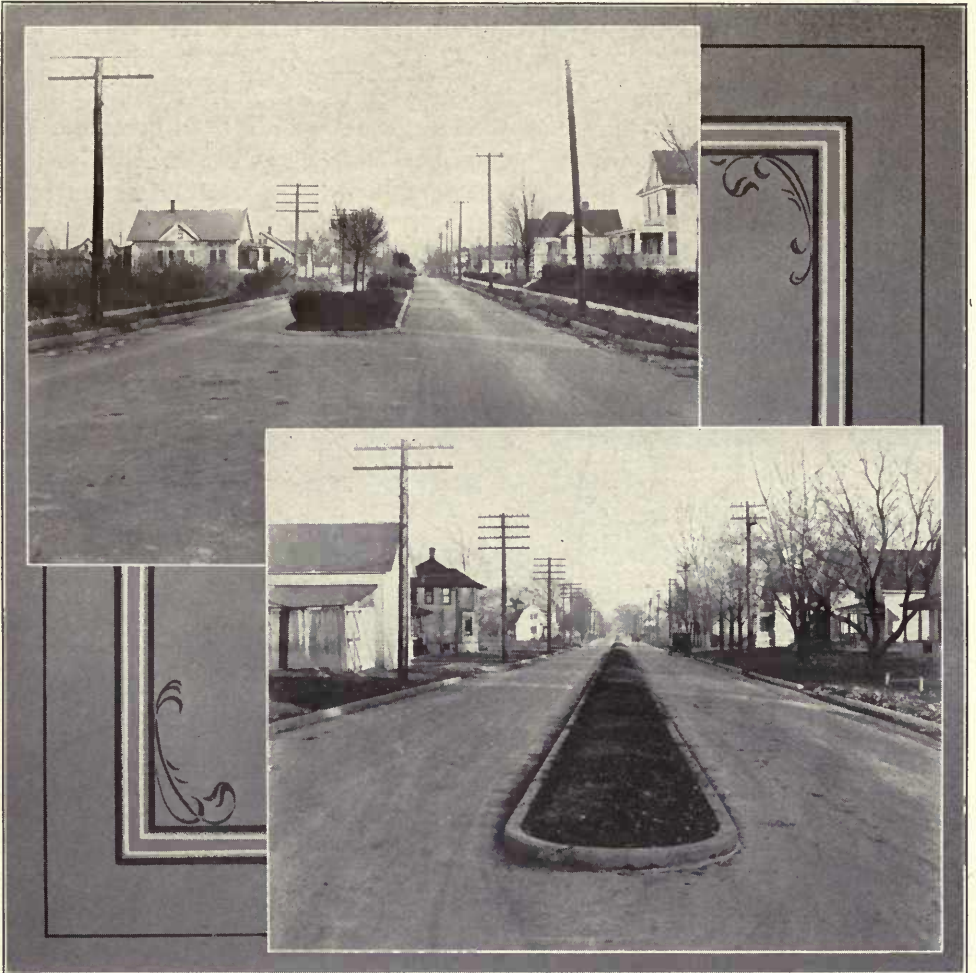
Use of machinery has greatly speeded up street improvement. It has also facilitated the standardization of mixtures, insuring uniform work of a much better quality than it was possible to turn out by the old hand methods. Materials can be more accurately measured or weighed. Inspection is made more efficient and formulas are more closely followed. Paving may cost more per yard than it did a decade or more ago, but it is vastly better. If it were not it would quickly break down under heavy motor traffic.

Mr. McCarthy worked up through the paving business to the top. From water boy he advanced to stone cutter, shaping the stone curbing in use in the early days. Then he became foreman, later superintendent, and finally organized a company of his own. The McCarthy Improvement Company was incorporated in 1903, in Iowa, and three years later took out a charter in Illinois. It is now one of the largest paving concerns in the west. It pays most attention to city work, its field being Iowa and Illinois, but it also does highway construction. Ten years ago it laid some of the first concrete paving on a country road in Rock Island county. This stretch



Above—P. F. McCarthy, President. Below—T. J. O'Brien, Vice-President and General Manager.

of highway, which is near Joslin, is still in perfect condition. More recent work of this kind was the brick paving on the Brady street road north of Davenport. The company never has been called upon to relay paving because of faulty work.



Two Views of First Completed Boulevard Link connecting Rock Island and Moline, and Built by the McCarthy Improvement Company. Above—Looking East on Nineteenth Avenue from First Street, Moline. Below—Looking East on Eighteenth Avenue from Thirtieth Street, Rock Island.

The first asphalt paving put down by the company was laid on Main street, Davenport, north of Locust, in 1904, and is still in use with little deterioration. Much of its later work has been of this material. It uses mostly Mexican asphalt, refined at Baton Rouge, La. Weighing of all materials and the system of mixing and treating insure absolute uniformity and long life in pavements laid by this company.

The McCarthy Improvement Company employs about five hundred men during the active season. Its work is directed by a skilled staff, most of whom have grown up with the concern. It maintains a large amount of equipment. Headquarters and general offices are in Davenport. The officers are: President, P. F. McCarthy; Vice-Presidents, T. J. Walsh and T. J. O'Brien; Secretary, William Wafer; Treasurer, D. R. Lane,

The Rock Island Telephone System

When the United States Government established an Arsenal in Rock Island at the time of the Civil War, the telephone had not been invented. It is doubtful if at that time even a few persons so much as dreamed of having their voices carried by wire. Now the telephone is intricately woven into all of Rock Island's business and social activities.

In 1876, Alexander Graham Bell made the discovery upon which the present art of telephone communication is founded. Less than two years



Rock Island Telephone Exchange.

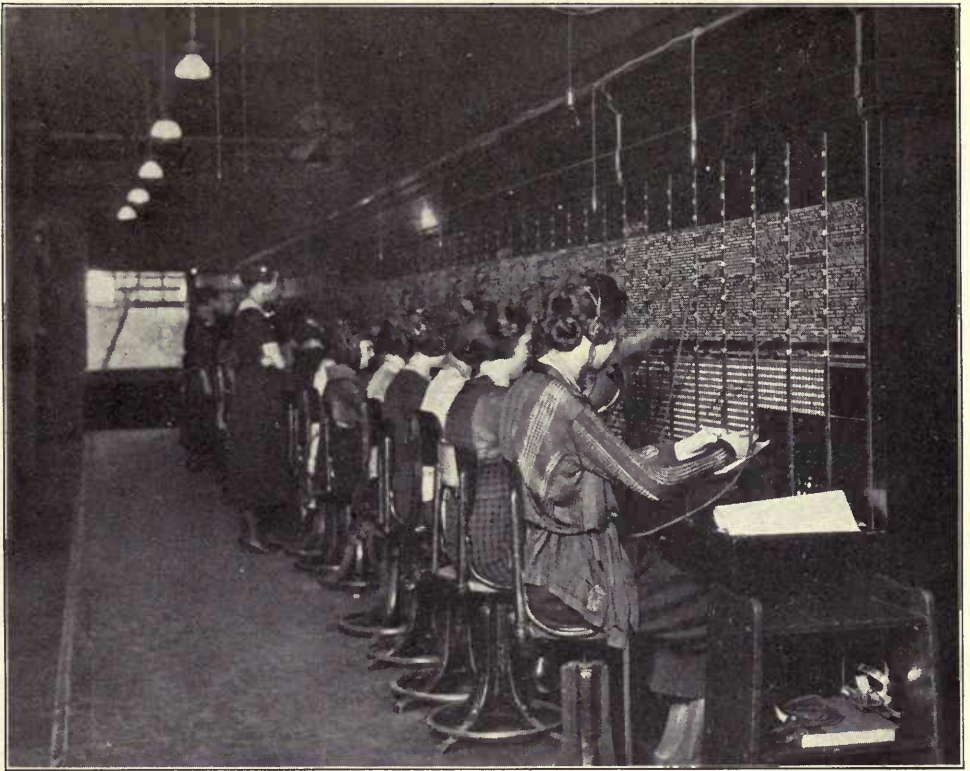
later conversation by wire was possible in Rock Island. It was not until January, 1880, that regular service was offered the public, and this was through a small switchboard in Davenport.

There was only a handful of subscribers in the early years and their number increased slowly. Later, however, an exchange was established in rented quarters in Rock Island. In 1901, the telephone company completed its own building on Nineteenth street. Here was a switchboard with places for ten girls to handle local calls and two for tolls.

In 1914, when the Nineteenth street building was nearly outgrown, construction of the present telephone building was begun at 635 Eighteenth street. On January 18, 1915, the change from the old board to the new was made.

There are now fifty-five per cent more telephones in Rock Island than there were ten years ago. In that time the population of the city increased thirty-seven per cent. Service is given through a switchboard with thirty positions for girls handling local calls and ten positions for toll traffic.

Rock Island now has in use more than 6,300 telephones, of which seventy per cent are residence stations. There is a force of more than 100 employees



Interior, Showing Switchboard in Operation.

operating, repairing and extending the equipment so that better and increased service may be given.

Telephone men and women of Rock Island are a part of the great army of 225,000 Bell System employees, all striving for the same purpose—the rendering of better and increased service.

The telephone plant in Rock Island is part of the Bell System facilities that makes it possible for you to talk to persons in 70,000 other places in the United States, Canada and Cuba.

Citizens of Rock Island, employees and others, are numbered with the more than 200,000 shareholders of the Bell System. They are the owners who have invested their savings to provide a nation-wide telephone system,

The Builders Sand and Gravel Co.

First in its line of business in the Tri-City field, the Builders Sand & Gravel Company, of Davenport, enjoys the distinction of having furnished building material to Rock Island Arsenal from the time that construction was started, back in 1863. It has been privileged to transact business with the War Department under every Commandant from Maj. Kingsbury to Col. King. Its first contract was for supplies used in the old storehouse containing the clock tower. It contributed to the erection of the original shops and did its part in furthering the great construction program undertaken during the World War.

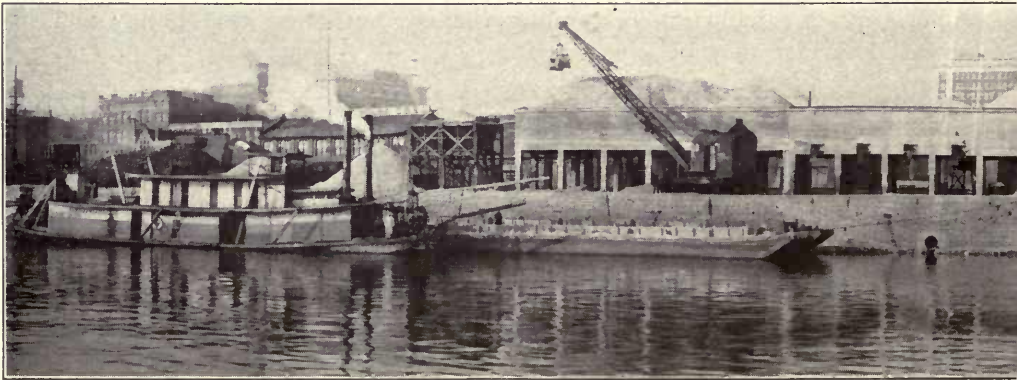


Hans Goos, Founder of The Builders Sand and Gravel Company.

Origin of the company dates back seventy years to the time when its founder, Hans Goos, father of the present manager, began operations. His first equipment consisted of a small flatboat propelled with pike poles. Sand was loaded from nearby bars and islands by means of wheelbarrows. The first improvement consisted of long-handled shovels, flatiron-shaped and perforated to permit the water to escape. With

these sand was scooped up from the bottom of the stream and a better grade was obtained with less effort.

About this time the pike-pole method of propulsion was discarded in favor of a sail, enabling the craft to make longer trips, going as far down stream as Muscatine and as far up as Hampton. To pilot such a sailing boat over the Rock Island rapids was considered quite a feat.



Davenport River Front, Showing Loading Bins and Pa

Hand and wind power gave way to steam about 1880, when the company fitted out a steam elevator dredge for loading sand and gravel and secured a small sidewheel steamer for towing barges to Rock Island Arsenal and other points. Unloading continued to be done by hand from docks along the levee until comparatively recent years.

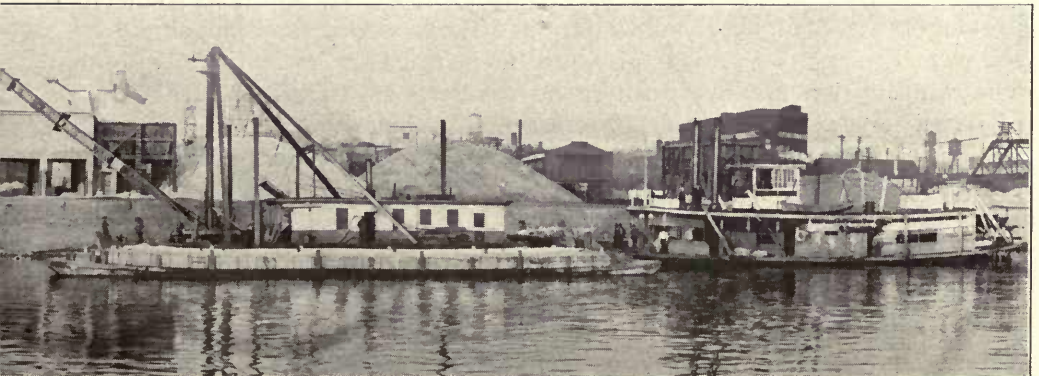
In 1891 the present company was incorporated. The same year was marked by the introduction of a modern centrifugal, commonly called suction, pump for loading sand and gravel, and a larger and more powerful sternwheel steamer to replace the sidewheeler.

The present method of handling, as developed by the Builders Sand & Gravel Company, consists of loading barges by large centrifugal pumps, or, if the material is crushed rock, by gravity from bins at the quarry. These are then towed to Davenport by sternwheel steamboats, of which there are two in service. Unloading is done by a powerful crane and derrick boat, or a locomotive crane, into reinforced concrete bins. From these the material is dropped into trucks and wagons. In this operation crushed rock, sand and gravel may be accurately measured in desired proportions ready to be dumped into concrete mixers on the job. Thus all hand labor from the sandbar to the mixer is eliminated.

The Builders Sand & Gravel Company enjoys a most advantageous location. Its bins for the handling of sand, gravel and stone are on the river bank directly opposite the west end of Rock Island Arsenal. It has a 500-



Hans Goos, Son of Founder of the Company,
and Present Manager.



ing Equipment of The Builders Sand and Gravel Company.

foot frontage there under 25-year lease from the Davenport Levee Commission. It did the levee improvement work at this point, with the exception of building the sea wall, and paved the driveway with concrete. A railroad track runs the full length of the property.

Warehouses and yards for the handling of building material and fuel are located at First and Gaines streets, at the edge of the business district of the city. Here there are 800 feet of private railroad tracks.

The company's first steamboat was named Lone Star. The larger of the two present craft is the Lone Star III. The other is the Lone Deer. There is also a derrick boat, a large fleet of barges, and a 30-ton railroad crane.

Almost unlimited quantities of sand, gravel and rock are at hand. Sand of best quality is brought from a dozen miles downstream and rock is obtained from the Buffalo and Linwood quarries. The company has its own gravel pit thirty miles upstream. As much as 1,000 yards or 1,500 tons of these materials has been unloaded and retailed in a single day.

The Davenport Water Company

Davenport has a safe and adequate water supply, furnished by the Davenport Water Company, drawn from the channel of the Mississippi river and purified by the most approved processes. In neither quantity nor quality has this concern failed to meet the increasingly exacting requirements laid upon municipal water plants during the last generation.

After several efforts to provide a city-owned water system had failed, Davenport, in 1873, granted a franchise to the present company, which was founded by the late Michael Donahue and associates. From the beginning satisfactory service, rather than large profits, has been the concern's main objective. Continuity of management has been a factor in attaining this end, a number of those holding places of responsibility with the company having served it for many years.

Growing needs of the city have been provided for and maximum fire protection afforded by the installation of over-size mains and ample reserve machinery. Average pressure maintained is exceptionally high. The company has met every emergency that has arisen in the half century of its existence. It now has 120 miles of distribution mains, two pumping stations, large sedimentation basins and a reservoir, which, being located on the bluff, offers the advantage of gravity pressure in the business district.

The Davenport Water Company was one of the first to install filters for the purification of Mississippi river water. It operates under a 25-year franchise, which was renewed in 1914. The present officers are: President, Thomas W. Griggs; Vice-President, Thomas J. Walsh; Secretary and Treasurer, James P. Donahue; Gen. Manager, C. R. Henderson.

The Borg & Beck Company

Back of the smoke and smudge and clatter, the stress and toil and grind of the average industrial enterprise lies an element of chance—a business romance—that keeps the game ever new for those who direct its movements.

The play of forces in the fairy tales of our childhood, in which suspense gradually grows till the climax in which the prince and the princess are married and “live happily ever after” is reached, has its counterpart in the dreams of many a plain matter-of-fact individual whose earthly all is tied up in some grimy manufacturing enterprise. The difference is that



The Moline Plant

in the manufacturer's dream the prince is an ideal product, guiltless of mechanical fault or flaw, whose principality is protected from invasion by iron-bound patents, the princess is the universal market that no rival has yet wooed, and the dreamer is the good fairy who brings the two together and shares with them the happiness that ever afterward prevails.

Records of the bankruptcy courts unfortunately prove that by far the larger part of the dreams of manufacturers fail to come true. Those of Charles W. Borg and Marshall Beck, however, were an exception to the rule. The manner in which their early hopes and expectations have been realized is a story of unusual interest. In the automobile clutch which their company perfected they have an ideal device for which there is an almost universal demand. It is regular equipment with three-fourths of all automobiles of standard design made in this country.

In 1903 Charles W. Borg was a member of the designing and experimenting staff of the Deere & Mansur Company, Moline. Wooden parts

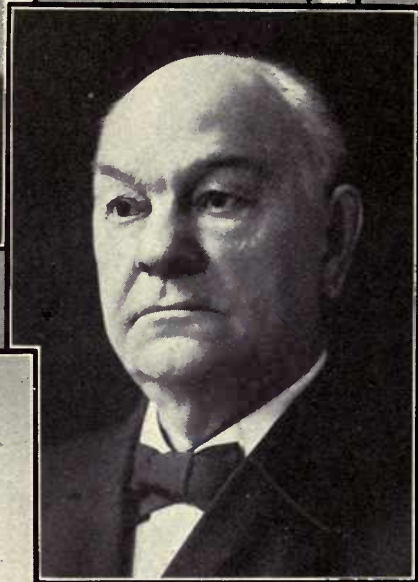
of implements and wagons at that time were mostly made by hand or with machinery, the operation of which was comparatively slow and expensive and often dangerous. Mr. Borg devised a shaping planer, a wood-working device which by means of a succession of cam-controlled cutting heads, turned out at a single run finished parts with tapers, swells, bevels, rounds, and other irregularities of form. Its use greatly simplified the making of wagons, to which it was first applied, speeding up the process and reducing the number of operations.

Realizing that he had hit upon something of unusual value, Mr. Borg resigned and prepared to manufacture his machines. At first he made his own drawings and patterns and did his own machine work. Later he applied the shaping planer principle to machinery for cutting wooden parts used in other lines of manufacture, such as barrels, washing machine tubs, porch columns and ice cream containers. The greater part of wood products of this nature now made in the United States and Canada are shaped by Borg machines embodying the original principle. Mr. Borg also devised a wheel felloe shaping machine, automatic rim sander, automatic column lathe, automatic column cap and base shaper, automatic trim and crozing saw, plow share jointer and landside trimmer, all of which were later made and sold by his company.

The co-partnership of Borg & Beck was formed in 1904, when Marshall Beck came into the firm to take up the office end of the enterprise. Shop space was rented in East Moline. Late in 1909 the concern secured quarters of its own at Third avenue and Sixth street, Moline, which are still occupied, though many additions to them have been made. Incorporation under the same name took place in 1913, with Charles W. Borg president, George W. Borg secretary, and Marshall Beck treasurer.

George W. Borg, son of the founder of the firm, entered the industry in 1903 and soon rose to a place of responsibility. His early training for the work was obtained mostly in his father's shops, although he supplemented his factory experience with some technical instruction in college. While still in his teens he was spending most of his vacations and other spare time familiarizing himself with the fundamentals of machine design, and construction. At 22 he gave up school and devoted his entire time to the industry. Like his father, he has a natural aptitude for mechanics and takes enthusiastic interest in his work. He has designed, or helped to perfect, many of the devices manufactured by his firm. He is gifted with rare foresight and judgment in estimating mechanical possibilities involved in manufacturing processes. On top of that he has demonstrated unusual executive capacity. For the last decade he has been in active charge, relieving his father of most of his responsibilities, and latterly making his headquarters at the main plant in Chicago.

For the first few years Borg & Beck grew rapidly. The early dreams of the founders seemed realized. They had a product which defied competition, the demand was heavy and profits satisfactory. But it gradually became

**C. W. Borg****Marshall Beck****George W. Borg**

apparent that the field was limited. Once a factory was equipped with their machines, its needs in that respect were met for many years. Replacement orders were negligible. By 1912 ninety percent of the prospective users in the

United States and Canada had installed Borg & Beck equipment. The field had played out. It looked as if there were no more worlds to conquer.

The company, however, did not mean to give up without a struggle. When orders for its regular product fell off, instead of laying off men and reducing activities, other work was sought. Machining contracts that could be executed without radical shop changes were undertaken.

Among the orders received was one from the Velie Motor Vehicle Company for a number of single dry-plate clutches which embodied features then new in the automotive industry. Up to that time most clutches used had been of either the cone or the multiple disc type. Borg & Beck soon saw that the new clutch offered many advantages. License from the inventor to manufacture it was secured, and an intensive effort to perfect certain details that previously had militated against the complete success of the device was undertaken. In this work Gustave C. Nelson, Mr. Borg's first employe, who had helped make the original wood cutting machines and who had become shop superintendent, rendered invaluable aid.

In a short time all the essential features of the present friction clutch for power transmission, which has carried the name of Borg & Beck all over the civilized world, had been perfected. Strongly protected by its own patents, the company turned its main attention to the making of clutches. At last it had realized the manufacturer's ideal, an exclusive product and a demand that was rapidly becoming universal.

Use of the Borg & Beck clutch is not confined to automobiles. It is equally successful in trucks, tractors, tanks and motor boats. It "picks up" the power load smoothly and efficiently. Automotive engineers generally recognize the Borg & Beck clutch as ideal, because of its dependability, effectiveness, ease of adjustment and low cost.

Expansion of its business after the perfection of the clutch made it necessary for Borg & Beck to expand its quarters. Five additions to the original plant in Moline were made in rapid succession. Then in 1918, because of a local labor shortage incident to the war, it was found expedient to open a branch in Galesburg, Ill., employing fifty men. Late the same year the factory of the Smith Form-a-Truck Company at Clearing, in the southwestern limits of Chicago, was bought at bankrupt's sale. The plant was new and modern and well adapted to the needs of the new owners. It had 118,000 feet of floor space, giving room for the employment of 1,000 to 1,200 operatives. The Chicago Belt Line railroad gave first-class shipping facilities and there was a 1,000-foot covered loading platform and as many feet of new private service track. The Clearing factory was opened early in 1919 and was conducted as a branch till early in 1922, when headquarters were removed there from Moline. The Galesburg branch was discontinued when the one at Clearing was opened.

During the World War Borg & Beck worked almost exclusively on parts for manufacturing concerns having government contracts.

Leading Newspaper In Western Illinois

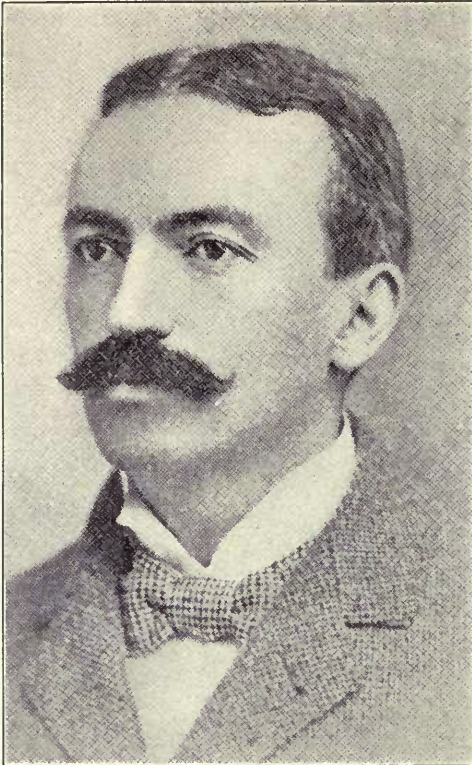


The Moline Dispatch was established as a daily in 1878, after a number of weekly newspapers had lived brief existences. In the first seven years of the life of the Dispatch it had its own vicissitudes and many changes of ownership. Commencing in 1885, when Messrs. P. S. McGlynn and J. K. Groom became owners, the Dispatch began a growth commensurate with or a little more rapid than that of the city. It moved into and occupied its present home in October, 1922.

From 1885 to 1922 the ownership of the Dispatch underwent only two changes—in 1891, when Mr. Groom sold his half interest to W. F. Eastman; and in 1911, two years after the death of Mr. Eastman, when John Sundine purchased the Eastman half interest.

The Rock Island Argus

Survival of the fittest, is the hard law that has shaped the destinies of the daily press of the country. The Rock Island Argus stands today a typical product of newspaper evolution during the last seventy years. It



John W. Potter, Owner and Publisher of The Argus from 1881 until his death in 1898

has fought and won the long battle in which its competitors, one by one, failed and passed into history, building up a record of real service and dependability seldom rivaled and not anywhere excelled in newspaperdom.

There have been many changes of ownership, of location, of form of publication. Even the name has been altered. Originally it was The Rock Island Republican.

Fred S. Nichols and John W. Dunham printed the first issue of the Weekly Republican, October 18, 1851. Dunham tired of the venture in six weeks and sold out to his partner. The latter held on till 1853, when J. B. Danforth, who had acquired an interest a year earlier, became the sole owner. Robert V. Shurley became a partner in 1856. September 16, 1857, Pershing & Connelly, publishers of the Rock

Islander, bought Mr. Danforth out, and changed the name to The Rock Islander and Argus. About the same time, Mr. Shurley disposed of his holdings to Milton Jones, who held an editorial position with the paper till 1881.

Mr. Danforth took over the interests of Pershing & Connelly in 1859, and the name once more became The Argus. Danforth's connection with the newspaper finally terminated in 1869, when he sold to Robert F. McNeal. McNeal survived less than a year, selling to J. S. Drake. In 1873 The Argus Company was incorporated. Richardson & Powers obtained control in 1881, but a few months later publication was suspended. At this juncture, J. W. Potter, publisher of the Freeport Bulletin, bought the dilapidated plant and placed his son, John W. Potter, Jr., in charge. That was the last change in ownership, and marked the beginning of a period of upbuilding that has continued to the present.

The first daily was printed July 13, 1854. July 18, 1859, the daily was changed to a tri-weekly, but Sept. 1, 1861, returned permanently to the daily field. In the beginning the daily was published in the afternoon. From Dec. 17, 1855, to Nov. 18, 1861, it appeared in the morning. On the latter date evening publication was resumed. A weekly was printed, in addition to the daily, till about twenty years ago.

First publication took place in the Whittaker & Everts building, just east of the present Argus home. Quarters were found in the Buford block, at the Northeast corner of Second avenue and Seventeenth street, in 1854. In 1871 the Buford heirs erected a building for the exclusive use of The Argus just north of the original block. Here the newspaper remained till 1888, when Mr. Potter purchased the present quarters, which have been remodeled several times since to give added facilities.

Mr. Potter died in 1898. The J. W. Potter Company was then organized, Mrs. Potter assuming the presidency of the corporation, which position she still holds. J. F. LaVelle became business manager and H. P. Simpson editor. Upon Mr. LaVelle's death in 1908, he was succeeded by F. J. Mueller.

During the years of marked transition in the methods of newspaper publishing The Argus kept pace with its contemporaries and rapidly grew from a small, eight-page paper to a large modern daily. The Argus acquired the first Associated Press report and leased wire service in Rock Island, and its mechanical equipment has been steadily increased and improved.

In 1919 John W. Potter, third in a direct line to bear that name and follow the vocation of newspaperman, entered the business and the paper is now actively conducted by him as publisher, his brother, Ben H. Potter, Mr. Mueller and J. M. Colligan, managing editor. The directors of the J. W. Potter Company are Mrs. J. W. Potter, John W. Potter, Ben H. Potter, Marguerite F. Potter, F. J. Mueller and H. P. Simpson.

The Rock Island Daily Union, the last of its competitors in the Rock Island field, was absorbed by purchase in March, 1920, and at that time The Argus, which always had been conducted as a Democratic paper, became independent in politics.

A year later, in 1921, a new building site at the southwest corner of Eighteenth street and Fourth avenue was purchased by the company and plans for a spacious, modern plant to be erected on this lot are being drawn. The structure will be one of the finest newspaper homes in the middle west and will be modeled so as to accommodate the rapidly growing advertising and circulation business of The Argus.

The Daily Times



There is but one daily newspaper covering Davenport, Rock Island, Moline and their suburbs and giving a complete local daily news service, with delivery by carrier throughout the Tri-City field. That is the Daily Times, published in Davenport. It has been a Tri-City newspaper for over twenty years, exerting a powerful influence for community co-operation.

The Times was established as a Davenport newspaper in 1886. E. W. Brady was its founder. In June, 1899, A. W. Lee and C. D. Reimers, of the Ottumwa Courier, purchased the Times, which, with the Courier, became the nucleus of the present Lee Syndicate, composed of six daily newspapers.

Under the new owners the Times grew rapidly. Offices were opened in Rock Island and Moline and news and carrier service were extended to the Illinois side of the river. The Daily Times was the first in its field to adopt modern mechanical equipment.

In 1901 E. P. Adler, the present publisher and president of the Lee Syndicate, was made manager of the Daily Times, and Messrs. Lee and Adler purchased Mr. Reimers' interest in the enterprise.

The Times was first printed in a small plant on Front street. After a few years it took up quarters on Brady between Second and Third streets. September 5, 1911, it occupied its present home on East Second street, conceded to be one of the finest newspaper establishments outside of the metropolitan centers. Its Goss high speed sextuple press has a capacity of 72,000 twelve-page papers per hour.

The circulation of the Daily Times has grown from 1,800 to 24,000.

The Davenport Democrat—Iowa's Leading Newspaper

When the Democrat Publishing Company, headed by Frank D. Throop, purchased the Davenport Democrat in the autumn of 1915 the paper looked back across 60 years of continuous publication under practically unchanged ownership.

The first issue of the Iowa State Democrat appeared October 15, 1855, and October 22, 1905, the Democrat observed the 50th anniversary of the paper by the publication of the Democrat's half-century edition—a feat of journalistic enterprise which gave to its readers nearly 100 pages of historical and reminiscent reading that made the edition unique in the field of journalism.

D. N. Richardson, the long-time editor of The Democrat, left his scholarly and dignified impress on its pages and made it one of the leading newspapers of the west. In his later years he won distinction as a traveler and author.

J. J. Richardson, who survived his brother, remained the principal owner of the paper until 1915, when it was purchased by The Democrat Publishing Company, of which J. B. Richardson is president and Frank D. Throop secretary and treasurer. In 1922 the company purchased the property at 407, 409, 411 and 413 Brady street, where it planned to erect a magnificent \$250,000 plant, one of the finest in the middle west.

The paper has played a large part in the history of Davenport from its very beginning. Launched as a Democratic daily by Richardson, Hildreth and West, in 1848, the Richardson ownership survived several changes in the firm, and in 1863, the Richardson Bros. bought out the other interests and remained the publishers of the paper for over half a century. D. N. Richardson remained editor of the paper for 43 years. He passed to his reward July 4, 1898. In 1887 The Democrat bought out the Davenport Gazette, and seven years later absorbed another Davenport daily, the Leader, and the name was added as a sub-title to the paper.

Frank D. Throop, present publisher of The Democrat, had been for 14 years connected with the Muscatine Journal, and for the last nine years its publisher, when he came to Davenport and organized the company which purchased the Democrat from the Richardson interests. He is the third generation of newspaper publishers in his family, his grandfather having conducted a newspaper, beginning in 1868. Since the change in ownership The Democrat has continued to expand in size and influence, and it is to be reckoned one of the leading independent-Democratic newspapers of the middle west.



Frank D. Throop, Publisher

The Linograph Company



The Linograph Company
Davenport, Iowa

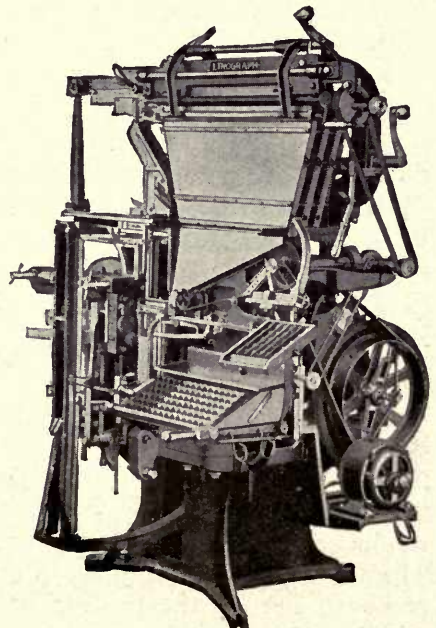
The Linograph Company of Davenport, Iowa, manufactures the Linograph, which is a typesetting machine used in job printing and newspaper offices. When this enterprise started, in 1912, there were many who claimed such fine machinery as a typesetting machine could not be successfully manufactured out here "Where the West Begins." The success of the Linograph has definitely proven that skilled mechanics for the highest grade of work can be secured in Davenport.

The enterprise was brought here from Minneapolis, Minn., through the efforts of a group of the leading business men, acting under suggestions from the Davenport Chamber of Commerce, then known as The Greater Davenport Committee, and a large number of Davenport people became interested as stockholders.

Since then the Linograph has been developed and perfected, and new models have been put on the market which have reached a high point of efficiency. This is an international business, for Linographs have been sold in twenty-two foreign countries and nearly all the states, and are making friends everywhere.

The Linograph Company is essentially a local enterprise, backed by Davenport capitalists and hundreds of people in the city and vicinity. The men who direct the destiny of and are responsible for the success of this enterprise are: R. R. Englehart, J. W. Bettendorf, Chas. Shuler, J. W. Bollinger, Ray Nyemaster, H. C. Kahl and H. Petersen.

The officers and active management consists of: R. R. Englehart, president; Hans Petersen, Vice-President and General Manager; Ray Nyemaster, Treasurer; J. C. Pedersen, Secretary and P. O. Pedersen, Sales Manager.



The Linograph

Rock Island Bridge and Iron Works

Facilities for the fabrication and erection of steel parts offered by the Rock Island Bridge and Iron Works makes possible greater speed in the construction of modern buildings in the Tri-Cities and immediate vicinity. This company is equipped to design, fabricate and erect anything in structural steel and iron. Its plant, occupying six acres of ground on the river bank in the west end of Rock Island, has exceptionally good shipping facilities both by rail and water. It regularly employs one hundred men.

Practically all the steel used in buildings erected at Rock Island Arsenal during and immediately following the war was furnished by the Bridge and Iron Works, which also erected there an elevated steel water tank of 500,000 gallons capacity. The main activities of the plant at that time, however, were devoted to the fabrication of materials used in the construction of the 5,000-ton merchant ships by the Submarine Boat Corporation for the Emergency Fleet Corporation. The steel was shipped direct from the mills to Rock Island, fabricated there and re-shipped to Newark, N. J., where the ships were built and launched. Great quantities of material were handled in this manner.



W. A. Rosenfield, President

In peace time most of the work done by the company has consisted in the preparation and erection of structural steel for building purposes. It is advantageously located for the construction of steel barges, of which it has made several, and in the event of the revival of river traffic it will be in position to make a strong bid for work of this kind.

The Rock Island Bridge and Iron Works was incorporated in 1912 with \$100,000 capital. The officers are:

President—Walter A. Rosenfield.

Vice-President—Walter G. Murphy.

Secretary and General Manager—Edward Manhard.

National Construction Company

It takes hard work, straight thinking, close figuring and lots of nerve to win success in the construction game. That isn't all it takes, but the qualities enumerated as essential will make it clear that unless one is possessed of more positive virtues than are commonly found combined in one individual he had better turn his hand to other things.

D. E. Keeler, of Davenport, has followed the business for thirty-five years. Working under his father, the late Dan Keeler, just thirty-five years ago he laid the first pavement in this part of the country. It was of two-course brick, on sand cushion, and extended from Perry to Ripley on Third street in Davenport.

With Mr. Keeler for the last twenty years has been associated J. W. Crowley, of the same city, first in the Peoples Construction Company, later in the D. Keeler Company and finally in the National Construction Company, organized in 1919.

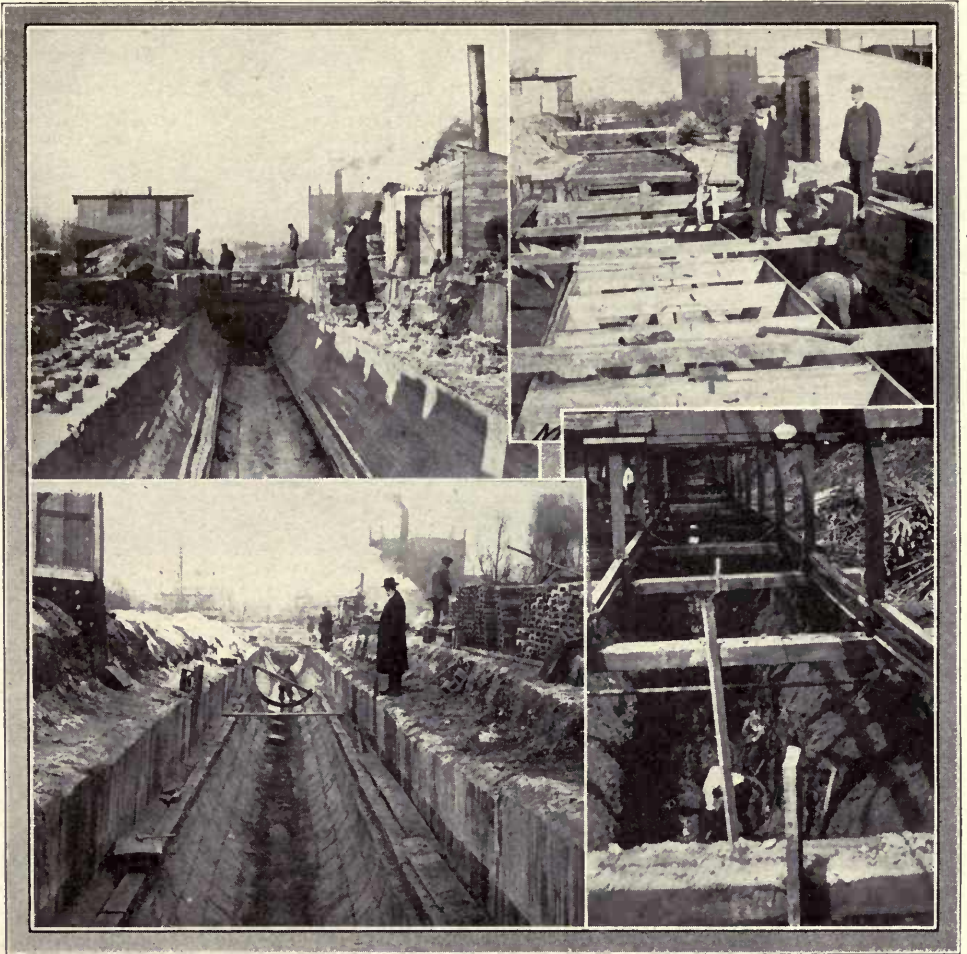
Heavy bridge building is the specialty of the last named concern, but it also does all kinds of railroad work, installs water and sewer systems, paves streets and builds and improves highways. One of the big projects put through by one of the earlier organizations was the celebrated Belle Fourche irrigation system in the Black Hills of South Dakota. This undertaking involved the erection of a huge dam, creating a reservoir of 9,000 acres and supplying water enough to reclaim 240,000 acres of land.

Other work done by the companies in which Messrs. Keeler and Crowley had been the moving spirits includes the building of all the bridges between Chicago and Terre Haute for the Chicago, Terre Haute & Southeastern, better known as the John R. Walsh road; building of the cut-off for the C. B. & Q. between Old Monroe and Mexico City, Mo.; the Big Lane cut-off of the Union Pacific out of Omaha, and all the bridging on the B. & M. from Lincoln to Milford, Neb. A sewer system costing a quarter of a million dollars was built at Clinton, Iowa, in 1911, and paving and sewer work done in the Tri-Cities before and since has run into large figures. One of the big Tri-City jobs was a storm drain and sewer system in East Moline, completed recently at a cost of a quarter of a million dollars. Among other late undertakings was one at Fort Madison, Iowa, which cost half a million and involved engineering difficulties, the solving of which has attracted considerable attention among construction engineers. Since the forming of the present company, work done has amounted to more than two millions of dollars, and at the close of the 1922 season contracts totaling a quarter of a million more were in hand. During the World War sewers were laid for 170 government-built houses, construction of which was started in Davenport.

Mr. Crowley, before becoming associated with Mr. Keeler, was superintendent of construction for the Davenport, Rock Island & Northwestern Railroad Company, having charge of the building of the Crescent bridge and of the terminals and connecting lines in and adjacent to the Tri-Cities. In

1914 he became Commissioner of Public Works for the city of Davenport, serving one term of five years and then resigning to return to the construction game.

The National Construction Company has its main office in Davenport, with branch offices wherever large undertakings are in progress. The con-



Showing Progressive Stages of Big Davenport Sewer, Built by the National Construction Company

siderable business done in the Tri-Cities and in nearby cities and villages is handled direct from headquarters. Officers of the company are:

President—D. E. Keeler.

Vice-President—R. J. Walsh.

Secretary and Manager—J. W. Crowley.

Treasurer—J. F. Schroeder.

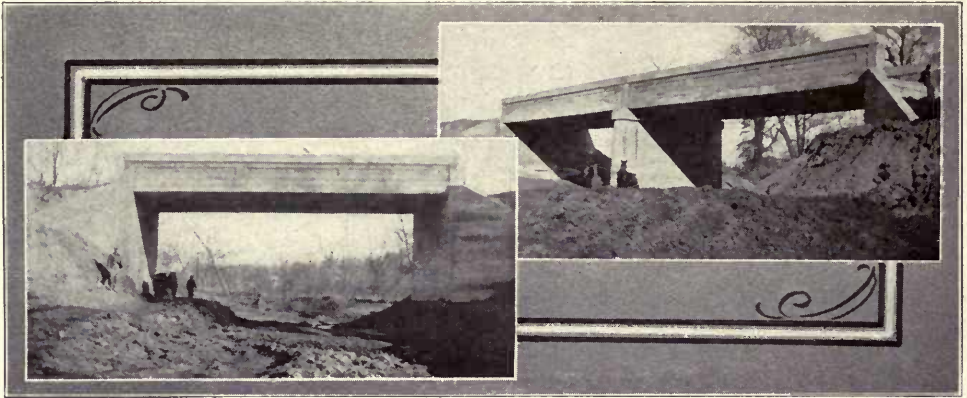
Assistant Secretary and Treasurer—Everett J. Thompson.

Directors—Messrs. Keeler, Walsh, Crowley, Schroeder and A. J. Klindt.

The Geo. Sheldon Company

The Geo. Sheldon Company is one of the younger construction concerns of Davenport, but one which already has won a reputation in the field of highway and bridge building. In three seasons it has built more than one hundred bridges and laid ten miles of concrete paving.

Originally capitalized at \$25,000, the company has authorized an increase to \$150,000. The value of its equipment is conservatively estimated at \$95,000. With experienced and aggressive leadership and ample means, it seems destined to play an increasingly prominent part in the extensive



Concrete Highway Bridges Built by The Geo. Sheldon Company

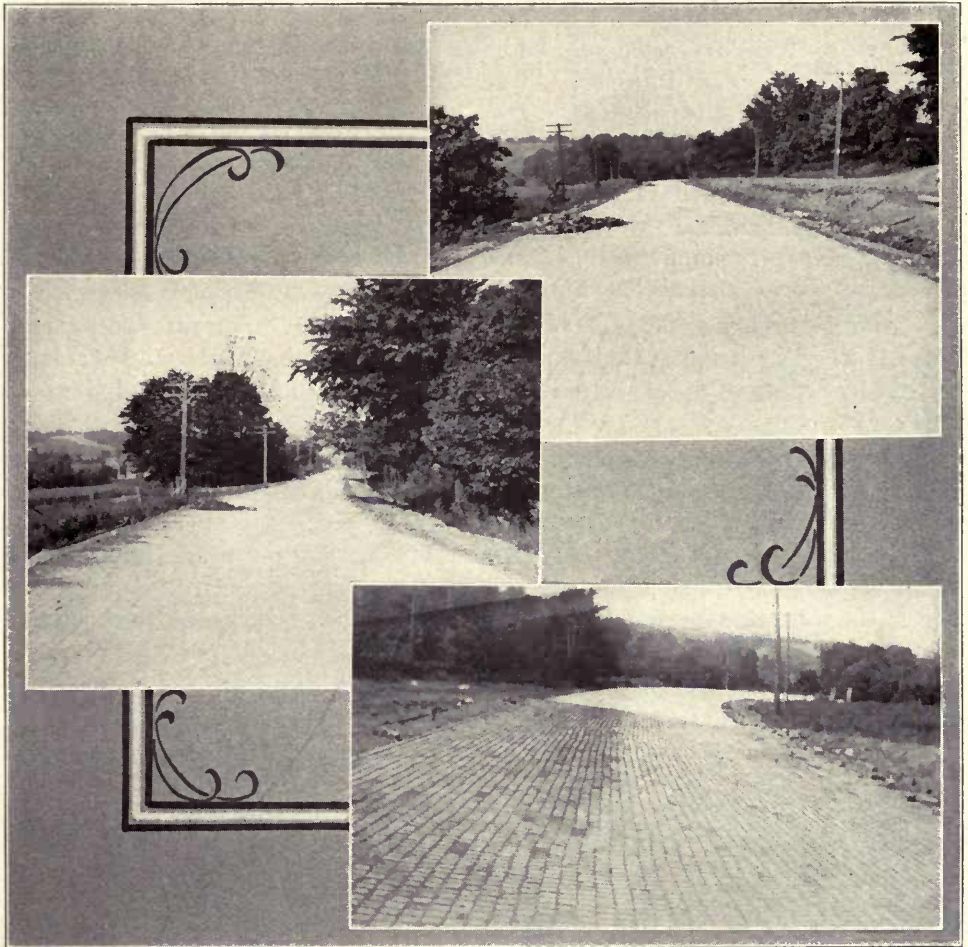
program of highway improvement upon which the middle west is now entering, as well as to do construction work along other lines, which it is fully qualified to undertake.

The Geo. Sheldon Company was incorporated in 1920. Its president, for whom it was named, had had sixteen years' experience in the general construction business. He had built bridges and concrete buildings, laid paving and done other work, thereby obtaining a practical knowledge of the business. He saw that the field was one of large possibilities, but calling for an effective organization and a considerable capital investment to be successfully worked. Therefore he set about enlisting the aid of other prominent men in the community. Since he was a native of Davenport and well and favorably known, it was not difficult for him to secure the required co-operation. The vice-president of the company is Fred O. Block, president of the G. W. Block Company, extensive dealers in coal and building material, with twelve branches in various cities. The secretary is Gustav Stueben, cashier of the Scott County Savings Bank. The Treasurer, G. H. Ficke, is in the insurance and real estate business in Davenport.

In its first season the company undertook a large highway bridge construction program for Scott County, Iowa, putting in sixty-six of these structures. In 1921, thirty-seven bridges for Scott county and five large bridges for the state of Illinois were constructed. Operations for the 1922 season were confined entirely to highway paving, ten miles of concrete road-

way being laid for the state of Missouri. This was a \$500,000 contract, and the work was highly commended by highway authorities from different states who inspected it both while it was being built and after completion.

Exacting requirements of present-day highway and bridge construction make it necessary to use only the best equipment obtainable and calls for a degree of executive and engineering skill unknown in such work a few



Some of Missouri's Best Roads are the Work of The Geo. Sheldon Company

years ago. In every department the Geo. Sheldon Company has made good. Its equipment includes two complete paving units, five bridge building outfits and camps of modern type for each.

The company's work has been of such character that it is being sought after by highway commissions, county and state, in Iowa and nearby states, to undertake new contracts. With its record of achievement and with highway and bridge construction programs of unprecedented extent in hand all over the country, the future of the concern seems assured.

The Tri-City Brick Company

The Tri-City Brick Company was organized in February, 1922, by Mr. J. L. Buckley, then located at Pittsburg, Pa.

Mr. Buckley organized the Tri-City Brick Company for the purpose of purchasing a plant that was owned and operated by the Argillo Works and located at Carbon Cliff, Ill. The majority of the stock in the company is owned by Tri-City residents, and the officers of the concern at the time of this writing are as follows:

President—F. K. Rhoads.

Vice-President—C. J. Mueller.

Secretary and General Manager—J. L. Buckley.

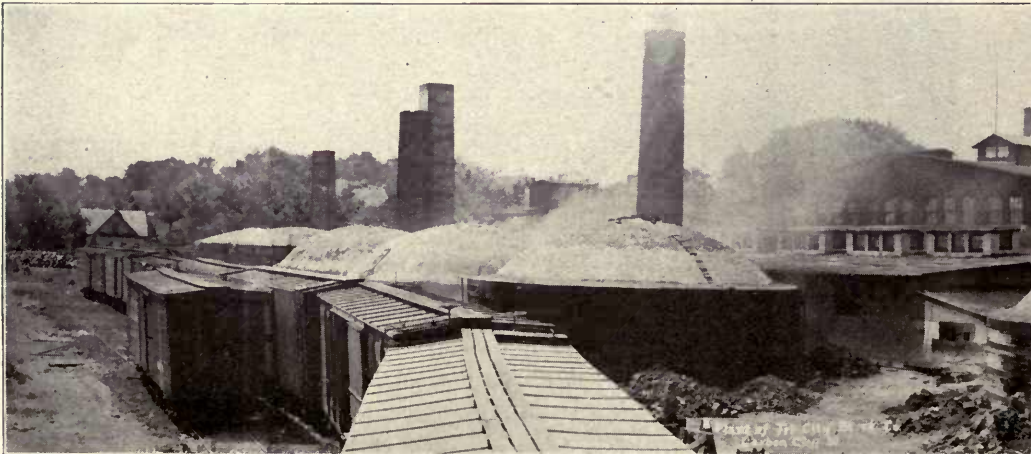
Treasurer—C. A. Beers.

The above officers, together with H. O. Binyon, of Chicago, and F. T. Myers, of Rock Island, constitute the board of directors.

This plant has a large acreage of excellent raw material, both shale and fire clay, and unexcelled shipping facilities, both by rail and water as well as by truck, as the plant is located directly on the Rock Island-Geneseo new paved road.

The Argillo Company, which is one of the oldest concerns in this section of the country, was devoting its efforts entirely to the manufacture of hollow ware, but immediately upon taking possession of the plant Mr. Buckley discontinued the manufacture of hollow ware and started manufacturing face brick, and in a short time very successfully developed one of the most artistic lines of facing brick that has ever been manufactured in the central west.

The plant was greatly improved and extended; new kilns were erected; an entire new set of brick machinery was installed, and before the end of the first year the production had been increased to 50,000 brick per day.



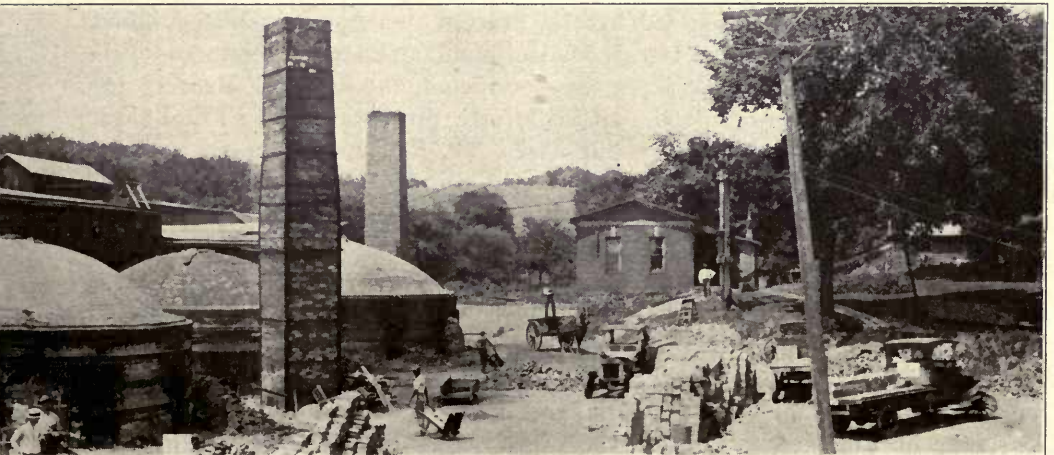
Carbon Cliff Plant o

Commodious offices were opened up shortly after the organization of the company, in suite 318, Robinson Building, in Rock Island, where an extensive line of its brick is displayed in large panels.

The Argillo works antedates all other concerns of its kind in the community. As early as 1856 the quality of the clay at Carbon Cliff attracted the attention of W. S. Thomas, who had some scientific knowledge of ceramics. At that time the coal mines there were at the height of production and the Rock Island road had just been completed, connecting the Mississippi river with the Great Lakes at Chicago, and giving exceptionally good shipping facilities. Mr. Thomas began by making pottery on a small scale, experimenting to learn the possibilities of his undertaking. Results were so satisfactory that in 1865 a company was organized by Mr. Thomas, together with A. L. Wait, of Carbon Cliff, and Jeremiah Chamberlain, of Rock Island. It was given the name Argillo Works, Argillo meaning white clay. An architect from abroad was engaged to build the first kiln. From that time till the present operation of the plant has been practically continuous, though the product has been changed from time to time to meet market demands.

Milo Lee became chief owner and president of the concern in 1869. He was succeeded in 1897 by W. T. Ball. In 1899 J. F. Robinson, Fred Titterington and F. K. Rhoads purchased the plant, with the 189 acres of land owned by the company, and operations were conducted under the management of Mr. Titterington until the organization of the Tri-City Brick Company.

Clay at Carbon Cliff is adapted to a wide variety of uses. An excellent grade of pottery was made from it in the early days. Crockery and jugs formed the staple output for a number of years. Even tableware was attempted, but the product was too dark in color to find favor. Good sewer pipe was turned out, but the kiln capacity was not large enough to produce this line successfully.

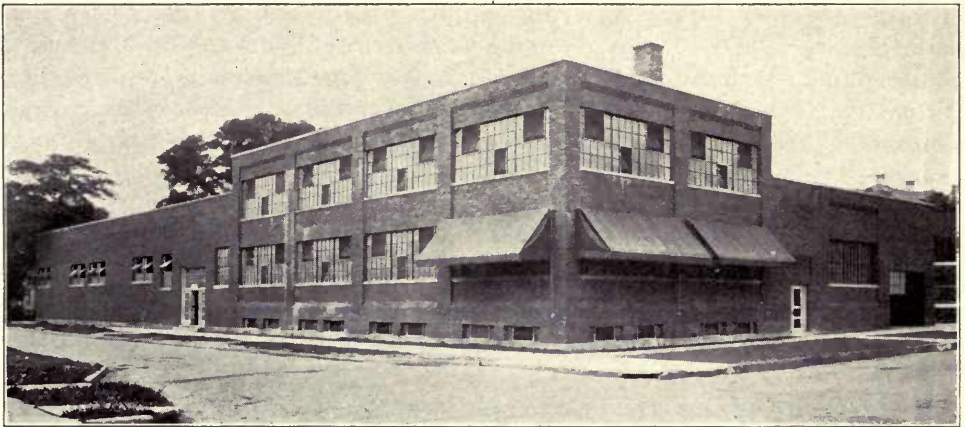


Tri-City Brick Company

The Sturtevant-Baker Company

Efficiency and cleanliness go hand in hand in the Sunlight plant, the new home of the Sturtevant-Baker Company, manufacturers of Purity ice cream and Crystal ice. Located at the corner of Sixteenth street and Fifth avenue, Rock Island, convenient for prompt delivery to all parts of the three cities, the building was planned primarily for the production of good ice cream. Working at full capacity, 240 gallons of ice cream can be produced hourly, while the daily output of ice is 100 tons.

In the ten years since its advent in Rock Island the Sturtevant-Baker Company has operated with marked success, building up a reputation for



New Home of The Sturtevant-Baker Company

Purity ice cream which extends throughout the three cities and surrounding territory. Twice it has outgrown its quarters, and finally was forced to construct the present building for its plant, the structure being started late in 1921 and occupied early in 1922.

The business later acquired by the present owners was started about twenty-five years ago by the late J. M. Beeman, at Seventh avenue and Fifteenth street. At first a milk depot was conducted, and later the Beeman Ice Cream Company was organized. In 1912 O. G. Sturtevant and C. E. Baker, both experienced in the business, purchased Mr. Beeman's interests and operated it as a partnership under the name of Sturtevant & Baker. The old quarters were inadequate for the needs of the new owners, and so a new building was erected just across the alley west of the former station. There the retailing of milk and cream was shortly discontinued and the firm came to devote its entire attention to the manufacture and sale of ice cream.

Details of the present plant were planned with much care and after an exhaustive investigation of the best features of similar structures throughout the country. The Sturtevant-Baker Company, which was incorporated when the expansion was undertaken, was fortunate in securing the site of

the old rink building, centrally located and with ground space of 100x212 feet. The building covers all the ground, part of it being two stories in height, and is of fireproof construction. In it all that is modern in the way of equipment for the manufacture of ice cream and pure ice has been installed. While the foundations were being laid an artesian well was drilled to supply pure water for the making of ice. The structure is of brick and concrete, presenting a pleasing exterior and an interior so admirably adapted to its purposes that it is likely to serve for a long time as a model for building activities of concerns engaged in the ice cream business.

Recognizing sunlight as an important factor in promoting sanitation, and light interior colors as an aid in the maintenance of perfect cleanliness, the builders provided an abundance of windows and skylights and finished the inside in pure white. Refrigerating machinery of the latest type fills the engine room, from which is piped vaporized ammonia to three separate departments. In one of these Crystal ice is produced, being frozen in brine reduced to a low temperature by the expansion of the piped ammonia. This ice, produced in 400-pound cakes, is handled by an electric crane. It is used to pack ice cream and supplied to ice cream dealers, and the surplus is sold at retail at the plant.

Four electrically operated freezers are in the ice cream department. They are cooled direct by the ammonia process. The "mix," composed of cream, sugar, flavoring extracts, etc., is prepared in three large containers on the second floor and fed through closed pipes down into the freezers. There the dashers are set at work in the cold cylinders and when tests show that the specific gravity has been reduced to the required point, the ice cream, still in a partly fluid state, is poured out into paper-lined cans ready to be placed in the zero chamber. Each of the four freezers converts fifteen gallons of "mix" into ice cream every fifteen minutes.

In the zero chamber, which is also cooled by direct action of the ammonia, a low temperature is maintained. There the ice cream is brought to the right consistency for handling. Before being delivered it is packed in crushed ice, which keeps it in perfect condition for several hours, even in the warmest weather.

Sturtevant-Baker delivery facilities are up to the high standard of the manufacturing plant. Anticipating the heavy demand for its product which has since been realized, the company planned a large loading dock, all under roof, from which the eight trucks serving the Tri-Cities receive their daily loads of ice and ice cream. An overhead mechanism carries the crushed ice direct from the crusher to the vehicles so that loading and packing can be done most expeditiously.

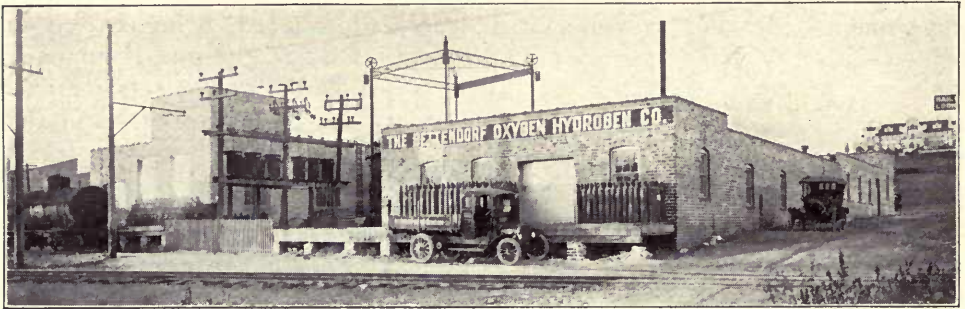
The Sturtevant-Baker Company invites inspection of its plant, confident that the more the public knows of its methods of operation the sooner will the truth of its claim for the purity and goodness of its product be realized.

The Bettendorf Oxygen-Hydrogen Company

Oxygen and hydrogen, combined in the form of water, are among the most common elements. Separated they have long been employed in small quantities in various ways, but their general use in the industries dates back but a few years, and involves a story of surprising growth.

Oxygen is used mainly in welding and in cutting steel, expediting both operations to a marked degree and offering other improvements upon older methods. During the war hydrogen was required in large quantities to inflate balloons.

The business of generating oxygen and hydrogen in commercial quantities in this country goes back only a few years. In 1914, when the World War began, the number of plants in the United States was fifty-one, and the



quantity of oxygen produced annually was 104,700,000 cubic feet. Now there are about one hundred plants, with a capacity of 1,500,000,000 cubic feet yearly.

The Bettendorf Oxygen-Hydrogen Company began operations in August, 1914, with a capacity of one million cubic feet of oxygen yearly. Its plant is fitted to generate gases by the electrolysis of distilled water. A high voltage current is passed through the liquid in cells, setting the two elements free in the form of gases, which are conducted to separate holders and later compressed into steel cylinders for handling, at a pressure of 1,800 pounds per square inch. Present capacity of the plant is 7,000,000 cubic feet of oxygen and 14,000,000 cubic feet of hydrogen per annum.

Hydrogen is used principally in the hydrogenation of vegetable oils, a process which converts them into stearine, used in the manufacture of lard substitutes.

During the World War practically all the gases generated by the Bettendorf plant were used at Rock Island Arsenal and in Tri-City manufacturing concerns doing war work. A. J. Russell, secretary and manager of the company, was chairman of the war service committee of the oxygen-hydrogen industry.

E. J. Bettendorf is president of the company, T. J. Walsh vice-president, J. Reed Lane treasurer, and A. J. Russell secretary and manager.

The Knox Mortuary

More than a hundred years ago—June 27, 1818, to be exact—was born at Blanford, Mass., the founder of the Knox Mortuary in Rock Island. Charles Bishop Knox was his name. He learned the trade of cabinet maker, came to Rock Island in 1841 and opened a shop.

In the early days cabinet makers found plenty of work in the newer communities of the west. They built furniture and store fixtures. Coffin making was a side line. Such factories as there were then were far away, and transportation was expensive and slow. Generally work was done on order, and few goods were made up in advance to be held for sale.



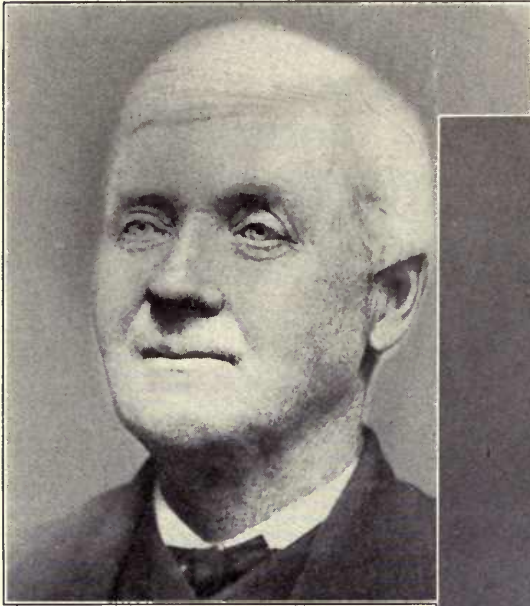
The Knox Mortuary

Mr. Knox found a brisk demand for coffins and soon established a reputation as coffin maker that extended many miles beyond the village limits. There were no undertakers in the community then. Friends of bereaved families generally volunteered to officiate at burials, but even so, something better than a rough pine box nailed together by amateurs was demanded. Coffins were made to order, and not infrequently Mr. Knox was aroused during the night to prepare one needed forthwith at some distant point. Such experiences suggested to him the wisdom of making up coffins in advance in different sizes, and keeping them ready for emergencies. This practical expedient, strange as it now seems, set the tongues of the townspeople to wagging. It was considered little short of sacrilegious to thus anticipate the visits of the Grim Reaper. The Knox cabinet shop then was in the basement of a one-story brick building at what is now 2010 Fourth avenue. The morbid curiosity of people who paused in the street to watch the coffin maker at work made it expedient for the owner of the shop to screen the windows.

The elder Knox conducted his first funeral, according to records now in the hands of the family, in 1852, and three years later he definitely embarked in the business of undertaking, being the first in this part of the country to do so. From that time till his death, in 1890, he was actively engaged in this work, returning to earth the remains of most of the older residents of Rock Island and vicinity.

During the Civil War nearly two thousand Confederate prisoners, who died mostly of contagious diseases, were buried on Rock Island, just east

1852—Four Generations of Knox Service—1922



Charles B. Knox—1818-1890
Founder of the Knox Mortuary



B. Frank Knox—1852-1914
In Whose Hands the Business Grew



Harry T. Knox
The Present Proprietor



Harry T. Knox, Jr.
Who is Expected to Carry on

of the Arsenal shops. As the only undertaker in the locality, Mr. Knox was called upon to inter them, also making the coffins. This he did, numbering the graves and keeping a record, still in the family possession, of names and all other available data.

Two sons of the elder Knox learned the undertaking business with him, one of them, B. Frank Knox, became associated with his father in 1872, and taking over the business upon the latter's death. The son had his first introduction to hard work as a boy, being employed in a bakery at night making bread for Confederate prisoners and in daytime helping his father bury the southern soldiers who had succumbed during the preceding 24 hours.

B. Frank Knox conducted the undertaking establishment until his death, Dec. 28, 1914, as the result of an injury in an automobile accident. Then the business passed into the hands of his son, Harry T. Knox, who now owns and manages it.

The three generations that have conducted the Knox mortuary establishment have witnessed remarkable changes. The village of the 40's, where the business was started, has grown to a city. The crudities of pioneer days have given way to the refinements of the twentieth century. The undertaking business has passed from its inception through the era of the slow and unpretentious horse-drawn hearse to the ornate and swift motor funeral car of today.

In all the changes in its business the Knox Mortuary has been among the pioneers. The late B. Frank Knox was one of the first licensed embalmers in Illinois. He was among the first to discontinue the use of ice and introduce embalming fluid. He adopted arterial embalming as soon as its success was demonstrated.

Long ago the original building used in the business was torn down and more commodious quarters provided. Fifteen years ago a mortuary chapel was added, and is now used exclusively for funeral services.

The Knox family always has taken a prominent part in political and social affairs. Charles B. Knox served as coroner, supervisor and alderman, and was one of the first captains of the volunteer fire department. B. Frank Knox was chief of the volunteer fire department in 1886 and 1887, later serving as alderman from the fifth ward and was mayor of Rock Island three terms, being elected in 1895, 1901 and 1903.

Harry T. Knox has learned the business from the ground up. Like his father, he grew up in it, has a natural aptitude for it, and is ever alert to learn and apply betterments in his line of work. During the World War he was in the aviation service, serving with the 612th Aerial Squadron, which trained at Kelly Field, San Antonio, Texas, and later had charge of aviation training work at the general supply depot at Fairfield, Ohio.

It is the fond hope of the present owner that the Knox Mortuary will sometime pass into the hands of the fourth generation of the family, Harry T. Knox, Jr., whose portrait accompanies this sketch.

Rock Island Register Company

Founded upon a sound, practical idea, builded with painstaking care and fidelity to correct business principles, the Rock Island Register Company in a dozen years has grown until it now stands practically without competition in the middle west in the manufacture of warm air registers.

“No Streak” is the Registered Trade Mark. Formerly the wall register used in warm air heating was objected to because of leakage of air, which carried dust up the wall and in time caused streaks. The idea of the founders of the Rock Island Register Company was a device to prevent this leakage,



a patented interlapping slip joint that made a tight connection, and forced all the warm air out into the room away from the wall. No competitor ever has been able to improve upon or even equal it.

The Rock Island Register Company is distinctly a Rock Island concern. J. J. Burgess and S. P. Burgess, brothers, and natives of the city, invented the register, and established the business in 1910. In 1911 they formed a corporation in which George Harms and W. G. Harms became interested. In 1915 they erected their first building, which was quickly outgrown and two additions were made. No more ground room being available, they built the present factory building at Fifth avenue and Twenty-fifth street. This building is three stories and basement, and has 32,000 feet of floor space. Forty men are employed.

From the beginning the company has maintained a high standard for its product. During the war it installed heating plants in 460 government-built houses in Rock Island, Moline and East Moline, and there never has been a complaint. It was the best work of its kind, government housing officials said, that was done anywhere in the United States.

Distribution of the Rock Island register is now national in scope.

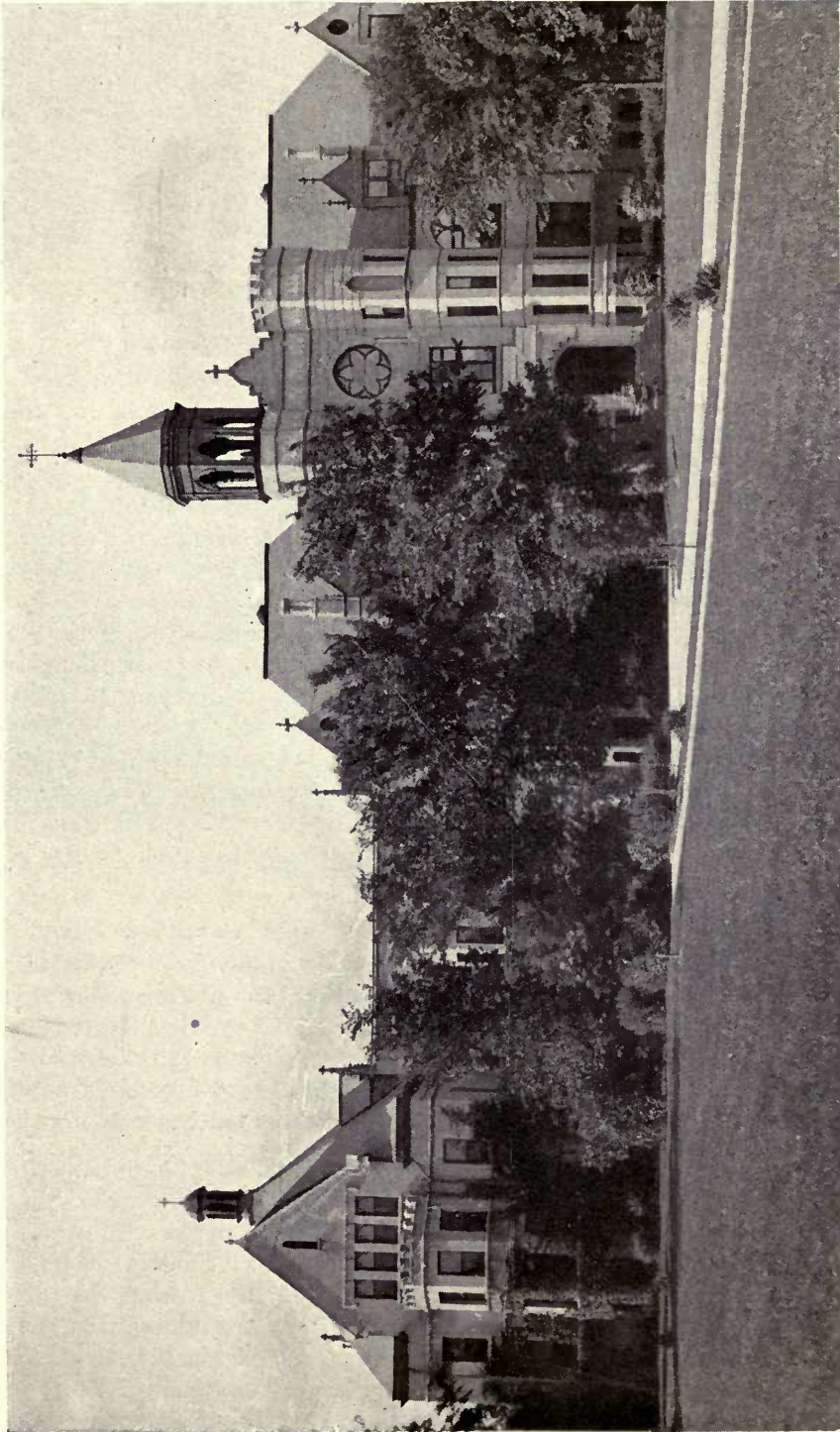
The Rock Island Mfg. Company

In diversity of output the Rock Island Mfg. Company probably ranks among Tri-City manufacturing concerns next to Rock Island Arsenal. More than five hundred different articles are listed in its catalogues. Hardware, electrical and farm specialties are its chief products. Vises constitute the largest single item. From thirty to forty per cent of the vises used by the armies of the United States and its allies during the World War were made by this concern.

The history of the Rock Island Mfg. Company goes back scarcely a dozen years. In 1909 it was organized under the leadership of Carl E. Shields, who has served continuously since as president and treasurer. The assets of the former Rock Island Tool Company were purchased, and the plant at First street and Fifteenth avenue, Rock Island, was taken over. Vises had been the main product of the Tool Company, which employed thirty to forty men, and occupied twenty thousand feet of floor space. Manufacture was resumed on an enlarged scale. New markets were found, and the variety of products enlarged to meet growing demands. Feed grinding mills, emery grinding tools, stock fountains and a line of hand farming tools were produced, principal attention being paid to the needs of the agricultural communities. Within two years manufacture of sad irons was undertaken on a large scale, and this company is now conceded to be the largest single producer of sad irons in the world. Popular automobile specialties were later added, and in 1918, the Loetcher-Ryan Mfg. Company, of Dubuque, Iowa, was absorbed and its factory equipment removed to Rock Island. This made possible the manufacture of electrical specialties, electric irons principally, at first. Other items have been added and the list is still growing.

Before this country entered the World War the Rock Island Mfg. Company supplied vises in large numbers to England and her allies. Several shipments lie at the bottom of the Atlantic, sent there by German submarines. When our soldiers were in training they shot at targets the metal castings of which were produced by this company. For several weeks the foundry was employed exclusively in filling a rush order from Rock Island Arsenal to supply all cantonments in the United States with targets.

In the beginning the sales of the Rock Island Mfg. Company totaled less than one hundred thousand dollars a year. Now they normally run more than a million annually, and there has been a healthy increase in every year, save one. Shop expansion has been necessary, twelve acres of land now owned by the company insuring sufficient room for the future. In the reaction following the war boom, the scale of operations was temporarily reduced, but the factory never has been closed. Neither have products been cheapened to stimulate sales. Only standard quality goods are made. Floor space has been increased to 150,000 feet, and 250 men are employed.



Main Building of Villa de Chantal

Villa de Chantal

Rock Island has a widely patronized school for girls and young ladies in Villa de Chantal, conducted by the Sisters of the Visitation, a Catholic order of long standing and high achievement. It occupies a magnificent site on the bluff overlooking the city and Davenport, and unfolding a panorama of the Mississippi valley for miles in each direction.

The Order of the Visitation was founded in France more than three hundred years ago. Its rules and traditions tend to encourage that spirit of refinement, simplicity and self-sacrifice which peculiarly fits its members for the training of young girls.

Founded in 1864, in Maysville, Ky., as Francis de Sales Academy, the school was removed to Rock Island in 1899. Already widely known for the quality of its work and drawing pupils from many states, in its new home it found a broader field and shortly became recognized as one of the leading college preparatory institutions.

The academy building is surrounded by fifteen acres of land, mostly level and sloping away on three sides, with a precipitate drop toward the city at the north. The site is exceptionally well adapted to landscaping and for purposes of outdoor recreation. Walks and drives have been laid about the grounds, the natural forest growth supplemented with a variety of other trees and shrubbery, and lawns and courts installed for the games and amusements in which girls delight to take part.

The course of study embraces academic, intermediary and primary departments. The academic department offers two courses, one general and the other college preparatory. Recognition that of all the arts music is the most subtle and far-reaching in its effects, and that its influence is most pronounced in refining and broadening the tastes of those who study it, the school always has laid particular stress upon this branch of its work. The department for both vocal and instrumental instruction is under the direction of graduates of the leading conservatories of the country. The piano, organ, guitar, harp, mandolin and violin are taught by competent instructors. The department of elocution is under the supervision of a graduate of one of the best known schools of oratory. Foreign languages are taught by accomplished linguists. Aesthetic culture and daily physical exercises, which promote gracefulness of carriage and the habit of true politeness, receive special care.

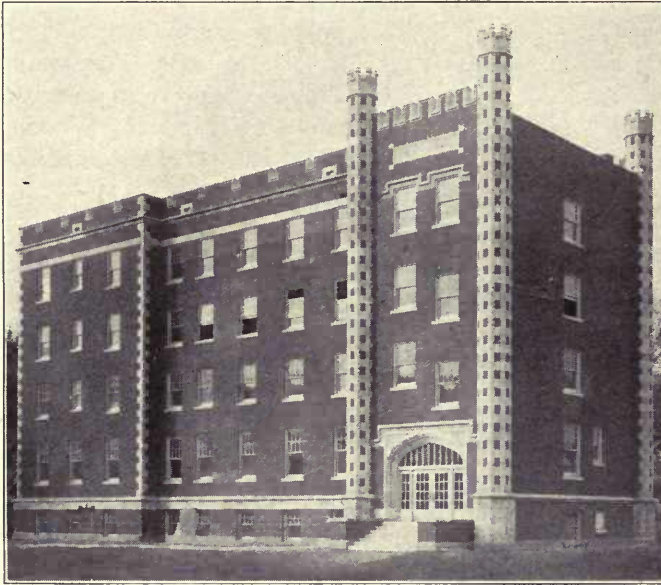
Villa de Chantal is centrally located and easily accessible from all parts of the Tri-City community. Thus it is enabled to serve many day pupils who live within a radius of a few miles. Though the school is conducted by a Catholic order, pupils of all denominations are received. Two free scholarships are maintained and medals are awarded for high standing in certain lines of work. The school library is one of the most complete in the state.

St. Ambrose College

St. Ambrose College, Davenport, was founded by the Rt. Rev. James McMullen, D. D., first bishop of Davenport, in the year 1882, and was incorporated under the laws of the state of Iowa on October 6, 1885. The present officers of the corporation are: Rt. Rev. James Davis, D. D., president; Very Rev. J. T. A. Flannagan, vice-president; Very Rev. William L. Hannon, secretary and treasurer.

It is a Catholic college devoted to the cause of Christian education. The

institution owes its existence to the conviction that in the education of young men best results are obtained where the importance of the religious element in training is recognized and respected. St. Ambrose offers the regular college and high school courses. A large endowment insures a high standard of instruction and equipment. Very Rev. Wm. L. Hannon is president in charge of the institution.



Davis Hall, Men's New Dormitory



Main College Building

St. Katharine's School

Occupying a wooded knoll in the heart of the residential part of Davenport, overlooking the Mississippi, St. Katharine's School for girls and young women is set amidst ideal surroundings. Conducted by the Sisters of St. Mary, an Episcopal order, this institution offers unexcelled opportunities for the study of music, dramatics and art, and has been most successful in preparation of its students for entrance to eastern colleges for women.



Group of St. Katharine's School Buildings

Its work is conducted by seven Sisters, twenty-two instructors, all college graduates, a physical instructor and a nurse. Girls of all denominations are welcomed as students.

St. Katharine's School was opened September 24, 1884. Its establishment was made possible by a legacy from the estate of Miss Sarah Burr, left to Griswold College for the purpose of founding in the diocese of Iowa a church school for girls. A building and five acres of ground were purchased. Bishop Perry presided at the opening ceremonies. An addition to the building was made in 1885.

Until 1902 the school was conducted by Miss Emma Rice, later Mrs. J. J. Richardson, as preceptress. Then it was turned over to the Sisters of St. Mary, whose chief work is education. During the summer of 1902 the chapel and gymnasium were built. In 1907 three acres of land adjoining the school property, with the buildings thereon, were acquired.

St. Katharine's is not conducted for pecuniary profit. A few generous bequests and a modest endowment provided by its friends have made its expansion possible. Six scholarships to defray tuition of deserving girls needing financial assistance are provided.

Perhaps the best testimonial to the character of St. Katharine's is to be found in its list of alumnae, which is made up of members of leading families of Iowa, as well as from many other states, east and west.

Rock Island Transfer & Storage Company

Warehousing has come in the last few years to assume a degree of importance hitherto undreamed of. Changes in methods of handling merchandise and household goods, improved facilities for storing, and above all, the development of the motor truck, offering quicker and more efficient transport on short hauls, have helped to bring this business to the front.

Though a comparatively new concern, the Rock Island Transfer & Storage Company occupies a position of leadership in its field in the Tri-City



community, with a new \$125,000 plant and with facilities to meet every demand incident to the warehousing business. March 27, 1917, the company was incorporated. At that time its equipment was limited to six teams and wagons, and it rented modest quarters on West Seventeenth street.

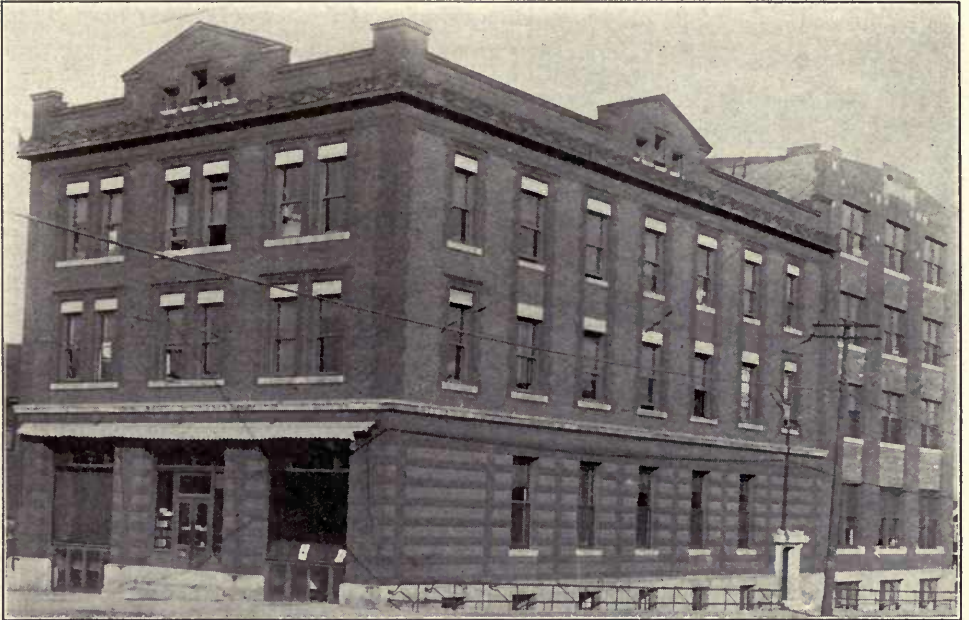
The company's new home at First avenue and Seventeenth street was formally opened June 20, 1922. It is a four-story building, of heavy vitrified brick construction, and so arranged as to make possible the erection of two additional stories. The main building is 77x110 feet, with garage adjoining, 73x110 feet, the latter being part one and part two-story. Latest ideas in warehouse construction were incorporated; efficient handling, safe storage and adequate fire protection being leading objectives.

Equipment now includes half a dozen trucks, more than a score of horses and many wagons. Moving and hauling, packing, crating and storing of household goods and storing and distributing merchandise are among the company's activities.

B. L. Burke is president and treasurer, N. B. Gosline vice-president and secretary and Loyal Robb superintendent of the concern.

Augustana Book Concern

The Lutheran publishing plant, known as the Augustana Book Concern, was established in Rock Island in the 80's. At first a small private printing shop and bookstore, it was purchased in 1889 by the Augustana Synod of North America and made the official publishing house of that Synod. As such the business has developed from a modest store and shop to its present



Home of Augustana Book Concern

capacity—an establishment fully equipped in every department of a modern printing and publishing plant, and showing an annual turnover of more than \$280,000.00.

The output per year may be indicated by the following totals for the last calendar year: The number of copies of books and pamphlets printed in 1921 was 210,850, half of which were new, the balance reprints. The average number of copies of periodicals printed, counting one issue of each, exceeds 100,000. Since its establishment in 1889 the Augustana Book Concern has printed 5,014,130 copies of books, tracts, pamphlets and sheet music.

The business management consists of an elective board and an executive head. Mr. A. G. Anderson has served as manager since the founding of the synodical publishing house thirty-three years ago, and several heads of departments have served the same length of time. In point of volume of business done annually, the Augustana Book Concern ranks well to the front among commercial establishments in the city of Rock Island, and the postal revenues of this city are largely derived from this source.

Rock Island Fuel Company

During the winter of 1917-18, when the United States Fuel Administration was in charge of distribution of coal, the Rock Island Fuel Company played a very important part in looking after the comfort of the community.



Rock Island Fuel Co. Garage

During this severe period a coal famine existed. There was very little coal of any kind for domestic or steam use, and what little did arrive was quickly consumed. The Rock Island Fuel Company, using every possible resource, managed to secure enough fuel to avert real suffering. Besides taking care of its own trade, it furnished fuel to other dealers. It was at

times necessary to route shipments through distant points because of existing embargoes.

In emergencies the Rock Island Fuel Company has never failed to supply the needs of the community. This company, the oldest and largest exclusive fuel concern in the three cities, enjoys a wide prestige because of the high quality of the fuels handled and the excellent service it renders.

The business was started in 1880, by William Hubers, who at that time dealt principally in wood. From a small beginning the business developed quickly, and in 1889 the Rock Island Fuel Company was incorporated with William Hubers as president. Mr. Hubers has remained at the head of the company and still takes an active hand in the business.



View of Gravity Bins

Today the company has yards in all three cities, and handles on the average about 100,000 tons of fuel a year. The company maintains a fleet of trucks besides many teams, has its own blacksmith and repair shops and other facilities for the efficient handling of the business. Besides its large storage yards in Davenport and Moline, the company has its great gravity bins in Rock Island, which are capable of holding six thousand tons at one time.

Rock Island Wood Works

Founded as an adjunct to sawmills of the vicinity when the lumber business on the Mississippi river was at its zenith, the Rock Island Wood Works has survived the days of the log raft, the screeching saw and the fragrant lumber pile in its home city and has become a permanent concern. Able business management and high standards maintained in quality of output have contributed to its success.



William Roth, one of the Founders of the Rock Island Wood Works

Starting as a partnership with William Roth and C. J. Schreiner as owners, the original name was the Variety Wood Works. That was in 1891. Mr. Schreiner's death late in the nineties led to the purchase of the Schreiner interests by Mr. Roth in 1901, and the incorporation of the present company.

The first factory building at the northwest corner of Eleventh street and Sixth avenue was soon outgrown and additions were made. Soon after incorporating the company secured the land on the corner diagonally opposite the plant and erected thereon the present office and warehouses.

The company manufactures no stock goods, working only on architects' or builders' specifications, and has an enviable reputation for the high class of its product. Its millwork has been used in some of the best buildings in the three cities, among which may be mentioned the Rock Island postoffice, court house, Central Trust & Savings bank, Peoples bank, Fort Armstrong theatre, the Washington and Audubon schools, the Capitol theatre in Davenport and the Reliance building in Moline.



G. William Roth, Present Head of Company

On the death of William Roth, early in 1922, his son, G. William Roth succeeded him as president and treasurer. Walter F. Roth is vice-president and Max Helsenstell secretary of the company.

Beder Wood's Sons Company

Forty-six years ago Beder Wood, of Moline, had sufficient vision to see a future in the sand business, and out of that vision grew the flourishing industry now conducted by Beder Wood's Sons Company, operating an

equipment capable of handling 600 tons of sand and gravel daily, besides large quantities of fuel and building material.



Beder Wood, Founder

Concrete was unknown in this country in 1876. Sand was used in relatively small quantities and gravel not at all in construction projects.

The river then, as now, offered the most available supply of clean sand, but the method of getting it out of the stream and onto the banks ready for use was crude and involved a great deal of labor.

When Mr. Wood began dealing in sand he obtained it by shoveling it from bars onto barges. The barges were poled from the bank at the foot of Sixteenth street, where his first yard was located, up the river to the nearest bar, and when loaded were returned to the starting point by the

same method. Use of steam power to propel the craft and pump the sand had not been thought of. When the stage of the river was high and bars were covered with water it was necessary to use long-handled shovels, and the task was unusually arduous and slow.

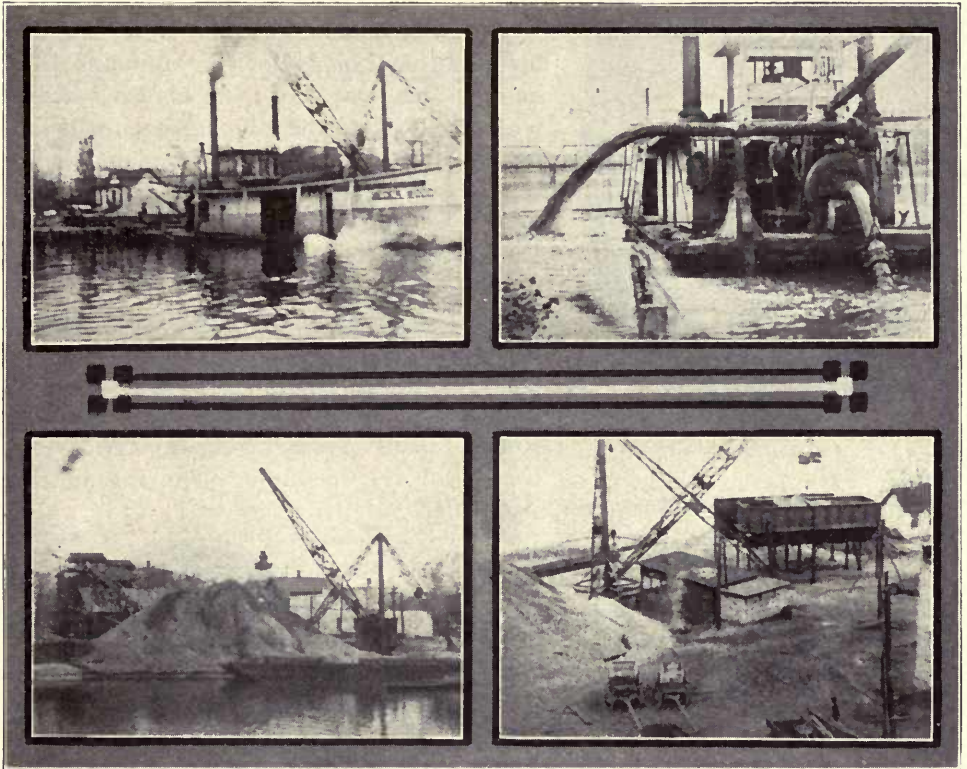
Mr. Wood had not followed the sand business long before he began to cast about for better and more economical ways to handle his product. The centrifugal pump was then in use, but it never had been adapted to the raising of sand. Mr. Wood set about applying it to this use, and after much experimenting and a number of failures, succeeded in getting the desired results. He built the steamboat Edna and rigged it up with an equipment which has been the model for manufacturers of sand pumping machinery ever since. This was done in the early 80's, his pump being the first one used in the business on the Mississippi river.

Gravel did not come into general use till the 90's and then there was some opposition to it as a substitute for crushed stone, which Mr. Wood labored to overcome. Gravel now is sold in much greater quantities than sand, having to a large extent displaced crushed stone in concrete construction.

In 1902 the business was removed from Sixteenth street to its present location, the site of the old Keator sawmill on Eighteenth street, where two

half blocks are now covered by yards and buildings. Modern bins and docks have been built, and improved machinery installed for washing, screening, grading and handling gravel and sand.

The firm has built practically all its own boats and barges. Its fleet now consists of the steel-hulled towboat, Beder Wood, a pump boat, coal boat, spud boat and nine barges. It owns gravel pits at Hampton and below the mouth of the Meredosia, 20 miles above Moline. On shore the firm operates from ten to forty trucks and teams, the number varying with



Upper left—Towboat Beder Wood. Upper right—Pump boat in action. Lower left Unloading barge at wharf. Lower right—Part of land equipment of Beder Wood's Sons Company.

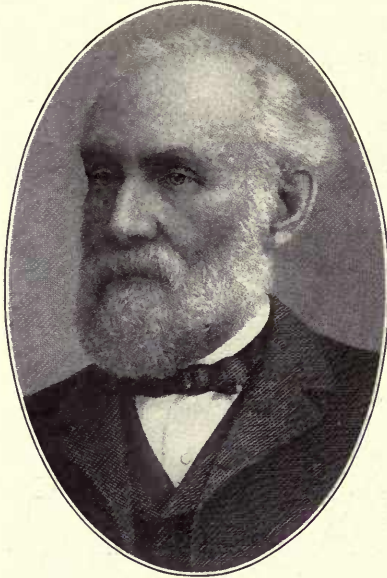
the season. Much of its gravel and sand is shipped to inland points within a radius of 100 miles. A full line of building materials, including brick, cement, tile, etc., is carried, and an extensive retail coal business is done. When not otherwise employed its boats do a general towing business.

Beder Wood, Sr., died in 1914. Since that time the business has been conducted by his sons, Beder Wood, Jr., and Benjamin Wood. During the World War large quantities of sand and gravel were supplied for construction work at Rock Island Arsenal, the War Department always having priority in the filling of orders.

The Robinsons, Pioneer Bankers and City Builders

Among the men who gave impetus to Rock Island's early growth, none was more active or interested in a greater diversity of enterprises than the late Capt. Thomas J. Robinson. He and his son, the late James F. Robinson,

who continued his father's work during the few years that he was spared to do so, accumulated extensive property holdings, now administered as the Robinson estate by Mrs. J. F. Robinson.



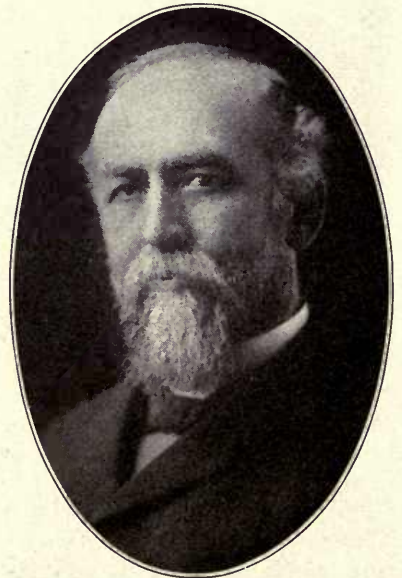
Capt. T. J. Robinson

Capt. Robinson was of New England birth and training. Born in Maine, in 1818, he made his own way from his early teens, when he learned the cooper's trade. Coming west at the age of twenty, he taught school, clerked on a river steamer and finally took up farming near Hillsdale, in Rock Island county. Three years later he removed to Port Byron, where he conducted a retail store for five years, and then in 1853 came to Rock Island. With his savings he bought from Judge John W. Spencer an interest in the Davenport & Rock Island Ferry company and took charge of the business, acquiring in that

connection the title of "Captain," by which he was known thereafter.

The young captain lost no time in replacing with steam the horse power then used in operating the ferry. In less than a decade he had become full owner of the enterprise, of which he remained in control until his death.

Capt. Robinson always had supreme faith in the future of the Tri-Cities. Acting on the belief that they were destined to become a great industrial center, he exerted his energies and invested his capital in promoting home enterprises. He was one of the organizers of the Rock Island Stove Company, the Rock Island Glass Company, and many other concerns which flourished in the early days. Seeing in an eastern city a street railway in operation, he returned home and set to work to provide a



J. F. Robinson

similar utility here. As a result, the line between Rock Island and Moline, which became the nucleus of the properties of the present Tri-City Railway Company, was built. No other man in the community worked harder to secure congressional legislation for the establishing of Rock Island Arsenal than he. He spent much time and money interesting national law makers in the building of the Hennepin canal as the link in a water route between the Great Lakes and the Gulf of Mexico. He was a leading promoter of the railroad line between Rock Island and St. Louis, which is now operated by the Burlington as its St. Louis division. In connection with Weyerhaeuser & Denkmann, Rock Island lumbermen, he backed enterprises for the development of the lumber industry in Wisconsin.

In 1871 Capt. Robinson founded the Rock Island National Bank. He became its president, holding the office till his death, and made it one of the strongest financial institutions in western Illinois. The supreme test of his business career came in 1873, when the stability of his bank was threatened by the resumption of specie payment, ordered by President Grant. Many persons now living recall the panic of 1873, in which only the strongest business concerns survived. The "Robinson bank," as the Rock Island National was generally known, came through unscathed, but its president staked every resource he possessed in winning the fight. To provide a home for the bank the Robinson building at Second avenue and Eighteenth street, one of the landmarks of the business district, was constructed.

Upon the death of Capt. Robinson, April 12, 1899, his son, J. F. Robinson, who was his sole heir, succeeded him as president of the Rock Island National Bank. In December, 1899, the Central Trust & Savings Bank was organized, with Mr. Robinson president, and occupying quarters jointly with the Rock Island National. Later the two banks were merged under the name of the younger institution.

James F. Robinson was born in Rock Island county, February 27, 1849. Upon completion of his schooling, which included a classical course at Northwestern University, he became cashier of the Rock Island National Bank, a position which he held for 25 years. He died May 23, 1902.

The younger Mr. Robinson was a man of scholarly tastes. Like his father, he led a most exemplary life, had no fear of hard work and earned a reputation for dealing honestly and fairly with his fellows. Under his management the properties he inherited prospered, and he added to them by engaging in new enterprises. He always had at heart the best interests of his home city.

Both father and son were affiliated with and actively supported the Methodist Episcopal church. Both gave liberally in aid of schools and charitable institutions, and devoted large sums to the relief of the needy.

J. F. Robinson was married in 1879 to Miss Mary E. Rhoads, of Pekin, Ill. Two daughters were born to the union, but both died in infancy.

Leading Rock Island Merchant

Credit for Rock Island's high standing as a merchandising center is due in large measure to the late L. S. McCabe. For forty-five years actively engaged in the retail business in the city, his energy, enterprise and fair dealing built up a patronage extending many miles beyond the city's



L. S. McCabe

borders and helped in no small degree to bring prosperity to those engaged in other lines of trade. Mr. McCabe always had great faith in the community. Combined with his rare ability as a merchant was an unusual insight into the motives which actuated the buying public and a belief in the power of constant, truthful advertising. The publicity he obtained for his enterprise was backed by dependable goods and honest service.

L. S. McCabe was born in Delaware County, New York, December 11, 1846, and died in Rock Island September 26, 1915. On coming west in 1868,

he taught school for two years in Drury township, the late Judge William H. Gest being county superintendent at that time.

The first McCabe store, located at what is now Second avenue and Sixteenth street, was opened October 5, 1870, its stock consisting of drygoods and household necessities. Even in that early day the young merchant saw the advantage of creating separate departments for the sale of different classes of goods, which later became the plan of merchandising in all the larger establishments. He also realized the possibilities of economy in larger buying for a number of business enterprises, and as soon as he had sufficient capital he opened other stores, cities in which he operated including Davenport, Muscatine and Des Moines, Iowa, and Chicago and Ottawa, Illinois. Growth of his business in his home city, however, demanded so much of his time and attention that eventually he closed out all branches and centered his resources in Rock Island. There he built up a truly metropolitan department store, which, during the later years of his life, was recognized as a leader in the Tri-City field.

Early in his career Mr. McCabe began acquiring real estate in the business district of the city. The Gayford block on Second avenue, between Seventeenth and Eighteenth streets, the present Second avenue home of the L. S. McCabe & Co. store, was his first purchase. Adding to his holdings from time to time, he ultimately became the largest individual owner of business property in the city of Rock Island. In 1899 the present company was incorporated and the following year the Third avenue building, with 80,000 feet of floor space, was erected, providing a store one block in length, with entrances on two avenues. Since his death the business has been continued by the company bearing his name.

While a master of detail and always in close touch with every branch of his business establishment, Mr. McCabe never permitted himself to become wholly absorbed in it. His abundant energies always sought additional outlets, and as a result he became identified with various undertakings outside of the retail field. He was vice-president and director of the Moline Central street railway, one of the first in the west to be electrified. He helped to lay out Prospect Park. He was president of the Rock Island Safety Deposit Company, builder of the Safety building, and of the Colonial Hotel Company, being owner of the site of the building, now known as the Como hotel. He was an organizer and an officer of the Central Trust & Savings bank. He was interested in agriculture, owning several fine farms on which he raised blooded Angus cattle.

In religious, social and political affairs Mr. McCabe was also deeply interested. In 1902 he was elected state senator to represent the Thirty-third district, serving one term of four years and declining re-election.

Mr. McCabe was married to Miss Marion V. Reck, August 30, 1888. He is survived by the widow and three daughters, the Misses Dorothy Clay, Marguerite Baxter and Marion McCabe Bruner.

Federal Surety Company

The Federal Surety Company is a stock company located in Davenport, Iowa. This company, with a capital of one million dollars, writes casualty insurance and surety bonds. It is owned by many prominent people in the Tri-Cities and at present transacts business in eighteen states and the District of Columbia. The Federal Government has licensed this company to write government business throughout the United States. The Federal is one of only twenty-nine companies in the United States to be so licensed, and only two of these companies are located west of the Mississippi.

W. L. Taylor is the very efficient manager of the Federal Surety Company, and the effects of his splendid management are shown in the rapid growth of this company. It was established during the month of July, 1920, and since that date has attained a position of confidence and trust usually accorded only to companies which have put many years of faithful service behind them. Best's Insurance Guide with key ratings for 1922 rates the Federal Surety's paying record as "excellent" and gives its management the highest rating accorded to companies of this kind.

Each department is managed by men with years of experience in their respective lines. The directors of this company are:

M. H. Calderwood, Ex-President of the Iowa Bankers Association, Director and President of the Eldridge Savings Bank, Director and President of the Mississippi Valley Fair and Exposition Association.

George E. Decker, Director and President of the Register Life Insurance Company, also Director of the Iowa National Bank.

Charles Grilk, Counselor and Attorney-at-law, General Counsel Register Life Insurance Company.

H. C. Kahl, Director and Vice-President of the Walsh Construction Company, Director and President of the Blackhawk Hotel Company, Director and Vice-President of the Miller Hotel Company, Director of the Citizens Trust and Savings Bank, Director of the Iowa National Bank, also sole owner of the Kahl building.

Charles Shuler, Director and President of the Iowa National Bank, Director Colorado and Utah Coal Company, Maple Coal Company, also interested in some of Davenport's largest institutions.

Frank B. Yetter, Director and active Vice-President of the Iowa National Bank, Director Register Life Insurance Company, member of the Executive Committee Clearing House division of the American Bankers' Association, also Ex-President of the Iowa Bankers' Association.

W. L. Taylor Vice-President and General Manager of the Company.

Charles Shuler is the President of the Federal Surety Company.



W. L. Taylor, Vice-President and General Manager Federal Surety Company

Geo. M. Bechtel & Co.

In April, 1891, the investment house of Geo. M. Bechtel & Co. was established in Davenport, Iowa, to specialize in the purchase and sale of Iowa municipal bonds. For over thirty years the institution has grown and prospered by adherence to conservative and safe principles of investment banking.

It is interesting to note the great difference in the investment field of that day and this. We find that while the State of Iowa was well settled, it was not the wealthy, highly developed state that it is today. It is reported that the entire bonded indebtedness of all the cities, counties and school districts in the state at that time amounted to only \$11,000,000. But the need of capital for public improvements existed, and the prosperity of the greatest agricultural state in the union was dependent upon it. Naturally many of its bond laws were new and untested. We find further that the market for municipal bonds existed only among the banks and insurance companies of New York and New England, while some of the bonds found their way to London, along with other classes of American securities. But the number of bond buyers among the general public was limited. At that time it may be said that Iowa was considered by the eastern investor as a field for high rate semi-conservative investments, such as we now find in so many western and southern localities. But above all, Iowa possessed the potential wealth and prospect for prosperity that does not exist in any undeveloped part of the United States today. The favorable reception of Iowa bonds in the market then, and also their future market, was wholly dependent on the judgment of and development by those who dealt in them. This is briefly the situation at the time of the establishment of the house of Geo. M. Bechtel & Co.

With no change in policy nor deviation from the ideals of conservative investment banking, this institution stands today as a tribute to the judgment and integrity of its founder, Mr. Geo. M. Bechtel. Money and the investment markets are no longer confined to the east. The municipal bond, the government bond, or any bond is common stock in trade. The banker, the merchant, the professional man and the wage earner look upon a safe conservative bond as a logical place for spare funds or savings. A record in Iowa municipal bonds of "no loss to any investor of principal or interest in thirty years" has earned for them the name of "Little Governments" among the customers of Geo. M. Bechtel & Co. It is estimated that there is now outstanding in the State of Iowa \$125,000,000 of city, county and school bonds and probably an equal amount has been issued and paid during the past thirty years. In all of this financing this institution has been very closely associated. Hardly a municipality exists in the state that at some time or other has not been assisted by this house.

Geo. M. Bechtel & Co. serves today thousands of conservative investors in the United States who believe in safe, convenient and tax-free investments.

The White-Phillips Company

The White-Phillips Company, Investment Bankers, Davenport, Iowa, is recognized as one of the foremost institutions of its kind in Iowa. The concern specializes exclusively in the handling of municipal bonds in the middle west—primarily in Iowa, Illinois and Nebraska.

The universal interest of the investing public in municipal bonds has caused the firm to prepare an interesting booklet explaining how bond values are computed and what they represent. Copies of this booklet may be had upon request, free of charge.

Since the World War this class of securities, which found but a limited field of buyers twenty years ago, has attained wide popularity, for the very good reason that they form a nearly ideal investment for wage earners and those of limited means, as well as for those of larger financial resources. A people which had learned to buy government bonds to the value of billions of dollars has turned largely now to the bonds of cities, towns, school districts and counties.

The White-Phillips Company is at all times prepared to answer any questions which may arise with reference to municipal bonds. The services and facilities of this banking house are yours to command, and it is their earnest desire that you avail yourself of them. All inquiries are accorded serious, respectful and courteous personal consideration.

Specializing exclusively in the handling of municipal bonds in the great corn belt, they at all times have on hand an ample list of diversified offerings which permit a varied selection to meet any particular requirements.

The institution has grown to an enviable position of stability, strength and high character, and has branch offices located in Dubuque and Des Moines, Iowa, and Omaha, Nebraska, with a personnel of over forty people.

The officers and members of the firm are:

President—George White.

Vice-President—B. A. Phillips.

Secretary—Robert Alexander.

Treasurer—S. G. Glaspell.

Cashier—Walter E. Vieth.

Their facilities for handling any investment needs are unsurpassed and without peer in their chosen field.

Peoples National Bank and American Trust & Savings Bank

Forty-eight years ago the Peoples National Bank, now the only national bank in Rock Island county, was organized. Bailey Davenport was its first president and its directorate included Frederick Weyerhaeuser, George



J. L. Vernon, President Peoples National and American Trust and Savings Banks

Wagner, Ignatz Huber, Charles Tegeler, Joseph Rosenfield, August Huesing, Frederick W. Kellerstrass, Frederick Hass, Henry Burgower, and Peter Fries. All have passed away, most of them many years ago, but descendants of nearly all remain and the family names are closely linked with Rock Island's history from the earliest days.

The Peoples National Bank first did business in the 1800 block, coming to its present quarters about ten years later. In 1911 the property at Second avenue and Eighteenth street was purchased and remodeled.



Peoples National Bank Building

Henry Burgower was the first vice-president and John Peetz the first cashier. On the death of Bailey Davenport, Joseph Rosenfield became president, being followed by Otto Huber. Present officers are:

President—J. L. Vernon.

Vice-President—Robert Wagner.

Cashier—G. O. Huckstaedt.

Assistant Cashier—F. E. Sudlow.

Directors—G. O. Huckstaedt, C. B. Marshall, James F. Murphy, G. W. Roth, C. A. Schoessel, J. L. Vernon, Robert Wagner.

The American Trust & Savings Bank was formed in 1912, and occupies quarters jointly with the Peoples National. Officers are the same, except that the directorate of the former includes S. J. Apple, C. A. Bopes, N. A. Larson, C. J. Montgomery, John A. Murrin, L. Ostrom, H. C. Schaffer, and J. A. Weishar.

The combined capital and surplus of the two banks is \$400,000 and their joint resources approximately \$3,000,000.

R. J. Walsh & Company

Founded in 1917 and incorporated in 1920, R. J. Walsh & Company has become a leading Tri-City bond and mortgage investment company. Since the date of incorporation it has occupied attractive ground floor quarters in the Kahl building, 320 West Third street, Davenport.

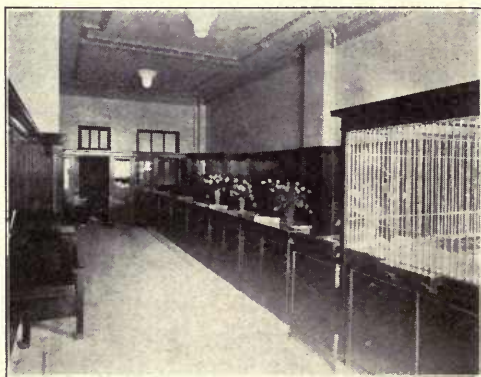


R. J. Walsh

In its earlier years the concern handled stock issues for industrial concerns and scored a remarkable success. Latterly it has turned its attention exclusively to the buying and selling of first mortgage real estate gold bonds. Here, also, it has done a large volume of business and has built up an extensive and steadily growing patronage.

The company maintains a staff of expert salesmen. It pays particular attention to Iowa and Illinois securities, its field being one in which real estate values, both urban and rural, are uniformly sound and normally show a steadily rising tendency, making an ideal security for conservative investment. Progressive development of this territory, assured by every industrial, commercial and agricultural aspect, gives positive promise of a steadily growing volume of business, of which the Walsh organization may be relied upon to secure its share.

The company is capitalized at \$250,000. It is backed by local men of high standing financially and of unquestioned integrity. Its resources enable it to handle independently large issues of securities, thereby doing business expeditiously and with maximum returns. Officers of the company are:



Office of R. J. Walsh & Company

President, Treasurer and Manager—R. J. Walsh.

Vice-President—A. E. Carroll.

Secretary—I. W. Simons.

Directors—R. J. Walsh, A. E. Carroll, I. W. Simons, Dr. F. Neufeld, George A. Parks, Dr. C. L. Barewald, R. O. Denkman and A. C. Klindt.

Rock Island Savings Bank



The Rock Island Savings Bank is one of the solid institutions of the city. Organized in 1890, it was the first savings bank in Rock Island. Quarters originally were in the then Mitchell & Lynde building, now the home of the State Bank.

Capital stock at first was \$100,000, and E. P. Reynolds was the first president, with F. C. Denkmann vice-president and J. M. Buford cashier. P. L. Mitchell became president in 1892 and J. M. Buford was promoted from the cashiership to head of the bank on the death of Mr. Mitchell, in 1899. Phil Mitchell followed Mr. Buford and H. S. Cable served as president from 1910 to 1922, being succeeded by Hugh E. Curtis.

From the first the Rock Island Savings Bank made rapid progress. In a decade its deposits had increased from \$333,864.84 to \$1,704,027.06. At the close of 1922 deposits were \$4,300,000.00. Growth of business necessitated more roomy quarters, and in the fall of 1911 the present home, at Eighteenth street and Third avenue, built exclusively for banking purposes, was occupied. Capital, surplus and undivided profits at the close of 1922 were over \$550,000 and resources over \$5,000,000.

Present officers are: Chairman of board, H. S. Cable; president, Hugh E. Curtis; vice-president, M. E. Strieter; vice-president-cashier, W. G. Johnston; assistant cashiers, J. H. Meehan and R. W. Osterman.

Directors—H. S. Cable, Hugh E. Curtis, William H. Dart, Franz Happ, W. G. Johnston, Phil Mitchell, John W. Potter, M. E. Strieter.

Central Trust & Savings Bank



History of the Central Trust & Savings Bank really goes back to Sept. 11, 1871, when the former Rock Island National Bank was organized. The savings institution came into existence Dec. 2, 1899, and the two were consolidated April 1, 1915, under the present name.

Captain T. J. Robinson was the founder of the Rock Island National. Quarters first were at No. 23, Illinois street, now 1609 Second avenue. In 1876 the Robinson building, at Second avenue and Eighteenth street, was occupied. Consolidation of the two banks was coincident with the occupying of the present home on Third avenue at Eighteenth street.

Captain Robinson, first president of the Rock Island National, was succeeded in that office at his death by his son, the late J. Frank Robinson. The late H. E. Casteel was the third president.

The Central Trust & Savings Bank is capitalized at \$200,000. Its surplus is \$200,000 and undivided profits \$190,000. The present officers are:

President, M. S. Heagy; vice-presidents, H. H. Cleaveland, C. J. Larkin, H. W. Tremann; cashier, L. M. Casteel; assistant cashier, R. E. Swanson; trust officer, E. H. Krell.

Directors—M. S. Heagy, H. H. Cleaveland, C. J. Larkin, H. B. Simmon, H. W. Tremann, J. W. Tremann, Oscar F. Smith, W. J. Sweeney, Dr. G. A. Wiggins, George H. Richmond, H. D. Mack, W. S. Parks.

State Bank of Rock Island

Successor to Mitchell & Lynde, Ye Olde Banke, Established 1852

OFFICERS

Phil Mitchell, President K. T. Anderson, Asst. Cashier C. F. Channon, Asst. Cashier
I. S. White, Vice-President B. J. Mitchell, Asst. Cashier

DIRECTORS

Phil Mitchell I. S. White G. L. Eyster B. D. Connelly Frank Mixer
E. H. Guyer B. C. Hartz

Capital \$200,000.00 Surplus \$100,000.00 Undivided Profits \$100,000.00

The first bank in Rock Island County was established in Rock Island in 1852, by Cook, Sargent & Parker, bankers and business men of Davenport, Iowa, in the room now occupied by Martin Cigar Store at 1630 Second avenue.

In 1854 the bank was moved to the then new brick building erected by Bailey & Boyle at Second avenue and Seventeenth street, the site of the present State Bank building, which has been the home of this bank and its predecessors for sixty-eight years, the present structure having been built by Mitchell & Lynde in 1890.

Mitchell & Cable (P. L. Mitchell and P. L. Cable) bought out Cook, Sargent & Parker in 1856. At that time there were four banks in Rock Island, including the Rock Island Bank (Negus, Osborn & Lee), Bank of the Federal Union (N. B. Buford, president), and Fish, Goodale & Lee.

Mitchell & Lynde (P. L. Mitchell and Cornelius Lynde), succeeded Mitchell & Cable in 1860.

Following the panic of 1857-1858, and the succeeding hard time years, Mitchell & Lynde became the sole survivor, and was the only bank in Rock Island for several years, until 1861, when Mitchell & Lynde organized the First National Bank, charter No. 108, with P. L. Mitchell as president. This was one of the first national banks to be organized, as shown by its charter number.

Mitchell & Lynde succeeded the Rock Island Bank in 1861, and also succeeded the First National Bank of Rock Island in 1890.

The other pioneer banks in Rock Island county were Gould, Dimock & Co., Moline, dating from 1856, and W. H. Devore, Port Byron, about 1858.

The Rock Island National Bank (T. J. Robinson, president) was started in 1872.

Phil Mitchell, State Bank president, has been in continuous service with the bank and its predecessors since 1861, sixty-one years, and it is believed he is the oldest bank officer in time of service in the State of Illinois.

First Trust & Savings Bank of Rock Island

Youngest among Rock Island financial institutions is the First Trust & Savings Bank. Though it is less than three years old, it has gone ahead

with rapid strides, proving the wisdom, foresight and ability of its founders, and demonstrating that there was a fine field for its business activities. Each month since its opening has shown a substantial growth. Its deposits now total one million dollars.

Charter for the First Trust & Savings Bank was issued December 29, 1919. The doors were opened for business January 24, 1920, quarters being in the Robinson building, at the southwest corner of Second avenue and Eighteenth street.



Organized under the laws of Illinois, the bank is also a member of the Federal Reserve system, being thus under both state and federal inspection.

The First Trust & Savings bank gives special attention to the needs of the farmer, for whom excellent service is given. There are attractive features for handling long-time farm loans. The bank also enjoys a very substantial city business. At the time this was written it was qualifying as a trust company, which would provide additional service for its rapidly increasing list of customers, in addition to existing commercial, savings and investment departments.

Rapid growth of business has made necessary an increase of capital, and old and new customers are being offered a part of additional stock authorized at the last annual meeting of stockholders, sale of which will provide a total of more than a quarter of a million capital and surplus. Capital and surplus now are \$130,000. Officers are:

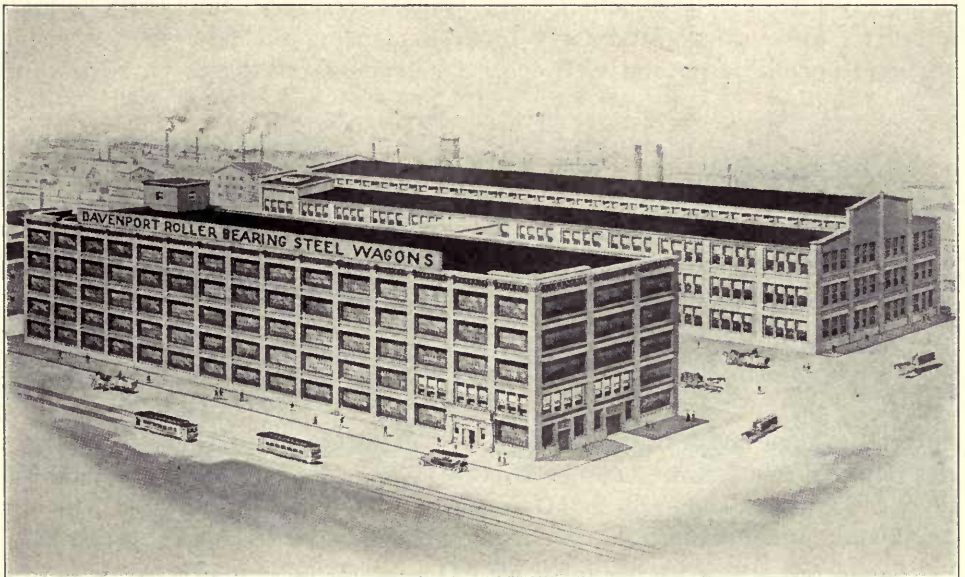
President, C. A. Beers; vice-president, C. C. Clarke; cashier, O. O. Liitt; assistant cashier, R. P. Gilloley.

Directors—C. A. Beers, J. M. Welch, O. O. Liitt, W. S. Yerbury, J. A. Wells, Walter Foster, W. J. Krull, Walter J. Klockau, John Lipton, T. A. Pender, C. C. Clarke and Allen J. Miller.

French & Hecht

Primitive man pushed logs and stones about on wooden rollers. Later he evolved the wooden disc wheel and the axle. It was a long step from the disc wheel to the spoke wheel, which answered its purpose very well until the day of rapid transport dawned. Then it was necessary to have something stronger to withstand the shocks and strains incident to the moving of heavy bodies at high speed.

Once the metal wheel was created new uses for it were shortly found, and it proceeded to displace the wooden wheel in fields where it had been



Part of the French & Hecht Plant

thought the latter never could be improved upon. Only a few years ago the wooden wheel was used on nearly all agricultural implements. Now few farm labor-saving devices are so equipped. The motor vehicle is passing through the same evolutionary process as has taken place in farm implements, and the time is not far distant when the wooden wheel will be but a memory.

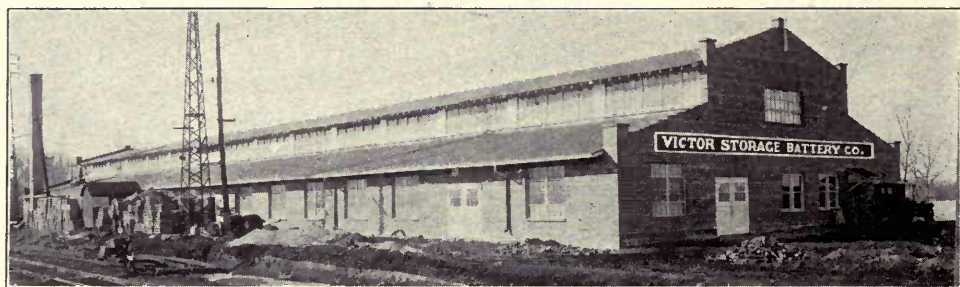
French & Hecht, of Davenport, are the largest exclusive manufacturers of metal wheels in the world. They have developed and perfected the steel spoke wheel, in the manufacture of which they stand preeminent.

French & Hecht started in 1890, as a corporation known as the Betten-dorf Metal Wheel Company. In 1909, without material change of ownership, the present partnership was formed. There are now three general partners in the enterprise, Messrs. G. Watson French, J. L. Hecht and W. H. Stackhouse, all of Davenport.

Victor Storage Battery Company

Rock Island claims the largest western manufactory producing storage batteries—the Victor Storage Battery Company, located at Mississippi river and Fourth avenue. The size of the institution is realized by comparatively few Tri-City residents, for while the plant has excellent transportation facilities by rail, highway and water, it is at some distance from the more generally traveled streets. A visit to the factory helps to impress one with the diversity of industrial products the community has to offer.

The Victor Company, whose officers are Dick R. Lane, president; George White, vice-president; B. F. White, secretary, and Tully White, treasurer, was incorporated early in 1914. During the last eight years it has developed a large and well-deserved demand for the S. O. S. line of



batteries. Manufacturing was started in the building at Twenty-fifth street and Fourth avenue, now occupied by the J. Peterson Company. In August, 1917, the concern removed to Moline and occupied a building at Seventh street and Fourth avenue.

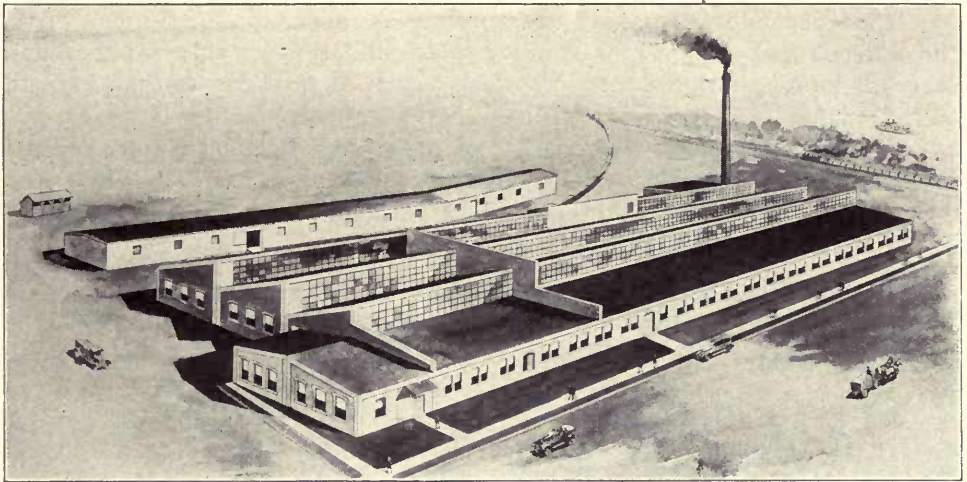
Rapid growth of the business made larger manufacturing facilities imperative. The old Weyerhaeuser & Denkmann sawmill site at the foot of Fourth avenue in Rock Island was acquired and the present modern factory erected in 1919. This building is the last word in modernity and convenience for the making of storage batteries in large quantities. It is equipped with the latest appliances in machinery, lighting, ventilation, etc. The initial steps in manufacturing take place at one end of the plant and the finished product leaves the building at the other end. A switch track from the C. R. I. & P. line parallels the factory and makes possible the loading and unloading of several cars at the same time. The property extends from Fourth to Sixth avenue along the bank of the Mississippi, so that the company is in an ideal position to benefit from the revival of river traffic.

Storage batteries for all purposes are made by the Victor Company, but special attention is paid to starting and lighting batteries for automobiles, farm lighting, power plants and for radio use. These batteries enjoy an enviable reputation not only in the United States, but in practically all parts of the world.

Phelps Light & Power Company

Possible uses of electricity on the farm are almost without limit. How to get the electricity to the farm remote from central power stations is a subject that has been given much attention and in the solving of which much capital has been invested. Out of the experimental period has come the modern farm lighting and power plant.

Among the farm lighting and power plants now in the market, that manufactured by the Phelps Light & Power Company, of Rock Island, stands without a superior for all-around uses. It is economical, reliable and durable,



Phelps Light & Power Company Plant

and it develops sufficient power so that it may be used for belt work and battery charging simultaneously. The Phelps generator has a guaranteed rating of 1,500 watts. The Phelps motor is guaranteed to deliver three and one-half horsepower, in addition to operating the generator. The 235 ampere-hour battery will run a half-horse power electric motor.

R. W. Phelps began the manufacture of gasoline motors in 1915 at Wilton, Iowa. Early in 1916 he bought out the Warner Arc Lamp Company, manufacturers of electrical appliances, and removed to Tipton, Iowa. Late the same year the plant was brought to Rock Island, where, till 1918, motors were made for the Marron Mfg. Company. In the latter year manufacture of the Phelps farm lighting plant was begun.

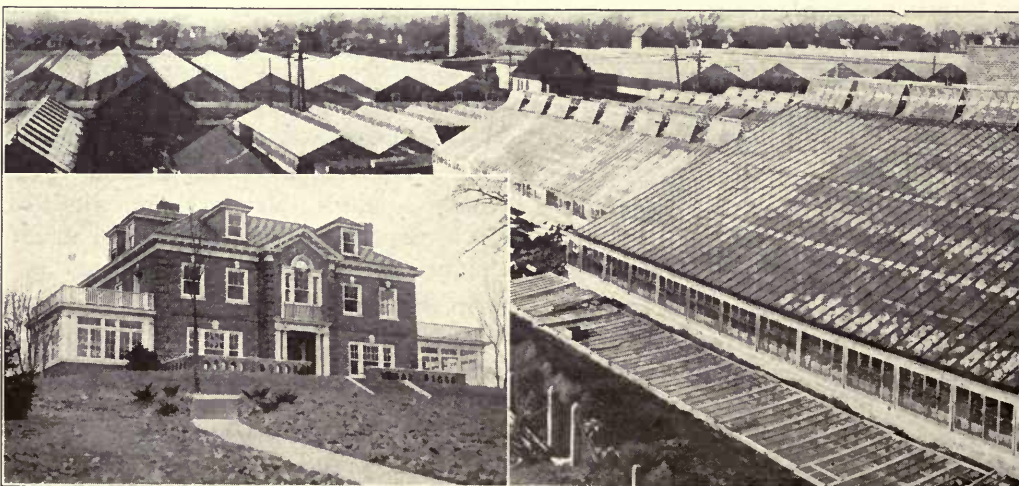
The Phelps factory is the largest in the country exclusively devoted to the making of farm light and power equipment. It occupies 40,000 feet of floor space, employs 150 men and is capable of producing 100 complete plants daily. Phelps plants are being sold all over the United States and in foreign countries. The company is capitalized at \$800,000 and the officers are: R. W. Phelps, president; A. G. Bush, secretary; W. J. Moore, treasurer.

The L. Stapp Company, Florists

For half a century flowers from Stapp's have helped to express the deeper feelings of the people of Rock Island and of the Tri-Cities. They have added warmth and color and beauty to festivals; they have paid tribute to the deserving; they have been offered as evidence of affection and loyalty; they have softened the poignant grief of separation. Human emotions from the highest to the lowest have responded to their presence and their influence for the making of better lives in the community has been beyond calculation.

It has been more than half a century since John Stapp, of German birth, and a florist and gardener by training and inclination, established the business which now bears his name. He had a tract of ten acres in the west end of Rock Island and there was built the first greenhouse in the city. Always he preferred to cultivate flowers, but pioneer Rock Islanders, more prosaic than their descendents of this day, preferred to buy vegetables. So at first the garden was a more prolific source of revenue than the flower bed, and was given correspondingly more space and attention.

Approximately fifty years ago the site of the present greenhouses on Twelfth street was acquired and there a plant has been developed till it is the largest exclusively devoted to the production of flowers in the three cities, and is exceeded in size only in the larger population centers. Eighteen acres of land are cultivated and one-third of the tract is under glass. A specialty is made of roses, which few florists attempt to grow extensively. About two-thirds of the greenhouse area is devoted to this flower. Production of vegetables was discontinued many years ago.



Panoramic view of Stapp Greenhouse

L. Stapp, son of the founder of the business, is the present head of the company. He grew up in the work, and, like his father, has a special aptitude for it. After he attained his majority he became a member of the firm, which for a number of years was known as John Stapp & Son. In 1903 the father retired and in 1916 the present company was incorporated.

Most of the expansion of the plant and business has taken place under the son's management. Year by year the greenhouses have been extended, construction always being of the latest and most durable type. During the present year (1922) a beautifully appointed family home was erected east of the plant on a knoll overlooking the surrounding country.

In the beginning the Stapp greenhouses catered exclusively to the local demand, but in later years a large and steadily growing shipping business has been built up, reaching over Illinois and Iowa and even beyond. By far the greater part of the output is disposed of at wholesale, though an extensive retailing business continues to be done.

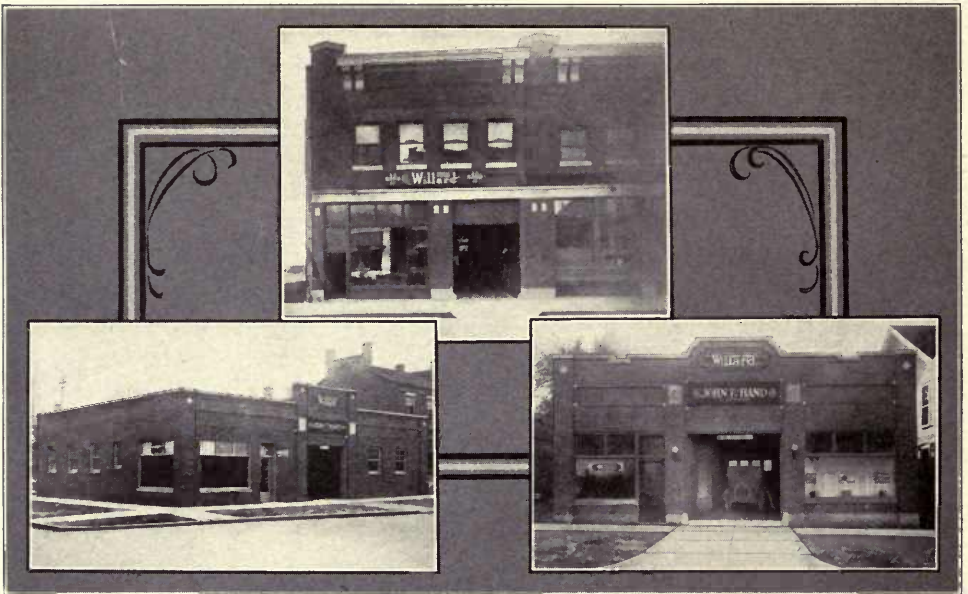
Meeting the practical problems of flower culture and sale involves activities on a large scale in many directions. For instance, it requires a seven and one-half-ton ice machine to keep the cold storage room at the proper temperature. The bill for water alone is \$1,000 annually, and it requires 2,500 tons of coal a year to heat the greenhouses. Hundreds of yards of surface soil are hauled from a nearby tract each season to renew the fertility of the flower beds and to guard against the mysterious train of evils to highly domesticated plants arising from "soil sickness." About thirty men are given steady employment.



new Stapp residence inserted at left.

The John P. Hand Company

The first automobile starting and lighting battery service station opened in the Tri-Cities was that of The John P. Hand Company, agent for the Willard line. It was established in 1914, in a small store room at Second and Iowa streets, Davenport, by the present proprietor. At that time present day electrical equipment for automobiles was largely in the experimental stage, not over 50,000 cars in the United States being so outfitted. Mr. Hand, however, was quick to see the possibilities of the battery business, and so allied himself with the Willard company, one of the earliest in the field



Tri-City Service Stations of John P. Hand Company. Top—Davenport. Lower left—Rock Island. Lower right—Moline.

and which may now be said to dominate the industry, inasmuch as seventy-five percent of all automobile manufacturing concerns in this country regularly equip their cars with Willards.

Under the impetus of a rapidly growing popular demand the Hand battery station soon needed more room. In 1916 it occupied its present quarters at 315 East Second street, built especially for its use. Two years later, for the convenience of owners of Willard-equipped cars in that city, the company built its present station at 523-525 Fourteenth street, Moline, and in 1920, followed with the one at 2001-2003, Fifth avenue, Rock Island.

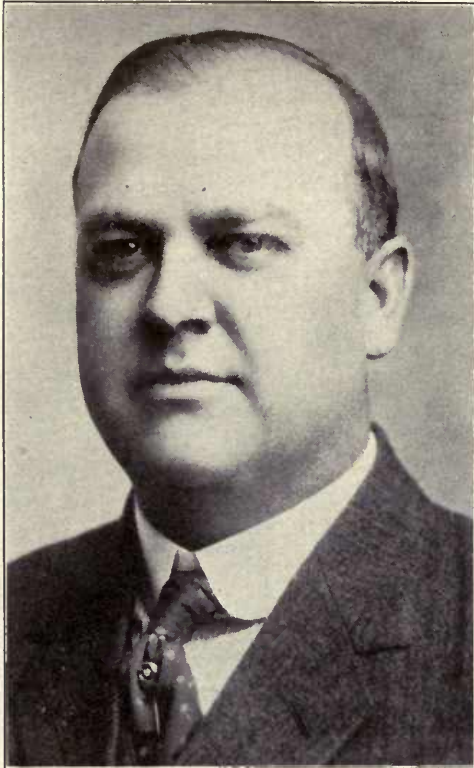
Until the current year (1922), the business was confined to battery sales, repairing and service. A starter and generator repair department has now been installed in all three cities.

The Faerber Agency

Deprived of the opportunity for schooling at the age of eleven, when circumstances compelled him to go to work in his father's meat market, A. J. Faerber, like many another American boy, yet found a way to acquire

an education and win success. Today he is head of one of the largest insurance agencies in the state of Iowa, and interested in a number of leading Davenport business and industrial enterprises.

Mr. Faerber was born on a farm in Wood county, Ohio, Nov. 24, 1877. When seven years of age his parents removed to Woodlake, Minn. At sixteen the youth started out for himself, working with the Cudahy Packing Company, of Milwaukee. It did not take him long, however, to decide that the insurance business offered a better field for his talents than the meat business did. When seventeen he started work for the Prudential Insurance Company and at eighteen he was made inspector, a position he held till 1902. Then he removed to Davenport.



A. J. Faerber

In Davenport Mr. Faerber became one of the organizers of the Guaranty Life Insurance Company,

retaining his interest in that concern till 1911. Then the present general agency of the National Life Insurance Company of the United States was established and he was appointed to that position.

Mr. Faerber has been an active promoter of a number of new industries in Davenport, being an official in several corporations. He was one of the organizers of the Federal System of Bakeries and the Community Oil Service Station Company, both of which operate extensively throughout the central west.

Mr. Faerber's public spirit is attested by the fact that he is a past president of the Davenport Chamber of Commerce; was long a member of the Greater Davenport Committee; a charter member of the Greater Iowa Association, now the Iowa State Chamber of Commerce, holding a directorship in the same; is secretary of the board of trustees of the Y. M. C. A., and was County Chairman of the Council of National Defense and Chief Justice of the Liberty Loan Court, active during the war.

The Iowa Steam Laundry Company



William Pohlmann, Pres. and Treas.

Only by the closest attention to detail, prompt and satisfactory service and uniform courtesy in dealing with the public can a successful laundry business be built up. The Iowa Steam Laundry Company, of Davenport, has filled these requirements. It has made an unusual success in its field. Four laundry establishments, some of them among the oldest in the city, have been combined to form what is now known as "The Laundry of Quality."

In 1890 J. K. Buck opened the Electric Laundry in the east half of the present plant of the Iowa Steam Laundry Company, at 209-215 East Third street. For fourteen years he conducted the business, Bert Hayes buying an interest in the latter part of his regime. Soon after the launching of the Electric concern Miller & Lucas incorporated the Iowa Steam Laundry Company and set up business just across the street. C. A. Keeler and J. F. Halligan became owners of the Iowa Steam Laundry in 1907, and also absorbed the Electric Laundry, Mr. Buck retiring and Mr. Hayes coming in as part owner. The east half of the present quarters was occupied at that time.

William Pohlmann, now president and treasurer, acquired control of the business in August, 1908. A year later the upper floor of the building at 213-215 East Third street was occupied and then the building on the west was added, the lower floor being used as an office and the upper for laundry purposes. Eight years ago the Star Laundry was absorbed, and in 1918 the City Steam Laundry was purchased from the Belle Fink Company, who had conducted it for many years. In December, 1917, the capital was increased to \$75,000.



Charles H. Martyn, Vice-Pres. and Supt.



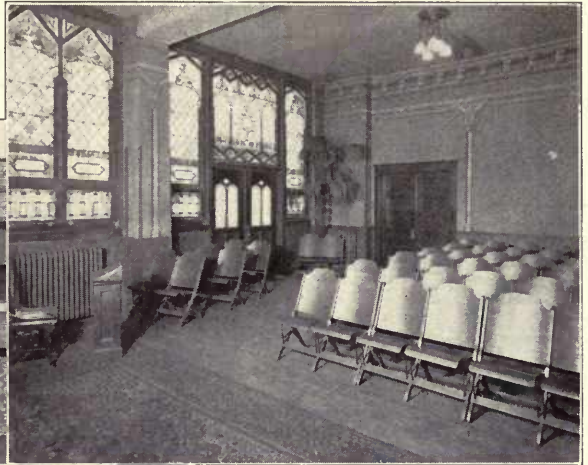
Rudolph Hansen, Sec. and Mgr.

The Iowa Steam Laundry Company does a general laundry business, specializing in bundle work, and rough dry and finished family laundry. It has a big investment in equipment, which includes practically every modern device used in the business. It has its own power plant and a water softening apparatus of large capacity. There is a labor-saving machine for nearly every operation in the cleansing, drying and ironing of fabrics. The company regularly employs from fifty to sixty persons.

The M. V. Boies Company

Perhaps no undertaking business in the state of Iowa dates back as far as the M. V. Boies Company, of Davenport, founded in the early forties.

The first shop of Israel Hall, who established the mortuary, was on Brady street between Third and Fourth. Later it was removed to the site of the present federal building on Perry street, and in 1910 the M. V. Boies firm occupied its present quarters at 323 Perry street.



Exterior and interior views of
M. V. Boies Company
Mortuary

In the early days Mr. Hall and Mr. Boies made coffins as they were needed. As soon as casket manufacturing became standardized a stock of metallic and wooden coffins was purchased. About this time a hearse and box wagon were bought, being among the first vehicles of this kind in the vicinity.

Mr. Boies passed away in 1890, and the extensive business that he had built up was then incorporated under the present name, Mrs. Boies being president and the son, Warren D. Boies, manager. On the latter's removal to Chicago some years ago, his place was taken by Selden Morse Clapp, grandson of M. V. Boies, who is now in charge.

The present quarters are modern in every respect, with offices, casket display rooms, a preparation room, a large funeral chapel, which is extensively used, a large garage for rolling stock, and other adjuncts necessary to a modern mortuary. The chapel is finished in fumed oak, with beautiful stained glass windows of Gothic design. It seats sixty people, but by opening into the reception room accommodations are provided for forty more. Mr. Clapp is assisted by two male licensed embalmers and by Mrs. Lottie Boies Clapp, also licensed as an embalmer, who looks after the department for ladies and children.

The Moline Paint Mfg. Company

The Tri-City community, a leading center for the manufacture of implements, vehicles and other equipment for farm, shop and domestic use, is a heavy consumer of paint, much of it for dipping purposes. On the ground and catering to this demand is the Moline Paint Mfg. Company, of which C. P. Skinner is head.



Charles P. Skinner, President

In 1908 the J. C. Scott Paint Company, a Freeport concern of some years standing, removed to Moline. Mr. Skinner became associated with it as trade manager. In April, 1910, interests of the stockholders of the firm were purchased and the present company incorporated with \$15,000 capital.

From the first the present company has supplied large quantities of paste paints to the big implement-making concerns of the vicinity, being able, because of favorable location, to keep in close touch with their needs and to give prompt

service. Quantity production in this particular line was also of great advantage in meeting competition.

During the last five years the making of house paints has been given increasing attention, and with results that are highly satisfactory. A large percentage of the firm's business is now done in this line, with sales covering an ever widening field.

Direct distribution to the consumer is contemplated in plans that are well advanced at the time this is written. This method, with the return of normal business conditions, is expected to result in a very material increase in output and the expansion of the concern's facilities.

Officers of the Moline Paint Company are:

- President—Charles P. Skinner.
- Vice-President—M. C. Skinner.
- Secretary and Manager—W. C. Skinner.
- Treasurer—Charles D. Rosenfield.



W. C. Skinner, Secretary and Manager

The Maehr Company

The Maehr confectionery and bakery is the oldest in point of continuous service in the city of Davenport. It was founded in 1887 by Frank Maehr, a candy maker by trade, and a native of the community. Throughout the years of ceaseless change in methods of manufacturing and selling confectionery goods, the firm has kept abreast of the times and maintained its reputation for the high class of its goods and the efficiency and completeness of its service.

The first Maehr establishment was located at 323 West Third street. After two years the business of Ed. Brehmer at 110 West Second street was purchased and the premises there occupied. Here Mr. Maehr specialized in the making of cream pie, the excellence of which did much to bring his business into general notice and to build up a lasting patronage.

As the business became well established Mr. Maehr branched out into the manufacture of candies, fitting up the second floor of his building for that purpose. This department has steadily grown, as Maehr candies found favor in an ever widening field.

Four of the five sons of Mr. Maehr saw service in France during the World War. The fifth, Walter P. Maehr, conducted the business, which he and two of his brothers had taken over in 1916.

Store No. 2, located at 316 West Third street, to which the business was removed in 1919, is one of the best equipped confectioneries in the west. The first floor is used for retailing, and a high class cafe is conducted. The second floor is devoted to the manufacture of bakery goods and candy.

Not only does the Maehr Company make its own candy and bakery goods, but it manufactures ice cream and sherbets. It has its own ice-making plant and laundry, and cooling within the plant is done exclusively by means of brine coils.

The business in August, 1922, was again being managed by Walter P. Maehr, formerly with the Terrace Gardens, and now president of the company.

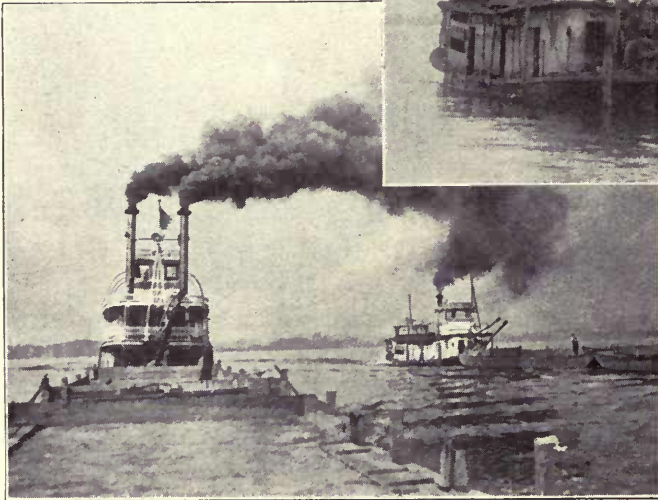


Walter P. Maehr

The Moline Consumers Company

Thirty-one years ago the Moline Consumers Company, which now deals extensively in sand, gravel, cement, ice and coal, had its origin in the Channel Ice Company. Two years later, in 1893, James P. Pearson purchased a half interest in the business and assumed the management, which he retains at the present time.

Formed in the first place to harvest, store and dispose of ice at wholesale and retail, the company has made rapid expansion, with several reorganizations to broaden its scope under the incorporation laws of the State and to provide for additional capital.



Part of Moline Consumers
Company fleet at
moorings and
in action

The first change of name took place in 1898, when the company was incorporated as the Moline Channel Ice Company, with Mr. Pearson president and manager. In 1903 the concern branched out into the coal and building-material field. Among the building materials were sand and gravel, to handle which it was necessary to operate boats and barges. To run the boats to best advantage, the company went into the handling of freight and excursions. Since the original charter was not drawn to include all these activities, a new company, the Moline Sand Company, was formed with capital of \$100,000, taken from the surplus earnings of the Moline Channel Ice Company.

The two companies being inter-dependent to a great extent, the problem of accounting became a difficult one, and it was finally decided to consolidate them under a new and broader charter, which was done in 1917.

The present name was then adopted, the capital fixed at \$200,000, and the present officers chosen, as follows:

President—James P. Pearson.

Vice-President—G. A. Shallberg.

Secretary—Charles C. Loptien.

Assistant Secretary and Treasurer—Oscar W. Ellis.

The properties of the company include a sand and gravel screening plant, located between Twenty-fourth and Twenty-fifth streets, on the river bank at Moline, and one at Ottawa, Illinois. The home plant gets its raw material from a pit about thirty miles up the Mississippi. Transportation is by water,



James P. Pearson, President

the company maintaining two steamboats, pump boats and twelve barges. The plant at Ottawa was acquired in 1916, and includes a large tract of land underlaid with some of the best gravel in Illinois. The Moline plant has a capacity of 700 tons a day, and that at Ottawa of 800 tons. Both are well supplied with rail shipping facilities.

The Moline Consumers Company has reached its present position of financial security through able business management and satisfactory and consistent public service. Its total business runs into large figures.

Over fifty thousand barrels of cement, in addition to a great quantity of brick, lime and other building materials, are now handled annually.

The wholesale and retail coal business, in 1920 totaled 24,000 tons.

Fifty thousand tons of ice were harvested in the winter of 1921-22, being stored in the company's houses and disposed of through various channels, half of it being used by the Rock Island road in the icing of refrigerator and dining cars.

The Rock Island Southern

Offering freight and passenger service between the Tri-Cities and points directly south, the Rock Island Southern Railway Company connects three county seats and taps a territory rich in agricultural resources. Along its line are to be found coal mines, brick yards, gravel and sand plants and commercialized shale and clay deposits, as well as modern grain elevators and adequate stock yards and station shipping facilities. Through the Rock Island Southern Railroad Company it has access to Galesburg. At the south it connects with the C. B. & Q., the A. T. & S. F. and M. & St. L., at the north with the C. R. I. & P., C. B. & Q., C. M. & St. P., and D. R. I. & N. W., and at Gilchrist, midway between the two termini, with the C. B. & Q. So situated, it stands foremost as a short line railroad in handling diversified traffic to the benefit of the entire population tributary to the territory it serves.

The Galesburg-Monmouth line was built in 1907. It is electrically operated, with power station at Cameron. The Monmouth-Rock Island line was built in 1908, connecting at Southern junction with the C. R. I. & P., whose tracks were used to reach the northern terminus. Recently the company took over this road and now operates it exclusively, together with the Sherrard and Cable branches.

Originally the Monmouth-Rock Island line used electricity as its motive power, but in 1920 it was transformed into a steam road.

Snider, Walsh & Hynes



Nearly fifty years of service is the record of the above insurance, real estate and surety, bond firm. Established in 1874, by the late W. H. Snider, the agency has ever maintained close relations with Davenport's manufacturing, merchantile and home interests.

Eugene Walsh and John Hynes have been members since 1915, and both are active, not only in their own business but in everything that looks toward the advancement of the community.

Modern Woodmen of America

On the evening of January 5, 1883, at Lyons, Iowa, Modern Woodmen of America came into existence as a fraternal beneficiary society. That was the beginning of what is now the world's largest institution of its kind, furnishing life insurance protection coupled with fraternal activities. The name, Modern Woodmen of America, was selected by the founder after listening to a sermon in which reference was made to "woodmen clearing away the forest"—suggesting useful employment, honorable labor, and practical accomplishment. A charter was granted by the state of Illinois, May 5, 1884, its business then being confined to six central states. In 40 years'



Modern Woodmen Head Offices

development the organization has been extended to every state of the union except two, as well as four provinces of western Canada. The fact that the present fundamental law, adopted in the beginning, contemplated and comprised a thoroughly representative form of government in which all members of the organization have a voice, has contributed largely to the success and popularity of the institution. The fact, also, that its ritual does not interfere with a person's religious or political belief likewise contributes to the unanimity and harmony of its members. No similar organization has equalled or excelled its record of progress and growth. It now has an enrollment in over 14,000 local camps of 1,060,000 members, carrying insurance aggregating \$1,606,250,000.

Its financial record includes payment since organization to date of more than 160,000 death claims, covering disbursements to beneficiaries of more than \$278,000,000. Its invested surplus funds on March 1, 1923, aggregated

over \$26,000,000, this record entitling it to be classed as one of the strong financial institutions of the age.

On September 30, 1897, the head office of the organization was located in Rock Island. Its main building was completed for occupancy January 11, 1899, followed by the erection of an annex of similar size in 1905. Both of these buildings are owned and occupied exclusively by the Society in handling its vast volume of business.

The main office building and annex contain the offices of Head Clerk J. G. Ray and his force of 200 employees; the offices of General Attorney Truman Plantz; Supreme Medical Directors E. A. Anderson and B. E. Jones; Investment Department Manager A. N. Bort; Executive Council chamber, and private offices of the Head Consul, Head Banker and Directors.

The general office of A. R. Talbot, Head Consul, is maintained at Lincoln, Nebraska. He is the chief executive officer of the society and as such has complete direction of the field forces and organization and promotion work. Head Clerk J. G. Ray, of Rock Island, is the chief administrative officer, through whose office is transacted all of the financial, accounting and administrative work of the organization, involving annual cash receipts of approximately \$26,500,000, and disbursements on account of death claims, averaging 800 monthly, representing about \$1,500,000. The Board of Directors has charge of the financial management of the Society, and, together with the Head Consul and Head Clerk, comprise the Executive Council, or governing body of the institution. This Board consists of John D. Volz, Chairman, Indianapolis, Indiana; E. E. Murphy, Leavenworth, Kansas; R. R. Smith, Kansas City, Missouri; S. S. Tanner, Minier, Illinois; F. R. Korns, Des Moines, Iowa; E. J. Bullard, Detroit, Michigan; and F. B. Easterly, Denver, Colorado.

The Publication building, originally erected in 1908, was doubled in size through the addition of an annex in the latter part of the year 1922. The

official magazine, with a monthly circulation of over 1,080,000 copies, the mailing-list and printing departments, under the supervision of Editor John F. Harris, require a force of approximately 150 employees.

Modern Woodmen of America has always been a patriotic society. It waived nonliability in the Spanish-American war of 1898, and paid the claims of all soldier members who lost their lives in that conflict, and this same action was taken during the World war of 1914-18.



Publication Building



EXECUTIVE COUNCIL—MODERN WOODMEN OF AMERICA
Top Row—E. J. Bullard, F. B. Easterly, R. R. Smith, F. R. Kornis, A. R. Talbot, S. S. Tanner, E. E. Murphy.
Bottom Row—J. D. Volz, J. C. Ray.

In addition to maintaining local camps or lodges, it has developed one of the greatest semimilitary organizations in its Foresters, or uniformed drill teams, which feature is of special interest to young men.

Modern Woodmen of America was the first of the great American fraternal beneficiary institutions to recognize and act upon the belief that it is the duty and privilege of a fraternal society to save lives as well as to pay death benefits; that it is more beneficial to its membership and to society at large to expend thousands or hundreds of thousands of dollars in saving the lives of members, than to pay unavoidable early losses running into the millions. Recognizing that pulmonary tuberculosis was a leading cause of death in this country, it not only joined as pioneers in the crusade devoted to educating the people on preventive measures against the disease, but it established an institution to take care of Modern Woodmen suffering

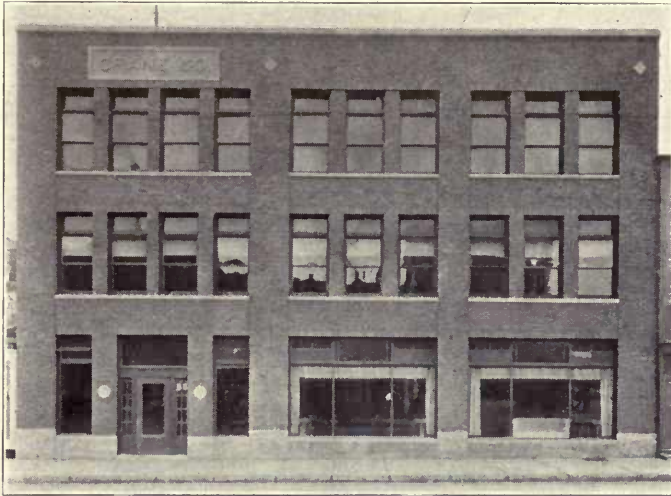


Sanatorium for treatment of tuberculosis, near Colorado Springs, Colo.

from it. And so, on January 1, 1909, the great Modern Woodmen of America Sanatorium was established and opened at the foot of Mount Cedar, in the Pikes Peak range, a few miles north of the Garden of the Gods, in the Colorado Springs region. Here, at Woodmen, Colorado, was established that which has been developed into one of the greatest life-saving institutions in the world, where members of Modern Woodmen of America afflicted with tuberculosis are treated and cared for free of charge. Here more than 6,000 patients have been admitted, and the percentage of cures, improvements, and arrests of the disease equals almost 60 per cent. Its daily capacity is 240 patients. Aside from a modest sum realized from voluntary contributions by its members, this Sanatorium, which has a property value of more than \$1,500,000 in its present highly developed form and perfected equipment, has been built and is maintained from the General fund of the Society, to which each member contributes for that purpose not to exceed 5 cents per month.

Crane Co.

On the fourth day of July, 1855, Mr. R. T. Crane made the first casting in a little frame building in Chicago which started a business that has developed steadily until today Crane Co. stands a leader in its specialized



Davenport Branch of Crane Co.

field of power plant piping, sanitation and heating equipment, with branch houses, warehouses, sales offices, exhibit rooms, and manufacturing plants in 140 cities throughout the world.

The complete Crane line consists of many thousands of articles, such as valves, pipe fittings and steam specialties used in piping equipment for steam, water, gas, air, oil, chemicals, ammonia—in fact “anything for any pipe line.” In addition to these products the Crane line includes sanitation and heating materials for buildings of all kinds and sizes.

The completeness of the Crane line, coupled with the company's high standard of business ethics, and the maintaining of manufacturing facilities to meet the growing demands of the trade, have brought Crane goods into world-wide use.

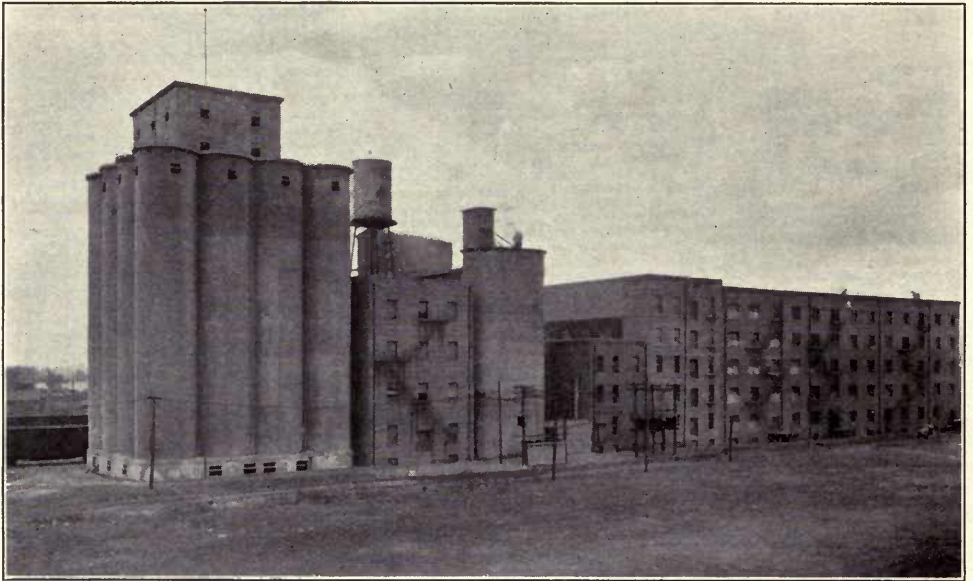
The Davenport branch was established in 1912, and, like other Crane branches, is prepared to serve its surrounding territory with everything required for the piping and sanitation equipment of industrial, commercial and private enterprises.

An added feature of the Davenport branch is a beautiful exhibit room on the first floor equipped with a representative line of Crane products, and maintained for the convenience of architects, engineers, dealers, and prospective builders. A cordial welcome awaits the visitor.

The Purity Oats Company

With 250 employes, a factory payroll of \$200,000 annually and an investment in Davenport of one and one-half millions of dollars, the Purity Oats Company is one of the substantial industries of the Tri-Cities. Its output is distributed all over the United States, and large quantities are exported, especially to Europe.

Nine thousand carloads of manufactured goods are shipped annually, when working to capacity. In addition to oat products, stock, poultry and other feeds are made. The capacity is 1,200 barrels of rolled oats, 225 barrels of corn meal and 300 tons of feed a day.



The Purity Oats Company started in business in Keokuk, Iowa, in 1909. From the first it put an improved product on the market. It had a better system of removing all the hull and it originated the "toasty nut flavor," which is still a distinctive feature of its rolled oats. It also was the first to pack its goods in the cylindrical pasteboard container, or "can," which is proof against weevils and makes it possible for a merchant to carry a stock for months without deterioration.

The Davenport plant was opened in 1913, with 500 barrels daily capacity. In 1909 the company became affiliated with the American Hominy Company and the factory was enlarged to its present size.

The American Hominy Company is the largest manufacturer of corn cereals, such as corn meal and cracked and flake hominy, in the world. It has eight plants, five handling corn, one wheat and two oats, the second oatmeal factory being the one at Keokuk.

The Davenport Clearing House Association

(By Albert J. Jansen)

The Davenport Clearing House Association was organized in 1895, the first actual business being the exchange of checks on Tuesday, September 3, of that year. Before the association was formed the banks were compelled to spend an unnecessary amount of time on certain work, such as the routine business of exchanging checks drawn by the customers of the various banks on other banks in the city. Through the association this was done in a much more satisfactory manner, the clerks of the different banks meeting at the Clearing House daily.

The association also immediately proved of value in the financial transactions of the city and county treasurer, which from that time have been managed by all the banks, acting together.

First officers of the association were: President, F. H. Griggs; vice president, I. H. Sears; secretary and manager, Charles Pasche.

The first president and vice president served for five years, and the manager one year. During the entire history of the association the managers have changed every year, because the office of the association rotated from one bank to another and the cashier or other official of the bank used as headquarters has been chosen as manager.

The Clearing House Association has a very gratifying record to look back upon, for during the 28 years that it has been in existence the banks of Davenport have been more and more looked upon as leaders in conservative and yet progressive banking. The high standing which our banks hold through the state of Iowa and surrounding states is proverbial. No depositor in one of them ever has lost a penny.

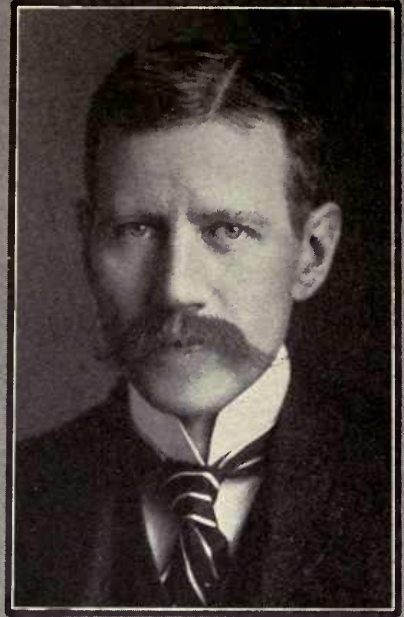
During the war, when the government found it necessary to raise enormous sums of money, the Clearing House was useful for the purpose of getting the subscriptions for Liberty loans and to enable the people of the community to pay the amount subscribed in a convenient way.

The effectiveness of this organization had much to do with the fact that while Scott county was expected to subscribe \$16,000,000 for the five Liberty loans issued, it actually did subscribe \$22,000,000 and the total number of subscribers was over 90,000. During this period, and after the war, when the government issued certificates of indebtedness running for a short time, the Clearing House did its best to help secure the necessary funds.

The eight banks affiliating with the association are the First National, American Commercial & Savings, Davenport Savings, Scott County Savings, Iowa National, Union Savings, Citizens Trust & Savings, and Security Savings. There are in the city besides four non-member banks.

Present officers of the association are: President, E. J. Dougherty; vice president, I. J. Green; secretary and manager, Herman Oetzman.

A Davenport Builder and Some of His Work



Upper left, Putnam building.

Upper right, W. C. Putnam.

Below, Department Store building.

W. C. Putnam Estate

One of the noteworthy blocks of buildings through the whole history of Davenport has been that on the north side of Second street between Brady and Main. When Antoine LeClaire laid out his first addition in 1839, he built at the corner of Second and Main the LeClaire House, famous all through the pioneer days. He extended the buildings on to Brady street, the stores being known as LeClaire Row and the public hall as LeClaire Hall. Later on the hotel was known as the Newcomb House and the stores as Velie Block.

W. C. Putnam bought the property in 1895, borrowing money to do so. Mr. Putnam, who had managed the property for the owners, as his father had done before him, knew its possibilities. He also had confidence in the city, and immediately began improving and developing the property.

When Mr. Putnam died, in 1906, he left his entire estate in trust for the benefit of the Davenport Academy of Sciences, subject to certain reasonable payments to his brothers and sister in lieu of their statutory fees as trustees and to a life interest in the homestead to his sister. In addition he left for the institution his art collections and his art, history and science library.

The institution selected as the beneficiary of the estate was founded by a group of scientific men back in 1867. It has had an interesting history, building up scientific collections, conducting explorations, especially of "mounds," publishing proceedings, bringing lecturers to the city, cooperating with schools in advancing scientific education, and carrying on various activities in the fields of science, history and art. Instead of a group of scientific men, it has developed into a public museum.

In order that the institution should have an assured income for the future, Mr. Putnam made his gift in the form of a permanent trust fund, the principal of which must remain intact, only the income being at any time available. The bulk of the trust fund was invested in the half block already described, in the center of the business district of Davenport. On this property there still remained a considerable portion of the loan Mr. Putnam made for its purchase. Mr. Putnam directed that the half block should not be sold by the trustees but that the old buildings should be replaced by modern fireproof structures. This the trustees have been doing as rapidly as the situation warranted. In 1910 an eight-story office building was put up at the corner of Second and Main streets and in 1922 a corresponding department store building at the corner of Second and Brady. By the time the remaining center portion of the property is rebuilt and the necessary building loans retired, the trust will produce a large annual income for the museum and art gallery.

The Photo Art Engraving & Electrotyping Company

With a few exceptions, the half tones printed in this book illustrating the story of Rock Island Arsenal and of the Tri-Cities and their commercial and industrial institutions, are the work of the Photo Art Engraving & Electrotyping Company. This concern also made many of the photographs, retouched others, arranged the groupings and did other art work connected with the publication.



Lynn H. Ewing

Established originally to specialize in newspaper photography, zinc etchings and halftones, the company has rapidly expanded to include all branches of commercial photo engraving and creative art in the preparation of catalogue and magazine illustrations and color plates. It found in the Tri-Cities a fine field for its activities. When it began doing business in 1910 all art and photo engravings produced for Tri-City concerns was sent to other cities. Now comparatively little is done elsewhere. Prompt, dependable and efficient service tells the story. The advantage of having work of this sort done at home, where it can be closely supervised by patrons, is obvious.

Much of the business of the Photo Art company originates with the big implement, automobile and other local industrial concerns. In the last decade there has been a vast increase in the use of pictures to sell goods, and color work is being more and more employed because of the realistic effects that are possible with the progressive improvement of the art of the photo engraver and printer.

The Photo Art Engraving Company first occupied a small shop at 1517, Second avenue, Rock Island. In 1912 it removed to 2010 Third avenue, where it had more room and where, the following year, an electrotype foundry was installed. In 1917 Lynn H. Ewing, present head of the concern, who was secretary of the original company, purchased the controlling interest and the name was changed to the present form.

Crowded for room for the third time, the company in 1920 removed to 1532 Third avenue, Moline, where it has 10,000 feet of floor space and its capacity has been increased until it now employs a force of 24 men.

Seaman Paper Company of Minnesota, Inc.

Twenty years ago Ben F. Newhouse, then representing the Seaman Paper Company of Chicago, made his first trip into the Tri-City territory. Ever alert to find opportunities for marketing the products of the large concern with which he was affiliated, he quickly formed a true estimate of the present buying power and future possibilities of Rock Island, Moline and Davenport and surrounding territory, with the result that he then and there resolved to give close personal attention to supplying the paper needs of this particular field. This he has done throughout the intervening years, and even now, despite the fact that eight years ago he incorporated the Seaman unit in Minnesota, now known as the Seaman Paper Company of Minnesota, he still makes his regular trips to this locality. Even though the Tri-Cities are not in the Minneapolis territory, Mr. Newhouse finds much pleasure in returning periodically to his many business friends here, taking care of their ever-increasing needs for the kind of paper distributed by Seaman.

The Seaman organization consists of five major corporations, with headquarters in Chicago, New York, Minneapolis, Detroit and St. Louis. These five units control branches located in Milwaukee, Cincinnati, Cleveland, Toledo, Buffalo, Philadelphia, Boston, Kansas City, Nashville, New Orleans, St. Paul and Des Moines.

A number of the country's largest paper mills, with an output aggregating almost two and one-half millions of pounds daily, depend upon the Seaman organization for the absorption of their tremendous tonnage. More than thirty national magazines depend upon Seaman for their paper, not forgetting, of course, the thousands of printers and newspapers which also find in the Seaman organization a trustworthy source of supply.

During the World War Seaman took a leading part in supplying the government with paper for the targets made at Rock Island Arsenal and distributed to all army cantonments in this country. A special quality of paper was used for this purpose and many carloads of it were delivered at the Arsenal. The paper handled by this organization includes all grades and adapted to all purposes for which paper is used.

Consumption of paper in the Tri-City district has made a remarkable increase in the years since Mr. Newhouse secured his first order in that field. It is a tribute to his ability, integrity and enterprise, as well as to the high class of the product which he distributes, that the Seaman organization has more than held its own in the competition for the privilege of supplying this market.

Davenport's Leading Hotels

Citizens, statesmen and representatives of the United States Government, when visiting Rock Island Arsenal, either for business or for pleasure, always voice their praise for the splendid hotel accommodations offered by the 'Tri-Cities' leading hotels. Hotel Blackhawk is a model fireproof building containing 400 guest rooms, each equipped with private bath, toilet, and circulating ice water and with servidor service, also offering a fine cafe and coffee shop. Hotel Davenport has 155 fireproof rooms, about 100 of which have private bath. The Davenport Grille is also a popular eating place. These splendid hotels are operated by the Miller Hotel Company, an Iowa concern, also operating Hotels Fort Des Moines and Savery, in Des Moines, and the Hotel Hanford, at Mason City.

The catering facilities of Hotel Blackhawk are equal, if not superior, to those of any hotel in the country, and its large lounge, Mezzanine floor and ball room have furnished a magnificent setting for many charming social affairs held in Davenport.

The high standard of hotel service and cuisine maintained in the Miller hotels sets a pace for quality, and the hotels operated by this company are easily among the most "talked of" and certainly the best "thought of" hotels in the country. Residents in the Tri-Cities are mighty proud of these hotels



Hotel Blackhawk, Davenport



Hotel Davenport, Davenport

and take pride in recommending them to their friends, and it naturally follows that visitors look forward with delight to their sojourn at Hotel Blackhawk and Hotel Davenport, because they are clean, wholesome and well managed. These hotels are finding increasing favor with automobile parties, especially those on weekend outings from Chicago and other large centers, who come to visit Rock Island Arsenal and other local attractions.

The Don Sales Company

Distributors for the Reo line in sixteen Illinois and Iowa counties, the Don Sales Company is one of the largest automobile agencies in the Tri-City community, maintaining establishments in Rock Island, Ill., and Cedar Rapids, Iowa.

Elbert G. Don, founder of the concern, is a son of the late David Don, a pioneer Rock Island merchant, who dealt in hardware, stoves, etc., and who retired in 1908, after an honorable career of half a century as a retailer. The son was one of the first in Rock Island to make the selling of automobiles a business, and his was the first sales-room in the city. He has been in the game since 1909, having handled several standard makes of



Elbert G. Don

cars. For more than a decade he has been in business for himself, latterly on Fourth avenue between Seventeenth and Eighteenth streets, where in 1920 he purchased the Fred Sauermann building, which is the company's present home.



Arno J. Tremann

The Reo agency was secured in 1916. The Don Sales Company was formed in 1917, Arno J. Tremann, also a member of an old Rock Island family, becoming interested. The Cedar Rapids branch, which was opened in 1919, is in charge of Mr. Tremann.

The Como Hotel



Under the management of L. V. E. Moore, who became its proprietor in 1921, the Como Hotel, Eighteenth street and Third avenue, Rock Island, has acquired a reputation for good service at reasonable rates which has brought it into high favor with transients visiting the Tri-Cities. The Como has 105 rooms. It is modern, and conveniently located.

The Eckman Studio

A number of the best illustrations in this book are products of the Eckman Studio, located in the Fort Armstrong theatre building, Rock Island. Quarters it occupies were especially planned for Mr. Eckman at the time the building was constructed and are thoroughly modern, as well as centrally located.



John Eckman, Photographic Artist



Studio

The Rock Island Sand and Gravel Company

The Rock Island Sand & Gravel Company was organized and received a certificate of incorporation from the Secretary of State of Illinois on April 17th, 1902, to conduct a business for the production of sand and gravel, and to deal in mason supplies and coal. They started out with a small pump boat and towing boat combined and several small barges. In 1906 a larger boat was necessary, and from year to year new and larger barges were built. In 1910 a locomotive crane was installed on the levee between Nineteenth and Twentieth streets and hoppers and concrete wall were built to facilitate the handling of their products.

The increased demand for screened and washed sand and gravel justified this company installing a washing and screening plant, which plant was built in the spring of 1922, at Mill street and Twenty-first avenue, Rock Island. This plant has a capacity of 1000 tons per day.

The officers of this company are Chas. J. Larkin, president, George H. Richmond, vice-president; Wm. M. McConochie, treasurer; and H. J. Larkin, secretary and general manager.

Mercy Hospital, Davenport

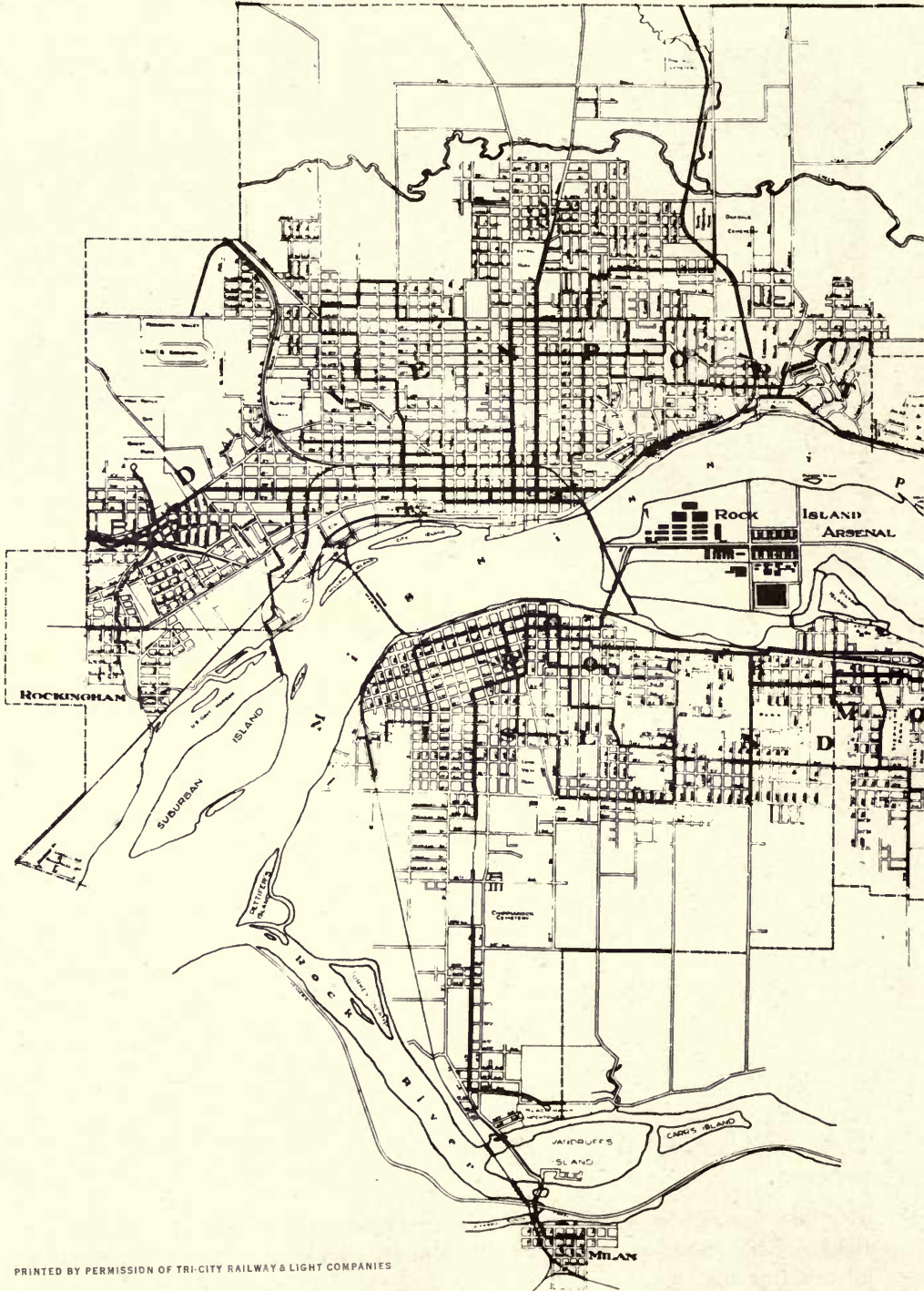


The Catholic Messenger

The Catholic Messenger was established in Davenport, Iowa, in 1882, by the late Thomas L. Sharon. After his death in 1888 the management was assumed by his brother, Fred B. Sharon, who is still in charge as publisher. The Messenger is the official organ of the Catholic Diocese of Davenport and of its Bishop, Rt. Rev. James Davis. For many years after its founding it was the only Catholic paper published in Iowa. It maintains all departments necessary for a first-class family newspaper. It covers besides all the world's news affecting the church, Catholic activities in the social, political, economic and industrial fields.

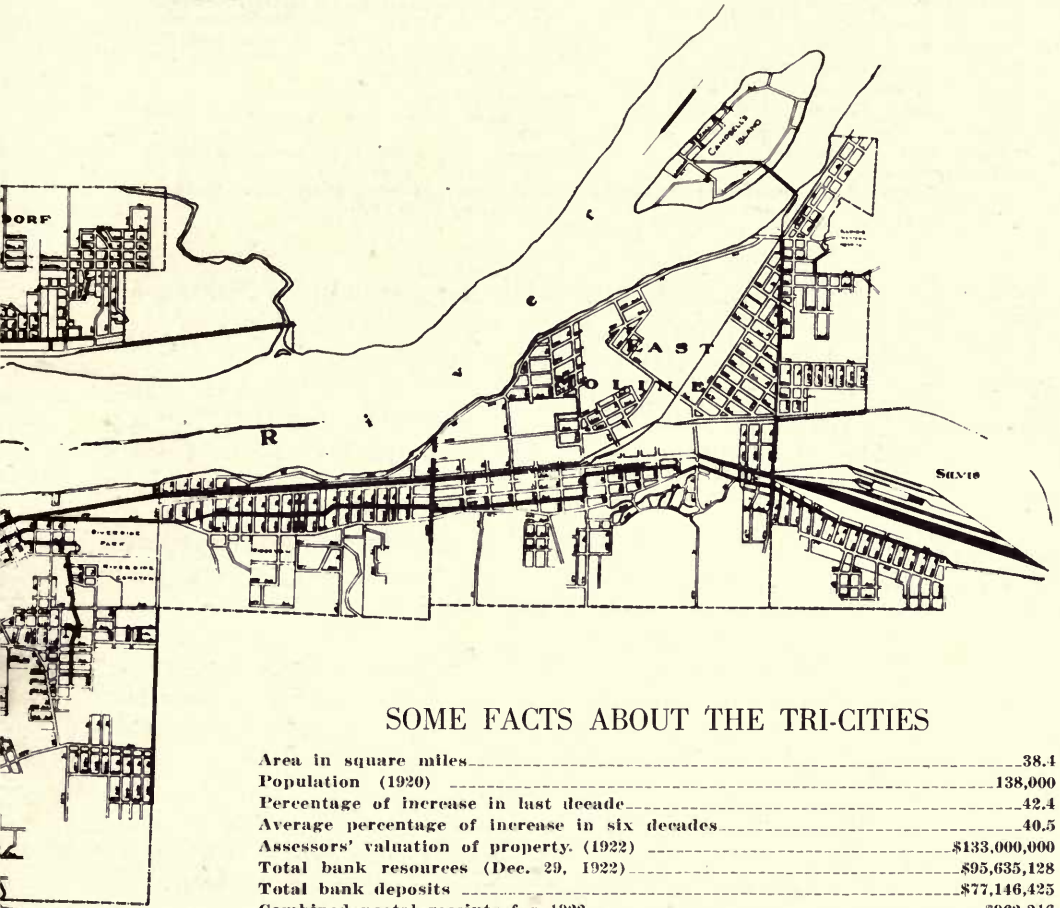
The Messenger is affiliated with the National Catholic Welfare Council and uses its extensive news service, through which it obtains the latest and most reliable news of the church throughout the world, gathered by its efficient correspondents. The Messenger is also a member of the Catholic Press Association. It is published weekly at a subscription rate of \$2.50 per year.

The present staff of the Messenger consists of Fred B. Sharon, publisher; E. M. Sharon, editor; M. E. Sharon, city editor, and C. L. Stebbins, advertising manager.



Map of Tri-City Community

Showing central location of Rock Island Arsenal with reference to the cities of Rock Island, Davenport, Moline, East Moline, Bettendorf and suburban territory.



SOME FACTS ABOUT THE TRI-CITIES

| | |
|---|---------------|
| Area in square miles..... | 38.4 |
| Population (1920)..... | 138,000 |
| Percentage of increase in last decade..... | 42.4 |
| Average percentage of increase in six decades..... | 40.5 |
| Assessors' valuation of property (1922)..... | \$133,000,000 |
| Total bank resources (Dec. 29, 1922)..... | \$95,635,128 |
| Total bank deposits..... | \$77,146,425 |
| Combined postal receipts for 1922..... | \$962,216 |
| Approximate number of industries..... | 350 |
| Number of industrial workers..... | 20,000 |
| Capital invested in industry..... | \$225,000,000 |
| Number of homes..... | 30,000 |
| Number of owned homes..... | 20,000 |
| Percentage of native born whites..... | 78 |
| Miles of paved streets..... | 261 |
| Miles of railroad tracks in city limits..... | 256 |
| Carload lots of freight received and forwarded in 1922..... | 84,524 |
| Miles of municipal frontage on navigable water..... | 16 |

Largest center between Chicago and Omaha, St. Louis and Twin-Cities.
 Main eastern gateway to Iowa and western gateway to northern Illinois.
 Served by three great railroad systems and eight branches, and by two waterways.

Vast waterpower available in Mississippi and Rock rivers, and coal deposits near at hand.

Greatest agricultural implement manufacturing center in the world, and products of a score of Tri-City industries are marketed abroad.

City of Rock Island

Population (1920 census)—35,177.

Area—ten square miles.

Total banking resources (Dec. 29, 1922)—\$17,915,569.

Postal receipts (1922)—\$259,684.

Miles of streets—127.

Miles of pavement—67.

Miles of sewers—53.

Miles of water mains—56.

Miles of street railway tracks—28.7.

Miles of main line railroad tracks—13.2.

Miles of other railroad tracks—33.7.

Number of homes in city—7,910.

Number of owned homes—4,336.

Acreage of parks—83.5.

Assessed valuation of property (1922)—\$12,417,875.

Municipal appropriations for fiscal year 1922—\$315,751.

Bonded indebtedness of municipality (close of 1922)—\$82,000.

Served by main lines of three railroad systems, C. R. I. & P., C. B. & Q. and C. M. & St. P.

Has four-mile frontage on navigable stream and water freight outlets south and east.

Midway between Chicago on east, and Des Moines on west, Twin-Cities on north and St. Louis on south.

Elevation above sea level—585 feet.

Percentage of population native born whites 78.1.

Seat of most densely populated county in state except Cook.

One of four adjoining cities with combined population of 150,000.



ROCK ISLAND is a healthy, growing American city of 35,000 souls. Its location and general facilities are ideal for purposes of commerce and industry. Its social advantages are such as men everywhere are seeking. Its scenic features are unexcelled in the upper Mississippi valley. Its past is rich in historic lore. Its present is full of throbbing human interest. Its future holds a promise than which none is more bright.

As part of a community composed of four adjoining cities which, with their suburbs, have a combined population of 150,000, it is able to offer inducements not found outside of the larger centers.

In presenting Rock Island's points of excellence it is not necessary to indulge in extravagant statements. Its people are content to rest their cause on a plain recital of the facts. Facts also give a basis for comparison much more satisfactory than any free-hand sketch could offer.

Rock Island occupies a point of land formed by the junction of Rock river with the Mississippi. On the north and west it has a frontage of more than four miles on navigable water. Rock river is on the south and Moline on the east. Across the Mississippi at the north is Davenport. Lying opposite the east half of the city is the island from which its name was taken and which is occupied by the greatest Arsenal and military storehouses in the world. Here is assembled the largest amount of government property anywhere in the United States outside of Washington, D. C. The official inventory shows a value of more than \$350,000,000.

On the banks of the river are the main lines and terminals of three great railroad systems, having belt line connections with all parts of the business and industrial sections of the city, and, with the several branches centering here, giving unexcelled transportation service in all directions.

The country round about is rich in agricultural resources and highly developed. A number of permanent highways giving access to it already have been built and an aggressive policy of improvement is being pursued.

The Mississippi and its navigable tributaries offer the advantages of water transportation, while the Illinois and Mississippi canal, otherwise known as the Hennepin, connecting with the latter stream just south of the mouth of Rock River, opens a way east to the Great Lakes for water-borne freight. The Mississippi at this point is spanned by two bridges, one used exclusively by two railroad systems and the other a combination two-deck, double-track structure, the largest in point of carrying capacity north of St. Louis.

Rock Island has a population, according to the 1920 census, of 35,177, an increase over 1910 of 10,842, or 44.6 per cent. The average increase by decades in the last 70 years has been 61.5 per cent, with a minimum of 16.9 and a maximum of 199.8 per cent, shown in 1860. The city is the seat of government of Rock Island county, having a population of 92,297 and averaging 217 people to the square mile, a density of population not equalled in the state outside of Cook county. The adjoining counties of Whiteside, Henry and Mercer, together with Rock Island, have a total population of 192,433, an increase in the ten years prior to 1920 of 11 per cent. Rock Island county's increase from 1910 to 1920 was 31.1 per cent and its average increase by decades over a period of 30 years has been 30 per cent.

Twenty million people live within a radius of 300 miles of Rock Island.

There is no more accurate index of a city's greatness than the record of its postal receipts. In Rock Island's case a vigorous and steady growth is indicated. The totals, taken approximately for five-year periods from 1889, are as follows:

| | | |
|------|-------|-----------|
| 1889 | ----- | \$ 23,376 |
| 1895 | ----- | 28,936 |
| 1900 | ----- | 64,894 |
| 1905 | ----- | 80,523 |
| 1910 | ----- | 143,804 |
| 1915 | ----- | 158,716 |
| 1920 | ----- | 240,919 |
| 1922 | ----- | 259,684 |

Increase in business and resources of the six banks of Rock Island also testifies to the city's expansion in commercial and industrial lines. This was only slightly affected by the war and was not materially reduced after its close, as bank statistics for 1913, 1919 and 1922 given below will show:

| | Capital Stock | Surplus and Profits | Loans and Investments | Deposits | Total Resources |
|------------------|------------------|------------------------|--------------------------|-----------------|--------------------|
| Feb. 5, 1913---- | \$ 900,000 | \$ 710,311.80 | \$ 8,001,306.20 | \$ 8,767,448.14 | \$10,563,072.96 |
| March 4, 1919--- | 900,000 | 978,893.67 | 12,963,133.43 | 13,659,043.09 | 1,141,674.73 |
| Dec. 29, 1922--- | 1,000,000 | 1,147,080.68 | 15,144,577.80 | 15,298,762.43 | 17,915,569.58 |

Rock Island's area is ten square miles, of which seven and one-half square miles are platted, and two and one-half acre property. Within its

limits there are six parks totaling 83½ acres. One of these, Douglas park, centrally located and city owned, has 12 acres and is dedicated to outdoor sports having a fully-equipped baseball diamond, with 5,000 seating capacity. The parks are well distributed so that people living in all parts of the city may enjoy their use.

Public improvements in Rock Island are up to standard and additions to them are being made at a rate which shows a normal increase year by year. There are 127 miles of streets, of which 67 are paved. Originally most of the paving was of brick, but asphalt has rapidly come into favor in late years. An extensive resurfacing program has been undertaken and is partly completed. The mileage of sidewalks is more than double that of the paved streets. Standard specifications are followed in laying paving and walks and inspection is thorough.

The city has a municipal water plant valued at one and one-half millions of dollars. Raw water from the Mississippi is purified by the most approved processes. The filters, sedimentation and storage basins are located on the bluff, giving the business part of the city on the flat below the benefit of gravity pressure. Pressure for the hill district is provided by a standpipe 125 feet high. The capacity of the plant is 6,000,000 gallons daily and there is abundant room for enlargement. Water rates are unusually low, the minimum meter rate being 70 cents per month, with 14 cents per hundred for the first 10,000 cubic feet each quarter and a graduated scale, water in excess of 40,000 gallons per quarter being furnished for 6 cents per hundred. There is also a flat rate. The waterworks is on a paying basis and practically debt-free. There are 56½ miles of water mains and 53 miles of sewers. Topographical conditions make satisfactory drainage by gravity possible in all parts of the city.

Public utilities give good service at rates comparing favorably with those in other cities of Rock Island's class. Proximity of Moline and Davenport, with unified ownership and management of most utilities, affords marked advantages both in service and cost to patrons. The combined street railway system of the tri-cities long has been accounted one of the very best in the country, and the superior facilities of the electrical and gas plants are attested by the manner in which the World War emergency was met. This community was the only one in the United States, with the single exception of Chicago, where the placing of war orders was not limited on account of an insufficient supply either of gas or power, or both.

The Tri-City Railway company has 28.7 miles of track in Rock Island, and its repair shops and its largest car barns are in the city. Its single fare rate is 10 cents, but identification cards are sold monthly for 50 cents, giving the purchaser the privilege of riding for a nickel.

There are 453 miles of single wire power distribution lines in the city and 200.3 miles of gas mains of 3-inch equivalent. The power rate is 6 cents

per kilowatt hour for the first 50 kilowatt hours per month and a graduated scale down to 1.5 cent for 100,000 or more kilowatt hours per month. The light rate is 8 cents for the first 50 kilowatt hours and 4 cents for all current in excess of 3,050 kilowatt hours per month. The gas rate is \$1.30 per thousand for the first 100,000 cubic feet and \$1 for all gas used in excess of 500,000 cubic feet per month. The number of electric customers was 8,897 and of gas customers 7,709 at the close of 1922.

The Illinois Bell Telephone company has 6,300 telephones in operation in the city, seventy per cent being residence stations. The residence rate for individual lines is \$4 per month and the business rate \$8, with free connection with the adjoining cities.

It may be added that the policy of the utility companies always has been progressive, anticipating and encouraging expansion of the city. This has been especially true of the Tri-City Railway Company.

Rock Island is served by the main east and west line of the C. R. I. & P., better known as the "Rock Island" road; the Chicago-Kansas City line of the C. M. & St. P., and the main St. Louis-St. Paul line of the C. B. & Q. The first named operates a branch from the city to Peoria, and the Rock Island Southern taps the rich country to the south, reaching Monmouth and Galesburg. Two of the city's railroad terminals are in the business district and the third is within easy reach of it. Railroad tracks, for the most part, occupying the river bank, exceptional facilities for transfer of freight to and from boats are afforded and dangerous crossings are few. There are in the city 13.2 miles of main railroad line and 33.7 miles of other tracks, including yards of the C. R. I. & P., the C. B. & Q. and the Rock Island Southern.

Assessed valuation of property in Rock Island for 1922 was \$12,417,875. This is about half of the actual valuation. The 1921 tax rate was \$6.74 per hundred dollars. Of this \$2.54 was for city and \$2.75 for school purposes. The city's bonded indebtedness at the close of 1922 was \$82,000, or only about one-eighth of the maximum allowed by law. The school bonded indebtedness was \$400,000.

With its location, transportation facilities and other advantages Rock Island offers unexcelled opportunities for commercial and industrial development. It does a brisk business in wholesaling and retailing. Two million people live within a radius of 100 miles. The manufacturing enterprises within its limits number about fifty, with a combined invested capital of more than \$15,000,000 and with 3,500 male and 500 female workers, these being the figures for 1922. The output of its factories includes agricultural implements, lumber products, tractors, oil cloth and textiles, stoves, registers and furnaces, hardware and plumbing specialties, structural steel, farm lighting plants, paints, electrical fixtures, men's clothing, rubber footwear,

candies, automobile accessories and pipe organs. These are in addition to the products of Rock Island Arsenal shops, in which many Rock Island workmen are employed. Rock Island has abundant room for factory expansion, with sites level and low in price, reached by street cars from the business district in ten minutes, and on paved streets. Belt line railway service, and in some cases water transportation, is available.

With its neighboring cities, Rock Island shares the advantages of water power afforded by rapids in both the Mississippi and Rock rivers. With a minimum flow of the two streams there is a potential energy of 100,000 horse power, of which little more than one-tenth has been developed. Possibilities in this direction greatly enhance the industrial prestige of the community. Large quantities of fuel within a radius of 60 miles make practical location of auxiliary power plants at the mines, with economical electrical transmission. Coal in commercial quantities is mined near enough to be delivered by truck, while three railroad lines bring supplies from the great bituminous fields of central and southern Illinois.

Labor conditions, from the standpoint of both employer and employe, are exceptionally good. Diversity of industry gives a variety of training, and skilled workmen are available for nearly all standard lines of manufacturing. What Rock Island happens to lack usually may be found in adjoining cities. On the other hand, the worker failing to find a job at his trade in Rock Island may secure one within easy reach in one of the other municipalities, and so unemployment is materially lessened. There has been a marked freedom from serious labor troubles, wages compare favorably with those elsewhere, and the cost of living is below the average in communities offering equal advantages. The Tri-City Federation of Labor, with an affiliating membership of between seven and eight thousand, including 63 unions, maintains headquarters in Rock Island. There is no predominating foreign element in the city. Eighty-two and six-tenths per cent of the people are native born, and of the others northern European strains form a large majority.

In the distribution of its many fine homes Rock Island is unusually democratic. It has no exclusive residence district, perhaps because there is no one part of the city preeminently favored for that purpose. There are so many good locations and builders of the better class of houses have made their own selections according to individual tastes. Latterly there has been a disposition to favor the bluffs, of which there are several miles overlooking the Mississippi and Rock river valleys. Exceptional opportunities for landscaping are afforded, with the option of northern, western or southern views of valleys and streams, and wooded hills in the back ground. Most of the city is built on the level bottom land but the hill district is growing rapidly. One may place his home in the valley, on the hillside or on the level upland, 150 feet above the river. He may locate it in the open to get maximum sunshine, or among the natural forest trees, as he elects. A few

sites remain within convenient walking distance of the business center. All residence localities are well served by trolley lines.

In Rock Island the home owning class is in the majority. There are 4,313 rented homes and 4,336 owned, according to a late survey. Of the owned homes 2,347 are free from encumbrance.

Building ordinances enforced for a number of years have checked the tendency to cheapen construction as building costs advanced and a better class of moderate priced homes has resulted. The rate of building has been fairly uniform year after year. In 1922, which was somewhat below normal, 120 new dwellings were erected and the total expenditure for buildings was \$1,624,621. There are two building and loan associations in the city and the banks pursue a policy calculated to encourage the construction of homes. Rents range rather lower than in other cities of the same class, the average for an ordinary five-room house being about thirty dollars per month. There are no slum districts in the city.

Rock Island never has been wanting in appreciation of the importance of its public schools. Like most other growing cities, it has had a problem in keeping its school building program up with the increase in juvenile population, but it is believed that a permanent solution now has been reached and that henceforth there will be ample room. Since the World War the people have voted additional revenue to meet the greatly increased cost of building and conducting the schools. Most of the needs of the outlying sections have now been met and means are in sight to provide another large high school. The city schools are conducted under a special charter which gives some advantages not conferred under the general law. School affairs are administered by a non-partisan board of education. School sites have been purchased on favorable terms in districts which were in process of being settled and in other ways the needs of the public have been anticipated so far as was possible.

There are fifteen grade schools, high school and manual arts school in the city's system. Three of the grade schools are departmental. In addition there are half a dozen denominational schools with a combined attendance of more than 700. The recent growth of the public school system is best shown by comparative statistics on attendance and expenditures:

Attendance: 1914—4,440, 1919—4,975, 1922—5,685.

Expenditures: 1914—\$292,749, 1919—\$303,096, 1922—\$396,672.

The public schools employ 181 teachers and the value of school property is placed at \$1,296,410, of which \$980,179 is in buildings, \$172,542 in lands and \$115,975 in equipment.

Augustana College is the principal school maintained by the Augustana Lutheran Synod of North America, embracing practically all of the United

States. It occupies thirty-six acres of land at the edge of the bluff in the east end of Rock Island and its buildings and grounds represent a value of nearly a million dollars. Its students number 1,000 men and women and it has graduated an equal number into the ministry.

Villa de Chantal is a girl's boarding and day school, with primary and advanced departments, conducted by the Sisters of the Visitation, a Roman Catholic order. Its students come from many states.

Organizations for the promotion of spiritual welfare are liberally supported in Rock Island. A careful survey indicates a church affiliation of eighty per cent of the population. A healthy interest is maintained in all the auxiliary lines of religious endeavor. There are twenty-five Protestant churches, including practically all denominations, five Roman Catholic churches and three Jewish synagogues. The Y. M. C. A., occupying a fine new home, has a membership of 665 and the Y. W. C. A. a membership of 1,000.

There are a number of benevolent institutions. St. Anthony's hospital, conducted by the Franciscan Sisters of the Immaculate Conception, is a 150-bed institution, and most of it is new and of modern construction and appointment. The West End Settlement is conducted in the industrial district and covers a large field. Bethany Home cares for homeless children, being supported mostly by subscription. The Rescue Mission, similarly financed, relieves the urgent wants of homeless adults, giving them food and shelter free, or at a nominal cost. There is a municipal tuberculosis sanatorium in which patients are treated without charge. A welfare association is maintained by private citizens as a central agency for the dispensing of charity.

Fraternal organizations receive much attention in Rock Island. Masons, with an aggregate membership of 2,000; Odd Fellows, with 700; and Eagles, with 1,200, have homes of their own, while Elks, with 1,000 and Knights of Columbus, with 650, maintain clubrooms and both expect to see plans for new buildings soon realized. Woodmen of the World and Loyal Order of Moose are among other fraternal organizations strongly represented. Veterans of the three wars have active camps.

The city is headquarters for the Modern Woodmen of America, and there are several flourishing local lodges here, one, Camp 26, being the largest in the jurisdiction. Here, also, is the head office of the Woodmen auxiliary, the Royal Neighbors of America. The Modern Woodmen is the largest fraternal organization in the world, and the Royal Neighbors the largest conducted exclusively by women. The two societies employ more than 500 people in their head offices. The Modern Woodmen, with more than 14,000 camps, operates in all states in the union except two, and in four Canadian provinces. It has over one and one-half billions of dollars of insurance in force and its total disbursements to beneficiaries in the forty

years of its existence have amounted to \$280,000,000. It has an invested surplus of \$26,000,000. The society maintains a tuberculosis sanatorium near Colorado Springs, Colo., with a capacity of 240 patients, which is free to members and is accounted one of the most successful anywhere.

The Royal Neighbors has a membership of nearly half a million; it operates in 45 states and maintains 7,200 local camps. It is on a sound financial basis. In addition to adult and juvenile insurance, it provides a fund for the assistance of members who are temporarily in need. Both Woodmen and Royal Neighbors publish official organs which are given nation-wide circulation to the number of one and one-half million copies monthly.

Business, civic and social organizations are numerous and active. Leading among them is the Rock Island Chamber of Commerce, with a membership of 600, drawn from nearly every field of business and professional activity. A paid secretary and staff of assistants is maintained and the organization is always alert to promote the city's industrial and commercial welfare. Other organizations of the same nature include the Rock Island club, Retail Business Men's association, Industrial commission, Real Estate board, Builder's Exchange, Rotary club, Kiwanis club and Business and Professional Women's club.

Women of Rock Island take an active part in civic affairs and in the promotion of the arts. The chief agency through which they work is the Rock Island Woman's club, with a membership of 1,400. Local and Tri-City organizations from time to time sponsor the appearance of the world's leading instructors and entertainers in music, literature and the drama. The favorite place for such programs is Augustana college gymnasium, with seating capacity of 5,000, remarkable acoustic properties, and centrally located for Tri-City patrons.

Rock Island has two libraries, one public and the other an adjunct of Augustana college. Building of the former was made possible through the generosity of Frederick Weyerhaeuser. The latter was presented to the college as a memorial by the heirs of F. C. A. Denkmann, who, with Mr. Weyerhaeuser, laid in Rock Island the foundation of the great lumber industry which still bears their names. The public library, which was built in 1903, has more than 37,000 volumes and the collection is growing at the rate of several thousand yearly. There are 12,000 card-listed borrowers and the number of books issued for home use in 1922 was 165,621. There are two main branches, one in the West End Settlement and the other in the Washington school, in the southeastern part of the city. Collections of books are also placed in different rooms of the various public schools.

Rock Island's independent recreational facilities are second to none, and they are supplemented by those of its neighboring cities, giving a

range of offerings to suit any taste. It has scenic attractions not excelled in the valley of the upper Mississippi, inviting drives and well kept parks. Of its public parks there are six, with a combined area of 83.5 acres. One of these, Long View park, is held to be one of the best improved and most sightly in the central west. It comprises 40 acres. Then there is Black Hawk's Watch Tower on the high bluff on Rock River, which is one of the historic spots of northern Illinois. Rock Island Arsenal grounds are beautiful and threaded with miles of fine roadways. The Rock Island Arsenal Golf club's course is famous and has been the scene of noted tournaments. There are fine facilities for outdoor bathing in summer and for skating in winter. Fishing and boating are popular and organizations are maintained to promote both. Amateur sports of all kinds flourish under the direction of the schools, Y. M. C. A. and other organizations. The city also has commercial baseball and football teams in season. Boxing is well supported. Public playgrounds are operated for the benefit of the children in all parts of the city and in summer play is supervised.

Rock Island is headquarters for the corps of United States engineers in charge of improvement and maintenance of the Mississippi river and adjacent waters from the mouth of the Missouri river to the mouth of the Wisconsin. Offices are in the Federal building. A staff of twenty-five men is employed, in addition to those manning the government fleets used in river work, the government boat yard in the Hennepin canal near Milan and the government drydock at Keokuk. Through this office from \$700,000 to \$1,000,000 is expended annually, depending upon the size of congressional appropriations, mainly for the purpose of creating and maintaining a channel depth in the Mississippi at all times of at least six feet. Accomplishing of this end is expected to greatly facilitate the efforts of those endeavoring to develop the freight-carrying possibilities of the stream. An outdoor force of from 800 to 1,000 men is kept at work on river improvement in this section during the summer season.

In addition to the river engineers, permanent offices are maintained in the federal building for the United States revenue bureau, department of commerce, department of justice, treasury department and postal department. The structure is three stories in height and represents an investment of \$225,000. The local postoffice occupies the entire ground floor.

Rock Island has adequate fire protection. Its fire department, which is under civil service, has six stations, with thirty-two men and standard motorized equipment throughout. There are two pumps, one of 1,000 gallons capacity per minute and the other 700 gallons. Fire insurance premiums are based on a Class Three rating. Average fire losses during the last decade have been \$174,222 yearly. In case of a general fire aid from Moline and Davenport can be secured in 10 minutes.

Streets and alleys of the city are well kept. The sum of \$30,000 is expended annually for this purpose. The city maintains an incinerator for garbage disposal.

There is a state free employment bureau in Rock Island, which, during the last five years, has found work for an average of 75,569 men and women annually.

A live county farm bureau is in existence, with headquarters in Rock Island. This organization has a membership of 700 and maintains a paid advisor. There is also a home bureau reaching 800 women in the rural sections, and having a competent director. Fine results have been obtained by both organizations.

Not the least important evidence of Rock Island's attractiveness is its popularity as a convention city. This has resulted in the holding there in recent years of many state and a number of national meetings.

HISTORICAL

It was from the island, now the site of the greatest manufacturing Arsenal and military storehouse in the world, that the county of Rock Island and city of Rock Island received their name, and in the order named. Rock Island county was created by act of the Illinois legislature Feb. 9, 1831, and the first election of county officers took place July 5, 1833.

The city, or as it was then known, town of Rock Island did not come into being till 1841, when the legislature changed the name of the village of Stephenson to Rock Island and provided a charter, under which the first election was held in July of the same year. A city charter was adopted by the legislature and approved Feb. 12, 1849, and served as a plan of municipal government till Feb. 16, 1857, when one better suited to the needs of the growing community was provided. This was in force till 1879. Nov. 4 of that year the people voted to incorporate under the general law.

The site of the present city of Rock Island was a favorite one with the Indians as far back as written history of the locality goes. Once it was inhabited by the tribes of the Illini. The Sacs and Foxes, first known to have dwelt along the lower St. Lawrence in Canada, came into this part of the country from southern Wisconsin, driving the Illini remnants southward and taking possession about the year 1722. A village was built on Rock river in the southern part of the present city of Rock Island, the site being favored because it was protected by water on three sides and there was a high bluff at hand, now known as Black Hawk's Watch Tower, which served as a look-out to scan the country round about for the approach of hostile bands of warriors. This village, known to historians as Saukenuk, became one of the most populous found by the early white explorers.

Being a strong, courageous people, wisely led, the Sacs and Foxes prospered and more than held their own in the wars they carried on with other nearby tribes. They took some part in an expedition against the Americans at Cahokia in the Revolutionary war and their village was burned

in reprisal. Again in the war of 1812 the Indians were active on the side of the British. From that time on there were many clashes with the white settlers till finally Black Hawk, who became chief early in the nineteenth century, was driven, with his followers, across the Mississippi as a result of the Black Hawk war of 1832.

The first house on the present site of Rock Island was built in 1826, on the river bank near the south end of the Rock Island railroad bridge at the foot of Twenty-ninth street, by Colonel Davenport and Russell Farnham. This structure, later known as the house of John Barrel, was the seat of the original county government and the center of the settlement known as Farnhamsburg. The town of Stephenson was laid out under legislative authority in 1835 to be the county seat. It comprised twenty blocks adjacent to the present court house square. It was later enlarged to include Farnhamsburg and other contiguous territory.

Protection offered by Fort Armstrong against Indian depredations attracted settlers to the locality in the early days. The place became a favorite crossing point on the Mississippi, partly because of the presence of the fort and partly because the stream was narrow and the banks high, making approach easy, and providing good landings. After the Indians were gone the land nearby was rapidly taken up and the settlement grew apace. First comers were hardy American stock traveling by wagon, on horse and afoot from the east, or by boat from the south. There were migratory waves from southern Illinois and Kentucky, from Indiana, Ohio and Pennsylvania. Some from the eastern states came down the Ohio river and up the Mississippi.

Advent in 1854 of the Chicago & Rock Island railroad, the first to reach the Mississippi from the east, gave Rock Island a pronounced boom. The place for a time was the sole junction point on the river of rail and water transportation lines. Population grew rapidly. Business increased. Industries, provided with shipping facilities which were exceptional in that day, sprang up. The village became a city, Rock Island's fame spread, reaching even across the Atlantic. From northern Europe came immigrants, the most desirable class that ever landed upon our shores. They came looking for permanent homes and found them here, building up the city and becoming part of it. Many of the pioneer families were of German, Irish, Scandinavian or other northern European stock. The east end of the city was settled largely by Swedish families and their descendants, overflowing from Moline. Later came Belgians and a scattering representation from Mediterranean countries. The advent of those from across the sea, however, has been gradual and they have been most thoroughly assimilated. The native born element always predominated heavily and does to this day.

Rock Island's foundation was laid by men of unusual force, enterprise and wisdom. They had high ideals and sound judgment. The city was

never suffered to lag behind in the procession. It always has been rated as a leader in every field of endeavor. It never was a one-man or a one-industry town. The diversity of its interests has been a leading factor in its steady progress.

A heavy shipping business was done by water in the palmy days of the Mississippi steamboat, in the fifties, sixties and seventies. The decline of the water carriers found the community well supplied with railroad facilities to take their place, so that the city really was the gainer by the change.

When the river was the artery down which flowed the pine to build homes for the people of the central west the lumber industry in Rock Island thrived as it did in few other cities. But passing of the log and lumber raft into history was not attended by a decline in manufacturing prestige, for the reason that other industries had been progressively developed as the supply of timber declined and, with more diversified opportunities for investment and employment, a broader foundation for community prosperity resulted.

Since the earliest days Rock Island has gone forward steadily in wealth and population. At no stage in its history has its momentum been materially checked. It has encountered the usual obstacles, but in all cases they have been overcome and invaluable lessons learned in the operation. The manner in which it has met and mastered its problems is the best possible assurance for its future. As a city of 35,000 its resources and opportunities are no less outstanding than they were when it was a village before the railroad came. And there is not the slightest reason to doubt that the years to come will bring to it growth and prosperity, even as did the years that are gone.

City of Davenport

Population (1920 census)—56,727.

Area—16.24 square miles.

Miles of streets—188.

Miles of pavement—120.

Miles of sewers—133.

Miles of water mains—114.

Miles of street railway tracks—50.

Miles of main line railroad tracks—24.5.

Miles of other tracks—35.9.

Acreage of parks—750.

Total banking resources—\$55,945,060.

Postal receipts (1922)—\$481,572.91.

Assessed valuation of property (1922)—\$69,667,020.

Value of moneys and credits—\$15,063,450.

Municipal appropriations for fiscal year 1922—\$848,300.

Number of homes (1920)—12,042.

Number of families—14,388.

Percentage of owned homes—75.

Number of native born white residents—48,385.

Number of registered voters (1920)—28,000.

Iowa's principal eastern gateway.

Served by three great railroad systems and two interurbans.

Has seven miles frontage on navigable water.

Largest city between Chicago and Des Moines and St. Louis and Twin-Cities.

Most important jobbing and retail center in its territory.

One of four adjoining cities with combined population of 150,000.



FIRST in Iowa in wealth and third in population, Davenport, the state's main gateway to the east, is showing other cities in the upper Mississippi valley how to do it. The source of its strength lies in the strong common sense of its people, their capacity for organization, and their will to go forward. These influences, operating for more than three-quarters of a century in a favored environment, have won victories in commerce and industry and over the material obstacles to municipal growth and greatness such as few communities can boast. They have resulted in an impetus which even the reconstruction period following the World War did not visibly check.

Davenport is the "big brother" in the Tri-City group. It enjoys the advantage incident to its location west of the Mississippi, being the converging point of lines of trade and travel from the great west, upon which it takes the customary toll. It excels in facilities for the distribution of goods, both by wholesale and retail, and for the accommodation of transients. Its people have expressed their faith in its future by liberal support of improvements, both private and public. With their surplus resources they have invested in enterprises which carry the city's name and influence far beyond its immediate environs. It is a social and recreational center, noted also for its educational and research work and for the extent to which it patronizes the arts.

Nature bountifully endowed the place where Davenport has been builded with those things which make life desirable. Well rounded hills rise not too abruptly above the Mississippi, flowing past at the south, providing a site well calculated to display the structural handiwork of man and supplying vantage points from which to see, as well as to be seen. Safe above flood water, the lower levels give ample room for business and industrial development, while the rolling uplands and the hillsides, with their southern exposure and perfect air drainage, are ideal for residence purposes.

Here the early settlers found water to carry goods, to generate power and supply the needs of a city. Here was stone and sand and gravel and lumber, floated down from the great pineries of the north, with which to build. Fuel above ground in the native forests was at hand and beneath the ground not far away coal in unlimited quantity. Here was abundant rainfall and a climate not too cold and not too warm. Stretching away to the west for hundreds of miles was fertile land, the product of which must ever flow eastward to be exchanged for manufactured goods, which in turn must flow westward by the same route.

To this place, so highly favored, came first the explorers, then the traders and then the pioneer settlers, pressing back the copper-hued tribes. The first whites were of the cleanest and most enterprising native stock. Later comers included the best that Europe had to offer, the German element predominating. To the river bank opposite came the first railroad reaching out from the east, and here the first bridge was thrown across the Mississippi. Out of the city the first rails pushed across the prairie westward to the Missouri and on toward the mountains.

And so grew the city of Davenport. Since the first house was built each year has brought it added population and wealth. It boomed but once, during the fifties, when in a single decade it advanced out of the village class. At other times it just expanded gradually and steadily and along safe and enduring lines. Let the United States census reports tell the story:

| | | | | | | | | |
|--------------------------|-------|--------|--------|--------|--------|--------|--------|--------|
| | 1850 | 1860 | 1870 | 1880 | 1890 | 1900 | 1910 | 1920 |
| Population | 1,848 | 11,267 | 20,038 | 21,831 | 26,872 | 35,254 | 43,028 | 56,727 |
| Percent of Increase..... | | 509.7 | 77.8 | 8.9 | 23.1 | 31.2 | 22.1 | 31.8 |

Davenport is the seat of government of Scott county, with a population of 73,952, which also has shown a steady growth, averaging 19.7 per cent in the last three decades. With the adjoining counties of Clinton, Cedar and Muscatine added to that of Scott there is a combined population of 163,925.

Numbers are significant, but increase in population in the case of Davenport has been accompanied by material prosperity that is even more striking. The city now has twelve banks and their total combined resources at the close of 1922 amounted to \$55,945,060. Total annual bank clearings are approximately half a billion. The following figures, taken from reports of all banks in the city and totalled, offer the best possible evidence of financial stability and growth, both in the World War period and during the era of reaction following it:

| | Capital Stock | Surplus and Profits | Loans and Investments | Deposits | Total Resources |
|-------------------|------------------|------------------------|--------------------------|--------------|--------------------|
| Feb. 5, 1913--- | \$1,900,000 | \$2,184,231 | \$20,470,124 | \$30,324,957 | \$39,969,502 |
| Feb. 4, 1919---- | 2,150,000 | 3,081,695 | 42,000,371 | 44,660,713 | 51,971,925 |
| Dec. 20, 1922---- | 2,600,000 | 4,015,734 | 48,144,843 | 46,064,952 | 55,945,060 |

The growth of the city's postal receipts also is unusual, and accurately reflects the expansion of its business and commercial interests. Note the showing by five-year periods since 1900:

| | | |
|------|-------|--------------|
| 1900 | ----- | \$ 85,700.00 |
| 1905 | ----- | 118,878.75 |
| 1910 | ----- | 183,029.73 |
| 1915 | ----- | 271,362.08 |
| 1920 | ----- | 440,557.14 |
| 1922 | ----- | 481,572.91 |

Assessed valuation of property in the city of Davenport for the collection of revenues for 1923 was \$69,667,020. Municipal taxes were levied upon approximately one-half of this sum and upon \$15,603,450 listed in moneys and credits, at the rate of 2.7 mills on the dollar. Municipal appropriations for 1922 were \$848,300.

Davenport takes a high place in the character and extent of its public improvements, and travelers commend it for its well-kept appearance. It has 188 miles of streets and 63 miles of alleys. One hundred twenty miles of streets and alleys are paved. Pavement, especially in the business district, is kept in good condition by prompt repairs or resurfacing when necessary. Streets as originally laid out are wide enough to meet the needs of an ever growing traffic. The coming of the motor vehicle did not cause the inconvenience so often suffered by other cities which had been planned on less liberal lines.

Davenport lies admirably for purposes of drainage. There are 20 miles of storm drains and 113 miles of sewers. The river furnishes a convenient outlet. Clogging and overflowing of drains and sewers rarely takes place.

Connecting up with the city's streets are eight primary highways leading out into the country on the Iowa side, which are being permanently surfaced, mostly with brick. Scott county has in hand and nearing completion at the close of 1922, a road improvement program involving an outlay of \$3,000,000 and calling for work on all primary thoroughfares centering in the county seat. Similar work undertaken on the Illinois side promises early completion of hard roads east, north and south. To reach the Illinois side Davenport enjoys the use of the two-deck, double track Rock Island bridge, government owned and maintained, and the only one between St. Louis and St. Paul on which no tolls are charged.

Davenport and Bettendorf, its eastern suburb, together have seven miles of frontage on navigable water. Appreciating the advantage of water transportation and believing in the future of the Mississippi in this connection, Davenport has taken the lead among upper river cities in levee improvement. Nearly a mile of sea wall has been built, at any point of which freight may be transferred by gravity or power from rail to boat and vice versa, doing away with expensive hand labor. There are also 1,000 feet of paved sloping levee. The Davenport Levee Commission was organized for this undertak-

ing. It issued bonds, which are being retired by rentals from reclaimed land, \$205,000 being outstanding at the close of 1922. A municipal wharf has been constructed for a packet terminus. Most of the reclaimed land, which lies adjacent to the business district, has been transformed into an attractive park, known as LeClaire park, and comprising 11 acres. Area of all the land reclaimed when the sea wall is extended down stream to the present city limits will be 125 acres. It is estimated that the cost of the whole improvement will be \$1,000,000. The entire benefit, which will be much in excess of that sum, will accrue to the city. Work already done has wonderfully bettered the appearance of the waterfront, making it a model which is being copied elsewhere.

The area of Davenport is 16.24 square miles, of which 10 square miles are platted. About three-fourths of the city lies on the bluff, reaching a maximum altitude of 150 feet above the river and of 728 feet above sea level. The lower land, well adapted to business and industrial uses, is adequately served by rail, as well as water transportation facilities. Railroads parallel the river the entire length of the city and branch out into all parts of the industrial district at the west end. Three lines cross the city transversely, striking back into the country in different directions. In addition to the trunk lines of the C. R. I. & P., C. B. & Q. and C. M. & St. P. roads, there are the D. R. I. & N. W., a belt line, and two interurbans of the C. D. & M., one operating up the river to Clinton and the other down to Muscatine. There are within the city 28.5 miles of main line and 35.9 miles of other tracks. In addition to the latter there are nine miles of switch tracks forming the terminal yards of the C. M. & St. P. at Nahant, just west of the municipal bounds. There are 32 steam passenger trains in and 34 out daily. Interurban trains number 22 each way. In 1922 the railroads received 26,991 carload lots of freight and forwarded 11,124 carloads.

Davenporters are fortunate in the character of the public utilities which serve them. Standards are unusually high and costs compare favorably with those in other cities. The Tri-City Railway & Light Company owns and operates street railways, gas and power plants and a central heating plant supplying steam to office and business blocks in the down-town district.

The water plant is privately owned and is one of the best in the country.

For many years Davenport has had exceptionally good street railway facilities. It claims the first electric car regularly operated in the United States. There are now 50 miles of street railway track. An 8-cent fare is charged.

Facilities for the production of gas and electrical energy for power and illumination are considerably in advance of the city's normal needs, and it is the policy of the company always to so maintain them. There are 205 miles of gas mains, reduced to a three-inch equivalent, and 703 miles of wire for power distribution. The number of gas and electricity users is significant

of the high standards of living prevailing. There are 13,379 of the former and 13,368 of the latter. The 1920 census showed 12,042 homes and 14,388 families.

The Davenport Water Company installed one of the first mechanical filters used in the middle west. Its raw supply is taken from the channel of the Mississippi at a point well above the center of the business district, and so effective is the process of purification that turbidity is entirely eliminated at all times, and the supply always has met the most exacting tests. Large storage reservoirs on the bluff give the business section the advantage of gravity pressure. There are 114 miles of water mains and they are of greater capacity than is commonly used. Capacity of the filters is 9,000,000 gallons per day, twice the average consumption, and the capacity of the pumps is 31,000,000 gallons.

Davenport has but one telephone system and through it is given free connection with adjacent cities on the Illinois side and also with villages and many rural subscribers in Scott county. There are 1,904 business and 9,279 residence stations connecting with the local exchange. Rates are \$4 per month for residence and \$8 per month for business service.

Davenport's business interests are well balanced. It is not preeminently an industrial city, yet it excels in certain lines of manufacturing, and there has been a marked expansion in this direction in recent years. The 1920 census showed 219 industries, with value of yearly output of \$55,000,000 and 5,271 workers employed. The two years following saw a material increase in the number of concerns, but there has been no detailed survey since that made by the federal government. Among the factories are several marketing part of their output in foreign countries and a larger number distributing products on a nation-wide scale. These concerns carry the city's name abroad, giving it invaluable advertising.

Thousands of freight cars are made annually in the Bettendorf shops, the largest single industry, with 30 acres under roof. The city leads in the making of washing machines, metal wheels, brooms, ready-cut houses and motion picture projectors. Other products finding a universal market are light locomotives, pumps, type-setting machines, cereal products and pearl buttons. Foundry products, cigars, candy, bakery products, overalls, optical goods, ladders, industrial gases and packing house products are also extensively manufactured. There is a \$2,000,000 cement mill on the river bank just above the city and another one is planned, to be located a few miles below town.

Davenport enjoys unusual advantages which appeal to manufacturers. Among them are presence of water power, nearness of fuel and raw materials and facility and economy of distribution in a territory of exceptional buying power. There is also a large supply of well-trained labor, in which

the city's resources are supplemented by those of its nearby neighbors on the Illinois side.

Good transportation facilities and favorable freight rates also help enhance the city's prestige as a jobbing and retail center. There are 120 wholesale establishments, with an annual business estimated at \$50,000,000. They employ 700 traveling salesmen.

Retail concerns include six department stores, eight ladies' ready-to-wear, 23 clothiers, 20 shoe stores, 193 groceries and 30 drug stores.

The city is headquarters of the Federal System of Bakeries, with hundreds of shops in all parts of the United States, and is the home of several large construction companies prepared to execute almost any kind of a contract in any part of the country, and doing an annual business running up in the millions.

Davenport has many fine buildings. Among the most imposing are the Blackhawk hotel, with 416 rooms, largest in the state, the \$1,000,000 Kahl office building and the new eight-story Parker department store, which has no superior in middle western cities. A \$1,000,000 Masonic temple is in course of construction. Among the public buildings are a central high school of unusual size and completeness, an imposing court house, fine city hall and federal building and a large library. Commodious and well appointed homes crown the prominent bluffs overlooking the valley and the landscaping is effective to an unusual degree. Camp McClellan addition in the east end, commanding a view of the river and Rock Island Arsenal, and built up with residences of the more costly class, is one of the show places of the community.

Good homes are the rule, and the tendency constantly is toward improvement in average quality. New additions are being laid out rapidly. There is unlimited room for growth, most of the suburbs being on rolling ground and well supplied with paved streets and trolley lines. The 1920 census showed 12,042 homes, but it is probable that 13,000 would be nearer the correct number for 1922. In that year 360 new residences were constructed and \$3,249,000 was expended on buildings. It is estimated that three-fourths of the homes in the city are owned by the occupants. That is an unusually large proportion, and speaks well for the thrift, enterprise and stability of the people. Residences and lawns, as a rule, are well kept, reflecting the prosperity and content of the owners. Rents are not exorbitant. An exceptionally liberal policy is pursued in the financing of home building enterprises.

In the matter of schools Davenport is second to none. There are 17 grade and three intermediate schools and one high school in the public system, with 13 parochial and diocesan schools and 17 miscellaneous. The high school, built on a commanding site in 1907, at a cost of \$350,000, is one of the conspicuous structures of the city. It accommodates 1,600 pupils.

Schools maintained by religious denominations include St. Ambrose college for boys and the Academy of the Immaculate Conception for girls, both conducted by the Roman Catholic church, and St. Katharine's school for girls, under the auspices of the Episcopal diocese of Iowa. The miscellaneous schools include the Palmer School of Chiropractic, with 2,500 students, drawn from all states in the union and from many foreign countries.

Public school attendance for the 1921-22 year was 9,621. School expenditures the same year were \$820,000. Value of school property was \$3,006,920 in buildings and grounds, and \$280,246 in equipment. The school bonded debt was \$1,023,000.

Public school pupils are given every advantage to promote their educational advancement and physical welfare. There is special instruction in drawing, music, manual training, cooking, sewing, physical culture and nature study. School physicians and nurses are employed. Special schools are maintained for deaf children and those with defects of speech. A training course for teachers is part of the regular high school course.

The Davenport library is well housed, centrally located and complete. At the close of 1922 it had 78,158 volumes and the circulation for the year had been 456,564. Eight stations in various parts of the city are maintained.

More than eighty per cent of the people of Davenport claim church affiliation. All told there are 43 churches, including practically all denominations. There are two cathedrals, this being the see city of the Roman Catholic diocese of Davenport, comprising the southern half of Iowa, and of the Episcopal diocese of Iowa. Auxiliary religious organizations are well supported. The Y. M. C. A. has a membership of 1,300 and the Y. W. C. A. of 1,200. The former occupies a building specially erected for its use, and the latter has extensive rented quarters.

Few cities are so well supplied with organizations, business, educational, welfare, recreational and for the promotion of science and the arts as is Davenport. They are numbered by the scores, their purposes cover almost the whole field of human endeavor and nearly every resident is enrolled in one or more of them. Many are German in origin and character, led by the Turners and their various branches. The spirit of mutual helpfulness which pervades the community is manifested in numerous beneficiary and welfare societies, some with but a few members and some with many hundreds. These have headquarters in all parts of the city and do a magnificent work. People of means and benevolent inclination have endowed a number of these with praiseworthy liberality, enable them to operate on a broad scale and to build, equip and plan adequately for the future.

Leading among the business organizations is the Davenport Chamber of Commerce, occupying a handsome home of its own and maintaining traffic, credit, manufacturing and retail bureaus in charge of paid secretaries. The

traffic bureau has complete tariff files and the credit bureau keeps up-to-date ratings to the number of 80,000. The Chamber of Commerce is headquarters for the live men of the community, and is doing effective work in furthering the city's interests and exploiting its advantages. Its motto always has been "Business Before Pleasure."

Benevolent work is participated in by such organizations as the Ladies' Industrial Relief and the Davenport Friendly society, having buildings of their own equipped for educational and recreational, and, in the case of the former, for charitable work. The Visiting Nurses' association keeps six nurses whose services are free to those unable to pay for them. The Lend-a-Hand club looks after the welfare of working girls and is building a \$200,000 home for them, a complete club, with all customary club facilities, a large dining room and quarters for 80 lodgers.

There are four hospitals with a combined capacity of 300 beds. Eleemosynary institutions include the Clarissa C. Cook Home for the Friendless, a refuge for women, the Fejervary Home for Aged Men, and St. Vincent's Orphan's home. The Iowa Soldiers' Orphans' home, maintained by the state, and capable of caring for 500 inmates, is located in the city. Pine Knoll sanatorium, maintained by the county for treatment of tuberculosis, has a capacity of 50 patients.

The public museum of the Davenport Academy of Sciences, organized in 1867, ranks with the museums of cities with many times the population of the Tri-Cities. The collections fill to overflowing two large connected buildings owned by the institution. There are departments of natural history, commercial geography, local history, American ethnology and archaeology (especially Mississippi Valley mound-builders), and exhibits from Egypt, Greece, Rome, China, Japan, Peru, Alaska and other parts of the world. The museum is visited by 15,000 people in a year. It has been built up by the generosity of many citizens. Its endowment is assured by a trust fund and it is planning for a new fireproof museum and art gallery building.

The C. A. Ficke collection of paintings, valued at half a million dollars, recently has been given to the city, and public spirited citizens have undertaken to provide a home for it. Permanent literary, debating and study clubs are numerous and reach a great many people. Women's organizations number more than a score. Many of them are educational in their purpose, while others are devoted to the arts, especially to music, which Davenporters liberally patronize. The Tri-City Symphony orchestra, taking rank with the best in the country, and the Tri-City Musical Association, which sponsors entertainments by the world's leading musical celebrities, are strongly supported in Davenport and their programs there are given in the coliseum, well adapted to such uses and having a seating capacity of 3,000.

Among the fraternal, the Masons long have held a leading place. Their original temple having been outgrown, the Masonic bodies are now erecting one of the most pretentious structures of its kind in the country, to be thrown open during 1923. The Elks, Turners, Ancient Order of Hibernians, Knights of Columbus and Danish Brotherhood have buildings of their own, while the Eagles are building and the Odd Fellows expect to do so soon. Few fraternal organizations that are more than local in character are without branches in the city. There are half a hundred labor unions, embracing all crafts and most of them affiliating with the Davenport Trades and Labor Assembly.

In the planning of Davenport, recreation has been well provided for, and there are numerous organizations to promote that end. Among these may be mentioned the Outing club, with house and grounds only a few blocks from the center of the city, the Rock Island Arsenal Golf club, more than half of the members of which are Davenporters, certain branches of the Turners, and numerous clubs to encourage shooting, bowling and other sports, both outdoor and indoor. There are 14 parks, well distributed within the city limits, and having a combined area of 379 acres. Of these VanderVeer park is noted for its flowers, while in Fejervary park is a small zoo. Credit island, a tract of nearly four hundred acres, is owned by the city and is equipped with golf course, bathing beach, baseball grounds and other recreational facilities. It is open to the public free of charge, and though outside the municipal limits, is easily reached. At LeClaire park, on the levee, the city, in 1922, constructed a well appointed natatorium costing \$100,000. Attractive and well improved drives leading out into the country in all directions have a strong appeal to motorists. A well-appointed tourists' camp is provided for visiting automobile parties in summer time.

Efforts to beautify the city have been highly successful in Davenport, and there are many sightly spots within and near its borders. There are no "Keep off the grass" signs in the public parks. All schools have playgrounds, well equipped, and there are three public playgrounds with wading pools. The Davenport Boat Club has a harbor and club house and has sponsored a number of regattas, attracting power boat enthusiasts from all over the middle west.

Indoor recreation is supplied by four theatres and 15 motion picture houses, among which the new Capitol theatre is recognized as one of the finest in the country.

Davenport's fire protection ranks with the best. Fire insurance is written on a Class Two basis, a rating accorded few other cities. Large pumping capacity of the water company, over-size mains in the fire limits, enforcement of a satisfactory building code, and effectiveness of fire fighting forces and equipment are factors considered in establishing the low rate. There are seven fire stations, with 67 men. Equipment is all motorized

and includes two large pumps. There are 1,150 fire hydrants in the city. Help from Rock Island and Moline is always available on short notice. Average fire losses for the past 10 years have been \$176,727.

There are two police stations, with a force of 62 men. Law enforcement is effective. The number of arrests for the last 10 years has averaged 2,398 and the average annual collection of fines has been \$8,378. Unusual attention is given to directing of traffic in business streets. A federal law enforcement organization is maintained in the city, including a United States commissioner, deputy United States marshal and prohibition agent. There is an adequate local health and inspection service.

The federal government maintains a weather station in Davenport fully equipped and manned by a meteorologist and two assistants. Weather data from all over the country and river stage bulletins from points on the Mississippi from Dubuque down to Muscatine are collected daily. Reports are sent out over the Tri-City district and are broadcasted by radio, making them available for many miles. Records kept since 1871 show an average rainfall of 32.27 inches, average winter temperature of 24.3 degrees, spring temperature of 49.1, summer temperature of 73.1 and autumn temperature of 52.4. The average growing season has been 174 days. There have been no crop failures in the vicinity in 50 years.

Davenporters take great pride in their city. They are ever alert to add to its advantages and always have a warm welcome for visitors. Many conventions are entertained. There are half a dozen hotels of high rating and a score of others in which visitors may find comfortable quarters and at moderate cost. One of the city's leading attractions is the Mississippi Valley Fair and Exposition. This was opened in 1920, and took high rank from the start. The grounds, just outside the city limits, comprise 90 acres and represent an investment of \$550,000. There is a modern half-mile track, grandstand of unique design, built to afford occupants a view of aerial spectacles, as well as those occurring on the ground, and with large seating capacity, together with all other necessary buildings of a class usually found only at state fair grounds. The annual fair, open for a week in 1922, drew a paid attendance of 80,899.

The Scott County Farm Bureau, formed in 1912, with headquarters in Davenport, is one of the three oldest in the state. It has 1,200 members, a paid secretary, or advisor, and is one of the most active and progressive in the country. Agricultural interests of the county have experienced much benefit from its work, which is covering an ever widening field.

Davenport has Battery B of the state militia, with a total membership of 80, and an artillery armory of large size and modern design, which is battery headquarters of the Iowa National Guard.

One of the best boat harbors on the Mississippi is located at the west end of Davenport, in the slack water formed by building a dam, also used as a

driveway from the mainland to the head of Credit island. Many craft winter here and some boat building and repairing is done.

Already well supplied with land and water transportation facilities, Davenport expects also to figure prominently in the development of air routes. It now has a commercial flying organization and an aviation field where aviators are trained and airships are built. The city is on the main New York-San Francisco route of the United States airways systems as mapped out by the aviation branch of the army, and expects also ultimately to be made a junction point between the east and west line and the main one crossing the country north and south and connecting New Orleans, Memphis, and St. Louis with Minneapolis and St. Paul and points in Canada.

HISTORICAL

The first house built by white men on the site of the city of Davenport was a rude cabin put up in 1833 by Antoine LeClaire and a party of Frenchmen. LeClaire, who figured prominently in the pioneer life of the community and was a leading resident of the city for many years, was half Indian and had an Indian wife. His cabin was placed in the midst of the Fox Indian village, which the white men had named Morgan. The Indians left in 1834 to take up their abode on the Cedar river. The townsite was laid out in 1835-36, and named in honor of Col. George Davenport, an Indian trader and first settler on the island, near Fort Armstrong.

It is probable that the first white man to see the site of Davenport was Radisson, a Frenchman who explored this part of the country in company with a band of Indians about 1660. There is authentic record of the coming in 1673 of Marquette and Joliet, who met a tribe of Illini Indians there. White men came to the locality to stay when Fort Armstrong was built in 1815. The year previous an American expedition headed by Lieut. Zachary Taylor, afterward president of the United States, had been defeated by Indians and British in what has since been known as the battle of Credit Island, fought mostly within the present city limits.

LeClaire came in 1818, as interpreter for the commandant at the fort. He acted in that capacity when the treaty following the Black Hawk war was negotiated in 1832 at a point now within the city. In this treaty the Indians ceded the land to the government, but reserved a quarter section for the wife of LeClaire. On this land the first house was built. Two men claimed the original townsite. LeClaire bought out both for \$150 and joined with half a dozen others in platting the ground. Fifty or sixty lots were sold at auction, mostly to St. Louis speculators, and the men at the head of the enterprise divided the rest among themselves. The town was incorporated late in 1838, and the first election was held April 1, 1839. A new charter was voted by the legislature in 1843 and a third one in 1851, which, amended from time to time, is still in force.

What is now Iowa was once a part of the territory of Wisconsin. Iowa territory was laid out in 1838. A county government was set up the same year and Rockingham was the first county seat. County commissioners did not meet in Davenport till 1840.

Davenport remained a very ordinary frontier settlement, though enjoying the advantages of a large river traffic, till the coming of the railroad. The Chicago & Rock Island was completed to the latter city in 1854. Several years earlier Davenporters had become actively interested in promoting a trans-continental line, and in 1852 the Mississippi & Missouri Railroad company was organized to build across the state of Iowa and join the two streams, with Davenport as the eastern terminus. Ground was broken in 1853 and some road had been built before the iron horse was brought across the river to help with the undertaking.

The first locomotive to cross the river was ferried over on a flatboat July 19, 1855, and was christened the Antoine LeClaire. It pulled the first train out of Davenport Aug. 22 of that year. During the winter following another locomotive and seven freight cars were hauled across the river on the ice. The first locomotive crossed the bridge April 21, 1856. Not till a dozen years later was the road, now part of the C. R. I. & P. system, completed to Council Bluffs.

Davenport grew rapidly as a result of its advantages of location and its superior transportation facilities. It became an important distribution center for eastern Iowa, handling a good share of the building materials and other goods consumed in the developing of the territory, and of the farm products given in exchange.

Manufacturing began with lumber and flour, two basic necessities most in demand in the locality. For many years a large business was done, especially in lumber. When the lumberman and the miller passed on north and west to be nearer their supplies of raw material their places were taken by other manufacturers making such things as wagons, implements, clothing and food products, and laying the foundation for the later industrial growth of the community.

When it began to assume importance as a city Davenport's banking resources grew rapidly. It always has been noted for the number and strength of its financial institutions. Confidence in them for years has brought depositors from other localities and has helped to make the city a center for the buying and selling of securities and for the financing of all sorts of enterprises. An important step for the advancement of community interests took place in 1895, when the Davenport Clearing House Association was formed.

In the early days, as now, the city excelled as a trading center. The opportunities presented attracted men with business ability and means to

operate on a large scale. Low freight rates by water prevailing in the days of the steamboat were met by the railroads, with which the city was well supplied, and the resulting advantages made it easy to compete with other centers, especially those not on navigable streams. While the river does not now figure prominently as an artery of commerce, Davenporters are confident that its prestige will be at least partly restored, and at no distant date. When this is done and the proposed water way link to the Great Lakes in Illinois is completed substantial benefits await the river towns, and Davenport will be in position to share in them.

In the four score years of its career Davenport has traveled far, and not in vain. It has done big things, and by doing them has found the wisdom and the strength to grapple with even larger ones. It breathes the atmosphere of success. It has won the fight that faces every city which would be truly great.

Moline, East Moline, and Silvis

Moline population (1920 census)—30,745.
 Average population gain by decades since
 1860—58 per cent.
 Number of industries—55.
 Capital invested in industries—\$108,000,000.
 Total banking resources (Dec. 29, 1922)—
 \$18,774,497.
 Postal receipts (1922)—\$272,546.
 Area of city—6.5 square miles.
 Miles of paved streets—58.
 Miles of sewers—68.
 Acreage of parks—170.

Capacity of city pumping plant—17,000,000
 gallons.
 Annual expenditure for public education—
 \$450,000.
 Number of homes (1920 census)—6,535.
 Number of owned homes—5,000.
 Has water power and good steambout harbor.
 Combined population of Moline, East Moline
 and Silvis—41,950.
 Greatest implement making center in the
 world.
 Number of workers employed in industries
 of the three cities—10,000.
 Annual carload shipments in and out—40,000.



OLINE, East Moline and Silvis together comprise the industrial unit of the Tri-City group. Jointly they cover an area of more than ten square miles and have a population of 41,393 souls. Moline and East Moline form the largest agricultural implement manufacturing center in the world. Silvis is the home of the repair shops of the Rock Island Lines, one of the most complete establishments of the kind in the country.

Moline, known wherever man cultivates the land with modern tools as the Plow City, has a population of 30,734, according to the 1920 census. East Moline, laid out a score of years ago to accommodate Moline's industrial overflow, had a population of 8,675 when the last federal count was made, and Silvis was credited with 2,541 people. The combined population of the three cities named increased 13,336, or 47.7 per cent in the ten-year period from 1910 to 1920. Moline's gain has averaged 58 per cent by decades since 1860. East Moline's increase was 214.2 per cent from 1910 to 1920, while that of Silvis was 118.4.

Moline, besides offering many advantages by reason of its exceptional location with reference to assembling of materials and distribution, its fine transportation facilities and the high class of its labor, is an ideal home city. So, also, are East Moline and Silvis. This is primarily because of the character of the people, the great bulk of its bread-winners being skilled workmen who, favored by steady employment at good wages and being as a rule by nature thrifty, have established homes of their own. Sober and industrious, fairly rewarded for their labor, they are contented and stand for the things that make a city attractive.

Manufacturing plants in Moline and East Moline are segregated along the river, giving the advantage of level sites and accessibility to rail and water transportation. Both cities have room on the flat at the foot of the bluffs for flourishing business districts, while the hills and level upland farther south are ideal for residence purposes. Moline has spread across the latter, nearly two miles in width, and is about to invade the valley of

Rock river, the bluffs of which already are occupied by residences. Silvis is not on the river, but its manufacturing district is confined to the bottom of the valley, in conformity with the zoning of its neighboring cities.

The progressive spirit of her citizens has made Moline's development safe and sure. Established originally as a mill town, it always has aimed chiefly at industrial expansion, but its enterprise also has sought and found other outlets. Many big civic undertakings have been successfully handled and it has weathered periods of depression with never a step backward. Its people have shown their faith by their works, and their works have created a city that is fair to look upon, and as good as it is fair.

A typical achievement of Moline was the removal of its business district from the north side to the south side of the railroad tracks which bisect the down-town section. The advantage of having the main retail area on one side or the other was obvious. Crossings were dangerous and often were blocked by trains. Overhead tracks were out of the question. There was urgent need that something be done, and something was done in a surprisingly short time and with most gratifying results.

In the early days the city's retail business was done mostly in two blocks on Second avenue. Expansion brought Third avenue to the front, three or four blocks there becoming the center of activities, with a gradual encroachment upon Fifteenth street on the other side of the tracks. And then the time came, early in the present century, when still more room was needed. Third avenue was inadequate, and anyway the big implement makers had invaded it with their warehouses and were in need of still more space there.

The removal across the tracks did not just happen. It was planned deliberately and systematically. It began in 1903. New business blocks began to rise on Fifteenth street, on Fifth and even on Sixth avenues. Now, after twenty years, there are probably only two or three merchants still on Third avenue who were there when the movement began. The present business district is almost entirely new, which gives it an air of modernity not often found in a city that has been established for more than half a century.

The first lot purchased for business purposes south of the tracks in the transaction which started the exodus from Third avenue cost \$112 per front foot. Three years later an adjacent lot sold for \$300 per foot. Now it has a value of \$1,000 per foot. The residence district has been pushed farther and farther south as the business district grows. There are also several groups of retail establishments on the bluff.

The move across the railroad tracks was the beginning of a new era in Moline. In fact, it may be considered the city's commercial re-birth.

Joel Wells was the first white settler in the territory that afterward became Moline. He and his two sons are said to have come to this vicinity

some time between 1829 and 1832. They at one time had possession of most of the land now forming the heart of the city. Other settlers arrived and the tract was devoted to agricultural purposes until after 1841.

In 1841 D. B. Sears and Spencer H. White constructed a dam from the Illinois shore to the island now occupied by the Arsenal, to harness the Mississippi rapids for the operation of a flour mill. Organizers of the mill company were Messrs. Sears and White and John W. Spencer. The plant was erected at the southern end of the dam and Thomas G. Patterson was the first millwright employed.

In 1842 the first industrial enterprise of the present Plow City was launched. Later Mr. Sears obtained control by purchasing the interests of his partners. He built another dam from Rock Island to Benham's island and placed a new mill there. Other small factories, attracted by the power, soon were located on the mainland and on the island, and so grew a nucleus for the later development of the community.

Meanwhile the spiritual and intellectual welfare of the settlers were not being neglected. In 1834 the first religious organization was formed by the Methodists. There were few members. Rev. Thomas McMurty, the pastor, opened the first school in 1835, and served as teacher.

Workmen employed at the first mill were without permanent shelter, and in 1842 Spencer White built the first frame house to serve as a home for the men. The following year the mill company laid out a town and divided it into lots, some of which were quickly sold. In 1843, also, the town was named. Selection of the name devolved upon a small group of pioneers who were interested in the enterprise. They did not agree, and so on the plat of the town were written two titles, Hesperia and Moulin. Hesperia means the star of the west. Moulin, from the French, means a mill. Charles Atkinson, who had the distinction of building the first brick house, held out for Moulin, and that name prevailed. The spelling of the name in some way was changed to conform with the pronunciation.

Moline was incorporated in 1848. Daniel Obermyre was the first village president, Daniel Gordon clerk, Cyrus Kinsey treasurer, Charles Atkinson assessor, A. M. Hubbard constable and collector, and John Patterson supervisor of the roads. A special act of the legislature permitted re-incorporation in 1855. City organization came in 1872. July 1 of that year the law providing for the incorporation of cities became effective. Two days later the village trustees were asked to have the question of a change submitted to the people. This was done and the proposition carried 261 to 22. Daniel L. Wheelock was the first mayor, Orrin Ferguson clerk, Charles F. Hemenway treasurer and John T. Browning attorney. John Deere was the second mayor.

It is to John Deere, more than to any other man, that Moline owes its prestige as an implement-making center. Deere began making plows in the

forties, and the excellence of his product, the quantity of his output and the vigor with which he sought new fields to market it soon spread the fame of the town. Gradually the Deere shops grew and their growth attracted other manufacturers, who set up plants to make plows and other implements, farm wagons, light vehicles, machinery, etc. Moline also once had its lumber mills, but their departure a score of years ago was scarcely noticed in the general industrial growth.

In time absorption of the individual enterprises by the Deere interests began. The Moline Plow Company also entered the field as competitor. Both major concerns acquired complete lines of plows, cultivating and harvesting machinery, tractors and motor and other vehicles. For the most part these were secured by purchase of home or outside individual manufacturing enterprises which were taken over and operated as a unit. To a large extent the industry has been consolidated in Moline and East Moline, with many millions invested, an immense output and with distribution facilities in practically all parts of the civilized world.

While the early growth of Moline and the later development of East Moline was given the greatest impetus by the implement-making business, neither place can be called a one-line manufacturing city. Moline has approximately 55 industries, including, besides the farm implement plants, one of the leading automobile factories in the country. Heavy machinery, furniture, steel products, automobile bodies, tools, wood products and licorice are a few of the other products that are turned out in large quantities. East Moline also has a big automobile factory, in addition to concerns making gasoline motors, laundry machinery, scales, storage batteries and metal and wooden novelties.

Value of the output of Moline factories for 1919, shown in the 1920 federal census, the latest official figures available, was \$44,811,021. Capital invested was listed as \$108,000,000. The number of workers employed was 5,444 and the annual wages \$9,470,632. In that year East Moline factories employed about 2,600, the annual wages amounted to a little less than half of the Moline total, and the output and capital invested were in proportion. The number of men employed in the Silvis railroad shops and yards was nearly 2,000.

Moline's acreage is 4,183. Virtually all of this is platted. It has 97 miles of streets, 58 miles of pavement, 94 miles of sidewalks and 68 miles of sewer mains.

The assessed valuation of property in the city in 1922 was \$11,980,000. Current appropriations were \$528,999. The 1922 tax rate was \$7.71 on the hundred dollars valuation. The city's bonded indebtedness in 1922 was \$171,500.

There are 170 acres of parks and recreational centers in Moline. Two of the parks have lakes where wading and bathing are enjoyed in the summer and skating in the winter. Browning field is a completely equipped athletic

field, with a steel constructed grandstand having a seating capacity of 5,000. Professional baseball and amateur games are played there. It is easily reached from the business district. The six parks are conveniently located to serve the entire city. Public playgrounds are conducted in each of the parks by the Community Service League.

Recreational facilities include many attractive drives in and near the city. There is a vehicle bridge connecting with Rock Island Arsenal, the golf course of which is reached more directly from the business district of Moline than from that of either of its neighboring cities. Many business and professional men and manufacturers avail themselves of the advantages offered. Campbell's island, named after the commander of a river expedition which was attacked and defeated by the Indians during the second war with England, is maintained as a watering place, with bathing beach and summer camps patronized by thousands each season. There are many camps, also, on Rock river. Aquatic sports are popular. Pigeon clubs are numerous and flying contests are held in season. East Moline St. Elroy Driving club has a half-mile track on the outskirts of that city and holds regular meets in summer and autumn.

Moline has pure filtered water, the raw supply being taken from the channel of the Mississippi. The pumping capacity of the plant, which is owned by the city and valued at \$1,198,914, is 17,000,000 gallons daily. The filter capacity is 5,000,000 gallons, or more than twice the average daily consumption. A filtered reserve of several million gallons is maintained. Water service is meterized throughout the city. The minimum quarterly charge for a five-eighths-inch meter, the size used by the average family, is \$2.25; for a three-quarter-inch \$3, and the rate graduates up to \$30 for a 6-inch meter. There are 78 miles of water mains and 749 fire hydrants. The factory district is supplied through separate raw water mains with private pumping plant.

The fire department is modern and completely motorized. Four stations, centrally located, are manned by a crew of 28. The average annual fire loss for the ten-year period ending with the close of 1922 was \$85,000. Because of its well organized department, complete fire-fighting apparatus, adequate water supply and strict attention to lessening of fire hazards, the city has an unusually low fire insurance rate, being based on a classification of two and one-half.

Moline has an efficient police department of 28 men. Law enforcement is uniformly effective, the city being kept unusually free from vice. Good order is maintained in public places and traffic regulations are not allowed to become a dead letter. There is a city court with resident judge.

Great pride is manifested in the schools of the city. There are 16 buildings, including a central high school costing \$250,000. Total enrollment of pupils is 4,900. Annual expenditures for school purposes is \$450,000. The

value of school property is \$1,600,000 and the school debt \$321,000. There are two Roman Catholic parochial schools with a combined attendance of 800.

Religious organizations are well supported. There are 27 churches, 25 Protestant and two Roman Catholic. Combined affiliations of the former are 8,000 persons and of the latter 4,500. Four new church buildings were started in 1922. Another, begun in 1919, was approaching completion. Church property has a total valuation of one and one-quarter millions.

There is a commodious Carnegie library, located in the business district and stocked with 32,000 volumes.

Moline has three hospitals with a combined capacity of more than 200 beds. One of these is city owned and supported by a 3-mill tax. There are a nurses' home, maternity home and detention hospital in connection and a training school for nurses is conducted. One of the other hospitals is maintained by the Rock Island district Lutheran churches, and its equipment includes a modern X-ray laboratory. It also has a nurses' training school. The third hospital, a private one, specializes in health baths.

Moline's status as a hotel city was materially advanced by the construction of the million-dollar LeClaire hotel, nearing completion at the close of 1922. This 15-story structure has 202 guest rooms and 70 family apartments and is one of the largest and most costly to be found in any city of Moline's population. Other local hotels together have regular facilities for the accommodation of 200 guests.

The city is well cared for in the matter of public utilities. Its power and gas supply and street railway and telephone service are not excelled anywhere. The power plants generating electricity both by steam and water for the entire tri-city district are located within its boundaries, as is the gas plant supplying the cities on the Illinois side of the river. The capacity of these is far beyond the normal needs of the community. At the close of 1922 there were in the city 182.6 miles of gas main, reduced to 3-inch equivalent, and 423.13 miles of single wire power distribution lines. The number of electric customers was 7,238 and of gas customers 6,940. The Tri-City Railway Company has two lines operating the full length of the city east and west and two north and south. There are three lines connecting with Rock Island, one with East Moline and one with Silvis. The combined mileage of tracks is 20.63.

In East Moline and Silvis there are 63.7 miles of gas mains and 280.41 miles of power distribution lines, with 2,671 electric customers and 1,593 gas customers. Total mileage of street railway tracks is 8.6.

There is but one telephone system, that of the Illinois Bell Company, with 5,700 stations in Moline and 1,100 in East Moline and Silvis.

The power, light, gas and telephone rates are the same as in Rock Island, being exceptionally low, and the street railway fare, also, is 10 cents, with the

privilege of riding for a nickel extended to those who purchase monthly identification cards, for which 50 cents is charged. The average fare collected under this plan is a little more than six cents.

Moline is served by the trunk line of the C. R. I. & P., the main north and south line and the Sterling branch of the C. B. & Q. and the Chicago-Kansas City line of the C. M. & St. P. It also has a belt line, the D. R. I. & N. W., connecting with Davenport, Rock Island, East Moline, Silvis and Carbon Cliff, and having a system of terminals and service tracks in the industrial district. The Milwaukee road uses its main line and the terminals. There are 50 trains in and out daily. In Moline and the two cities adjoining on the east there are 29 miles of main track and 111 miles of service and other tracks, the switch yards including the big division terminal of the C. R. I. & P. at Silvis.

Freight shipments in and out of Moline and East Moline run about 40,000 cars annually. In 1922, which was below normal, there were 15,032 carload lots received and 11,083 forwarded.

In the days when water transportation flourished Moline, by reason of the rapids and the water power development of its river front, was practically cut off from steamboat connections. In 1907, however, the government built a lock, and subsequent improvement of the rapids has given the city an exceptionally good slack water harbor through which all craft navigating the Mississippi at this point must pass. With railroads on the river bank and most of its big industrial plants within convenient reach, the city is bound to be a source of much business for river craft in the event of their revival. At this time the river is valuable mainly for the power it furnishes and for the possibilities of further development in this direction that it affords.

Supplementing its railroad and water shipping facilities is a system of improved highways which promises to play an equally prominent part in keeping Moline on the map. With one hard road to the east connecting with city pavement at Silvis completed at the close of 1922, state and county building programs already financed promised two more concrete highways in 1923. One of these was to be extended south, via Coal Valley, and the other northeast through the upper end of the county, paralleling Rock river. Two other routes, leading east and north, were to be improved with either concrete or gravel. Southwest the city has highway outlets through Rock Island and north and west through Davenport. Rock Island in late years has co-operated with Moline in laying out and improving through streets to facilitate exchange of motor vehicle traffic, and further plans in this direction are being considered. Interests of all the adjoining cities in this respect are looked after practically as well as if they were under a single municipal government.

Moline already has made material advances as a retail center, having three large department stores and many other prosperous concerns dealing

in the various lines of goods. Removal of the business district across the railroad tracks greatly aided its business revival. The city's commercial interests are looked after by several live organizations of business men. Completion of the road building program is expected to bring great benefits to retailers.

In banking resources the Plow City is keeping pace with its general growth. It has six banks, all in sound condition and with combined resources at the close of 1922 of \$18,774,497. There are several imposing bank buildings, the home of the Moline Trust & Savings bank, completed in 1922, being one of the city's sky-scrapers. Steady growth in all departments has characterized the city's banking history. The following totals for all banks, taken from official statements made at three different times in the last decade, bear out this assertion:

| | Capital Stock | Profits and Surplus | Loans and Investments | Deposits | Total Resources |
|------------------|------------------|------------------------|--------------------------|-----------------|--------------------|
| Feb. 3, 1913--- | \$ 975,000 | \$433,625.60 | \$ 9,080,141.97 | \$10,135,732.65 | \$11,733,536.89 |
| Mar. 4, 1919--- | 1,075,000 | 611,451.82 | 14,567,174.79 | 15,672,247.12 | 17,521,545.29 |
| Dec. 29, 1922--- | 1,300,000 | 991,450.19 | 16,282,803.15 | 15,782,710.79 | 18,774,497.81 |

Nothing can better show the growth of Moline than the steady increase of its postal receipts during the last 30 years, which amounted to over 1,000 per cent. The following figures show the advance made in approximately 5-year periods since 1891:

| | |
|------------|--------------|
| 1891 ----- | \$ 24,433.28 |
| 1895 ----- | 27,312.54 |
| 1900 ----- | 43,385.66 |
| 1905 ----- | 65,480.83 |
| 1910 ----- | 126,350.43 |
| 1916 ----- | 182,749.24 |
| 1920 ----- | 272,546.75 |

Moline is an own-your-own-home city. At the last census there were 6,535 homes, and of these approximately 5,000 were occupied by their owners. This is a most exceptional showing. A larger percentage of the industrial workers own their own homes than in any other city in the country, it is said. The average value of these homes is high and they are well kept. The rolling character of the residence district gives scope for effective landscaping, and the opportunity has not been neglected. A score of costly residences established by founders of the city's large industries and their families crown the bluffs overlooking the Mississippi and Rock rivers and add materially to the natural beauty of the sky-line, viewed from either the north or the south. Growth of the residential section is mostly toward the south. More than a million dollars is spent normally each year on new homes. In 1922, which was below the average, 68 new residences were erected. The total expenditure, based on cost estimates given when building permits were issued, was \$733,473. These estimates did not include plumbing, wiring, improvement of grounds, and other items, so that the sum actually spent was at least \$1,000,000.

Population classification statistics of the 1920 census gave Moline 23,002 native white residents, 7,391 foreign born and 338 colored. The number of

dwellings was 6,535 and families 7,564. Sweden was the birthplace of 3,640 of the foreign born and Belgium of 1,615. From the earliest days the Swedish element has been prominent in the city, and this fact has been one of the most potent in connection with the industrial development of the community. The industry, thrift, sobriety and spirit of co-operation and high quality of citizenship of this class has profoundly affected the Plow City's destiny.

In East Moline, in 1920, there were 5,857 native white, 2,423 foreign born white, 409 negroes; 1,287 dwellings and 1,357 families. The Silvis classification showed 1,898 native born whites, 636 foreign born, 7 negroes, 517 dwellings, 605 families.

Moline has 13,000 registered voters and East Moline 3,000.

Organizations for business, fraternal, social, educational, recreational, patriotic and welfare purposes are numerous in Moline, East Moline and Silvis. The Moline and East Moline Chambers of Commerce have a large membership and are wide-awake. The Moline Woman's club is one of the strongest in the state. The city is headquarters of the Tri-City Manufacturers' association. Masons, Odd Fellows, Elks and Eagles are well established. There are many Swedish organizations and a number formed by Belgian-Americans. There is an Industrial hall, the home of the various labor organizations, and owned by the federated unions. Swedish Olive lodge of Odd Fellows has its own building, as have the Eagles, who also maintain a club house on Rock river which cost \$50,000. The Elks also have a club house. The Moline Y. M. C. A., with a membership of 600, has a fine home and does a splendid work. The East Moline Y. M. C. A. also is well housed. Moline has a welfare association which extends its activities to East Moline in emergencies. The Red Cross Visiting Nurses' association serves all three of the cities, ministering to the sick and holding clinics for the promotion of modern methods of handling disease and caring for infants. Among cities of 25,000 to 50,000 population Moline ranks as one of the three lowest in the United States in infant mortality, with a rate of 35 per 1,000.

There is a Federation of Girls' Clubs with 22 affiliating organizations, a participating membership of 600 and a sustaining and associate membership of 400.

All three cities are liberal patrons of musical and dramatic entertainments and of the cinema. There are many fine theatres, the largest being the LeClaire, costing \$300,000 and seating 2,000 people. Sports flourish, especially professional baseball, football, wrestling, boxing and bowling. Moline is a member of the Three-Eye Baseball league.

Public buildings in Moline include an imposing modern city hall, post-office, library and city hospital. In Riverside cemetery there is a mausoleum, built at a cost of \$100,000, containing 850 crypts, and the only building of the kind in the Tri-City community.

Perhaps the most imposing group of buildings in the vicinity is that of the Western Illinois Hospital for the Insane, better known as the Watertown hospital, located on a point of the bluff overlooking the Mississippi valley at the northeast corner of East Moline. Here, visible for miles down the valley, are 21 structures, mostly of stone and of striking architectural design. In addition to the grounds about the buildings, which are well wooded and beautifully parked, there is a farm cultivated mainly by inmates, and one of the show places of the locality. All told there are 590 acres of land in the tract and the valuation of the hospital property is \$1,340,750. The number of patients cared for is about 1,700 and there are 320 employes.

East Moline was built primarily to take care of the needs of Moline industries, which a score of years ago found themselves without sufficient room for expansion. Incorporation as a village took place in 1903. Its growth was surprising. Four years later it became a city. It now has all the improvements and advantages of the average city of two or three times its age.

There are 2,396 acres, or 3.7 square miles, in East Moline. The area platted is 1,125 acres. The normal building rate is in keeping with the rapid increase of its population and industrial importance, though many of its shop workers are still drawn from Moline. Its residence district is attractive, especially that on the bluff, and there are many fine homes.

The city has 40 miles of streets, 13 miles of pavement, 15 miles of water mains, 17 miles of sanitary sewers, 3 miles of storm sewers, 18 miles of alleys and 31 miles of concrete sidewalks.

City property includes waterworks pumping plant, valued at \$20,000, city hall, \$40,000, and barns, \$4,000. Pumping capacity of the water plant, which draws its supply from wells, is 750,000 gallons daily and the capacity of the standpipes, which are located on the bluff and furnish pressure, is 600,000 gallons. Average fire loss for the last decade has been less than \$20,000. Plans are in hand for an extension of the fire department and for the building of a new library.

There are exceptionally fine schools in East Moline, with five grade buildings and a township high school. Enrollment in the grade schools in 1922 was 1,400 and in the high school 282. The high school maintains a uniformed band and orchestra. Value of school property is \$229,590 and the bonded school indebtedness \$97,500.

There are three growing banks in East Moline with total resources of \$3,000,000 and total deposits of \$2,250,000 at the close of 1922.

Receipts of the East Moline postoffice in 1922 were \$28,230.44. In 1912 they were \$10,000 and in 1917 \$17,920, having nearly doubled in each five-year period.

Three parks, having a total acreage of 32, provide recreational centers. Each park has a playground, conducted by the Community Service Council. A country club is in course of construction and a nine-hole golf course is being laid out on a beautiful 110-acre tract, situated just south of the business district. The city is within 10 minutes by trolley of Campbell's island, which is much patronized by campers and week-end recreation parties during the summer months. Many residents also have summer homes on Rock river.

Silvis was founded in 1906 as a place of residence for workers in the repair shops of the Rock Island road. It was named after C. L. Silvis, who took a leading part in its inception. It was incorporated as a city in 1920. In 1910 the population was 1,163 and in 1920 more than double that number. Besides the railroad shops, Silvis has the general store of the entire Rock Island railroad system and receiving yards which are exceeded in size at but few points. Normally about two thousand men are employed in shops, storehouse and yards. Many of these reside in the adjoining cities, being transported to and from work by special shop train.

Silvis has three miles of paved streets, connecting with which is the first concrete highway to be built eastward from the Tri-City community. Its water supply is taken from artesian wells. Sewer and water mains cover the city. The sewer outlet is in Rock river. The city has two municipal parks and an automobile tourists' camp. It has just erected a \$45,000 city hall.

From the Press of
DRIFFILL PRINTING COMPANY
Rock Island, Ill.

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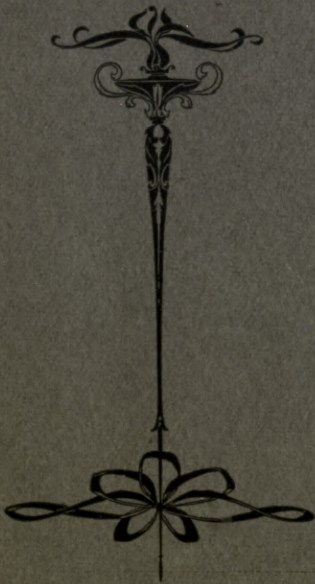


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LIGHT RUNNING AND DURABLE

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C. A. MAST,
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GEO. HOEHN,
Assistant Cashier.

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DAVENPORT, IOWA.

Capital, \$200,000.00
Surplus, 50,000.00
Undivided Profits, 20,000.00

The first National Bank in operation in the United States.

COMMENCED BUSINESS JUNE 29, 1863.

ANTHONY BURDICK, President.
HENRY C. STRUCK, JR., Cashier.

LOUIS HALLER, Vice-President.
OTTO LADENBERGER, Teller.

W. H. WILSON, Attorney.

Cash Capital, - - \$250,000

Undivided Profits, - \$82,000

Deposits, - - - \$2,350,000

Davenport Savings Bank

OF DAVENPORT, IOWA.

Organized April 1, 1870.

FOUR PER CENT INTEREST PAID ON DEPOSITS.

MONEY LOANED ON REAL ESTATE AND PERSONAL SECURITY.

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F. H. GRIGGS, President.
ROBERT KRAUSE, Vice-President.

E. S. CARL, Cashier.
F. C. KROEGER, Ass't Cashier.

1671

Citizens National Bank,

DAVENPORT, IOWA.

UNITED STATES DEPOSITORY.

COMPTROLLER'S CALL, SEPT. 20, 1898.

| <i>Resources.</i> | | <i>Liabilities.</i> | |
|-----------------------------------|-----------------------|------------------------------|-----------------------|
| Loans and Discounts, | \$697,758.42 | Capital Stock, | \$300,000.00 |
| U. S. Bonds, | 180,038.32 | Surplus Fund, | 100,000.00 |
| Other Bonds, | 50,000.00 | Undivided Profits, | 9,920.63 |
| Furniture and Fixtures, | 5,000.00 | Circulation, | 90,000.00 |
| Due from Banks, | 510,734.21 | Deposits, | 1,035,154.18 |
| Cash and U. S. Treas., | 91,543.86 | | |
| Total, | \$1,535,074.81 | Total, | \$1,535,074.81 |

DIRECTORS.

| | | |
|-------------------|-------------------|-----------------|
| T. W. McCLELLAND. | H. O. SEIFFERT. | OTTO ALBRECHT. |
| ROBERT KRAUSE. | P. T. KOCH. | F. H. GRIGGS. |
| W. C. WADSWORTH. | A. W. VANDERVEER. | J. LORENZEN. |
| J. J. RICHARDSON. | | H. H. ANDRESEN. |

| | |
|-----------------------------|------------------------------|
| H. H. ANDRESEN, President. | CHAS. N. VOSS, Cashier. |
| H. LISCHER, Vice-President. | J. F. BREDOW, Ass't Cashier. |

Cash Capital, - - - - \$500,000.00

German Savings Bank,

DAVENPORT, IOWA.

Statement of September 30, 1898.

| <i>ASSETS.</i> | | |
|--|--|-----------------------|
| Loans secured by Mortgages, | | \$3,366,319.68 |
| Loans secured by Collaterals, Bonds, etc., | | 1,244,199.39 |
| Total Loans, | | \$4,610,519.07 |
| Cash on Hand and in Banks, | | \$543,412.23 |
| Cash in Transit, | | 73,193.25 |
| Total Cash, | | \$616,605.48 |
| Real Estate, | | 80,125.68 |
| Total Assets, | | \$5,307,250.23 |

| <i>LIABILITIES.</i> | | |
|-------------------------------------|-----------------------|--|
| Deposits, | \$4,622,845.64 | |
| Capital Stock, | 500,000.00 | |
| Undivided Profits, | 184,404.59 | |
| Total Liabilities, | \$5,307,250.23 | |

DIRECTORS.

| | | | | |
|------------------|---------------|-----------------|-----------------|----------------|
| OTTO ALBRECHT. | H. LISCHER. | H. O. SEIFFERT. | H. H. ANDRESEN. | JENS LORENZEN. |
| CHARLES N. VOSS. | F. H. GRIGGS. | T. A. MURPHY. | L. WAHLE. | |

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HENRY EGBERT, Vice-President.

S. D. BAWDEN, Cashier.

ESTABLISHED IN 1864.

DAVENPORT NATIONAL BANK,

S. E. COR. THIRD AND BRADY STREETS,

DAVENPORT, IOWA.

Capital, \$100,000

Surplus and Profits, . . . \$35,000

ACCOUNTS, COLLECTIONS, AND OTHER BUSINESS OF BANKS, BANKERS, CORPORATIONS
AND INDIVIDUALS RESPECTFULLY SOLICITED.

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FRED. B. SHARON, Vice-President.

S. L. ELY, Cashier.

UNION SAVINGS BANK,

S. E. COR. THIRD AND BRADY STS.

DAVENPORT, IOWA.

Capital, \$60,000

Undivided Profits, . . . \$10,000

Four per Cent Interest Paid on Deposits.
Money Loaned on Real Estate and Personal Security.

CHAS. BEIDERBECKE, President.

A. P. DOE, Vice-President.

CHAS. PASCHE, Cashier.

THE IOWA NATIONAL BANK,

DAVENPORT, IOWA.

THE RECORD FOR FIVE YEARS—COMPTROLLER'S STATEMENTS.

| AT CLOSE OF BUSINESS | Dec. 19, 1893 | Dec. 19, 1894 | Dec. 13, 1895 | Dec. 17, 1896 | Dec. 15, 1897 |
|--|---------------|---------------|---------------|---------------|---------------|
| Capital, | \$100,000.00 | \$100,000.00 | \$100,000.00 | \$100,000.00 | \$100,000.00 |
| Surplus and Undivided Profits, | 12,134.78 | 13,497.20 | 14,668.21 | 15,923.60 | 18,128.29 |
| Deposits, | 237,029.24 | 399,800.11 | 410,980.28 | 363,854.17 | 654,386.65 |

DIRECTORS

CHAS. BEIDERBECKE. A. P. DOE. W. P. HALLIGAN. HENRY SCHROEDER. J. H. HASS. M. D. PETERSEN.
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Pays Four per Cent Interest on Deposits.

TOTAL DEPOSITS, Over \$2,000,000.00

The only Savings Bank in Davenport owning its own home.

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Directors.

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HEINZ & FISHER, Attorneys.



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GOVERNMENT BUILDING, DAVENPORT.

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Banking House, Cor. Third Avenue and Fifteenth Street,
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ORGANIZED UNDER STATE LAW.

MOLINE STATE SAVINGS BANK.

CAPITAL, \$100,000 SURPLUS, \$11,000

Office in Moline National Bank Bldg., Cor. Third Ave. and Fifteenth St.

Four per Cent Interest Paid.

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J. M. GOULD, President.
J. T. BROWNING, Vice-President.
J. S. GILLMORE, Cashier.

ORGANIZED DECEMBER, 1863.

FIRST NATIONAL BANK,

MOLINE, ILLINOIS.

Cash Capital, \$150,000.

Surplus, \$30,000.

DIRECTORS.

J. M. GOULD. WM. BUTTERWORTH. T. M. SECHLER.
CHAS. H. DEERE. F. W. GOULD. E. H. SLEIGHT.
H. A. BARNARD. J. S. GILLMORE. MORRIS GEISMAR.
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J. T. BROWNING, President. P. H. WESSEL, Vice-President. JOHN S. GILLMORE, Cashier.

Incorporated under State Law. Began Business July 1, 1891.

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MOLINE, ILLINOIS.

Capital, \$100,000 Surplus, \$10,000

Open Daily from 9 A. M. to 3 P. M., and on Wednesday and
Saturday Evenings from 7 to 8.

OFFICE WITH FIRST NATIONAL BANK.

FOUR PER CENT INTEREST PAID ON DEPOSITS.

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— ORGANIZED 1871. —

T. J. ROBINSON, President.

J. H. WILSON, Vice-President.

J. F. ROBINSON, Cashier.

No. 1889

Rock Island National Bank,

UNITED STATES DEPOSITORY,

ROCK ISLAND, ILL.

Capital, \$100,000.00 Surplus, \$75,000.00

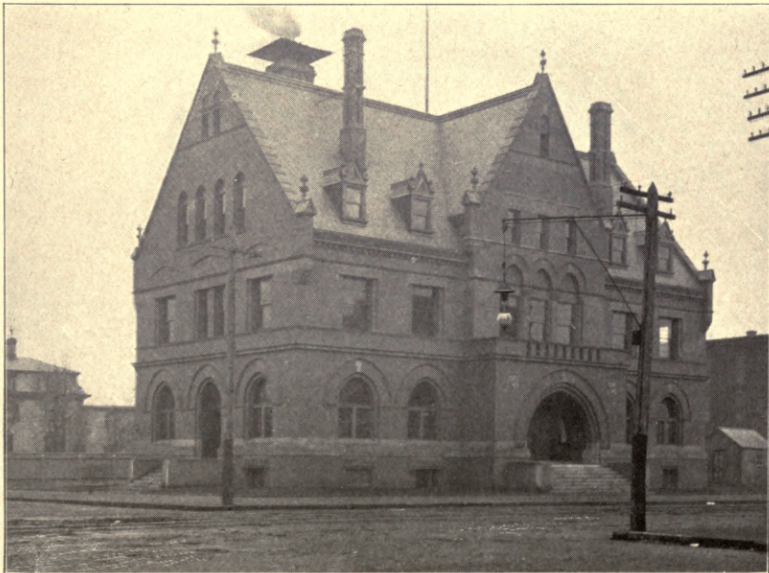
— DIRECTORS —

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E. D. SWEENEY.

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H. S. HANSON.

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P. L. MITCHELL ESTATE.
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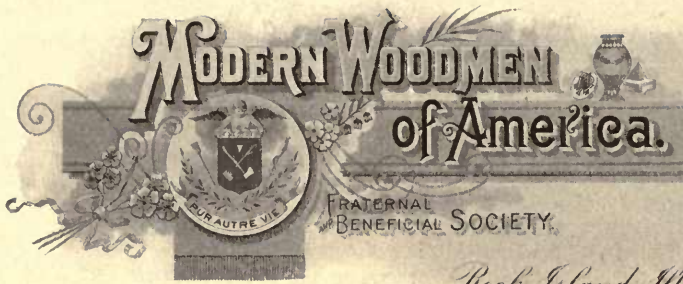
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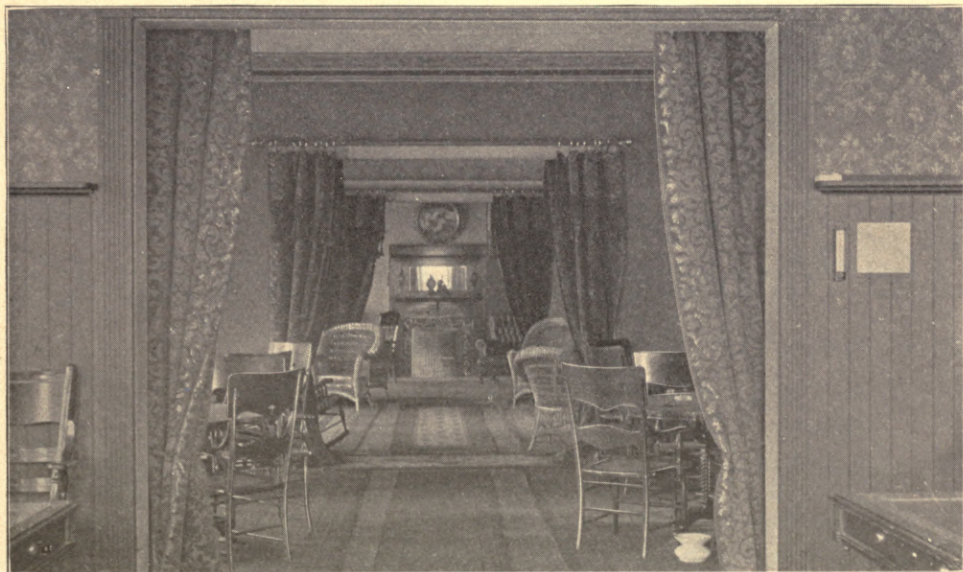
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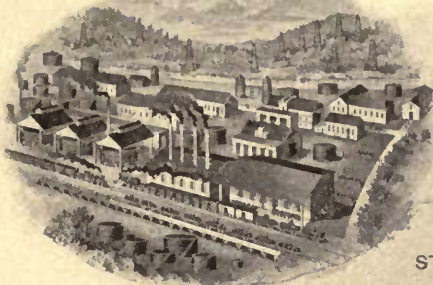
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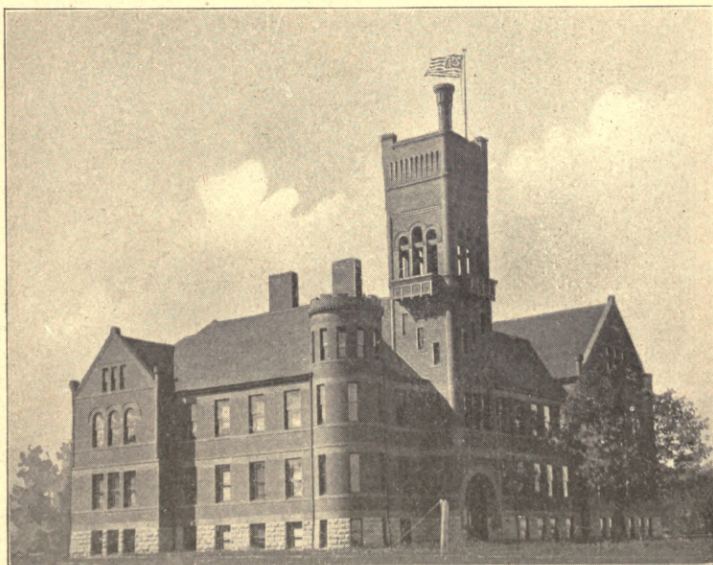
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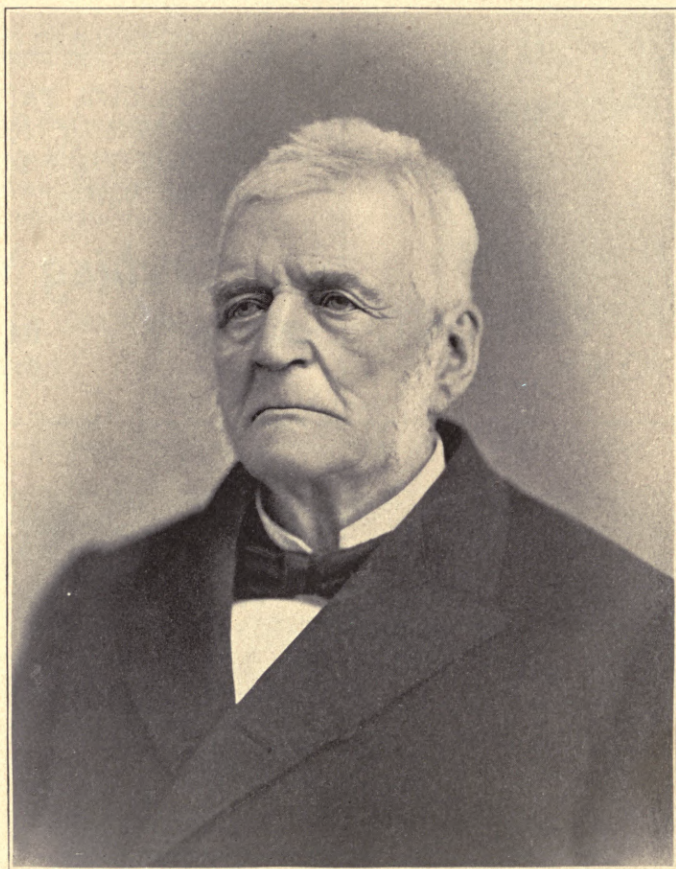
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FACSIMILE OF AUTHORITY FOR THE ILLUSTRATIONS IN THIS WORK.

ROCK ISLAND ARSENAL

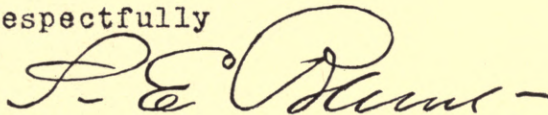
ROCK ISLAND

May 6th 1898.

Dear Mr. Tillinghast:-

Under instructions from the Chief of Ordnance, permission is hereby accorded you to take views of buildings, grounds, or shops (exterior and interior) at this Arsenal.

Respectfully



Capt. Ord. Dept. U. S. A.

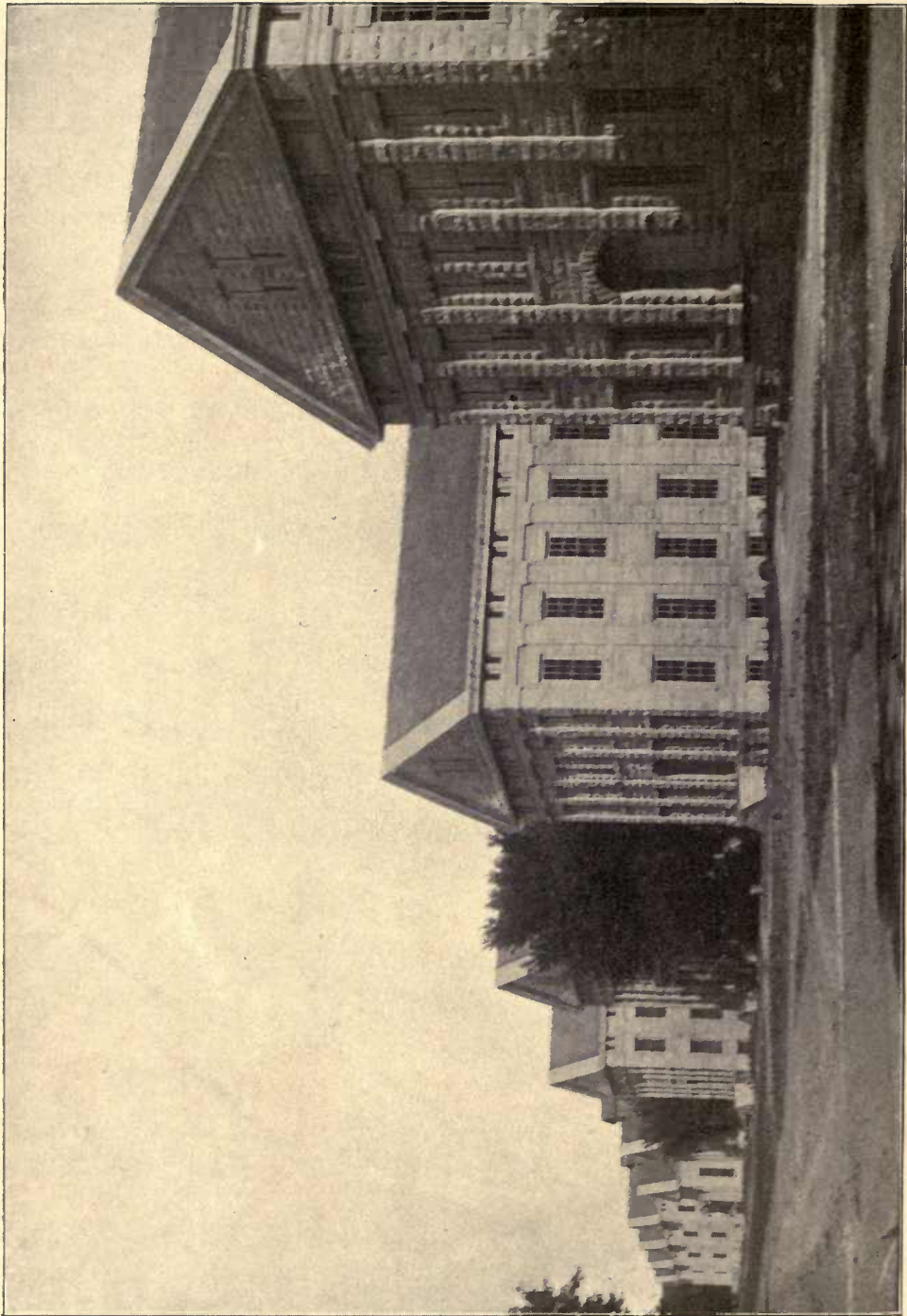
Commanding.

Mr. B. F. Tillinghast,

Davenport, Iowa.

All the views not otherwise credited are reproductions of photographs specially taken for "Rock Island Arsenal: in Peace and in War," by Mr. J. E. CALKINS, under the most favorable conditions.

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REAR VIEW OF THE NORTH ROW OF SHOPS.

ROCK ISLAND ARSENAL:

IN PEACE AND IN WAR.

WITH MAPS AND ILLUSTRATIONS.

(Extract from an official letter from Brigadier-General S. V. Benet, Chief of Ordnance, to
Hon. George W. McCrary, Secretary of War, March 30, 1877.)

“THIS ARSENAL WILL BE THE GRAND ORDNANCE MANUFACTURING ESTABLISHMENT IN THE MISSISSIPPI VALLEY, ERECTED AT GREAT EXPENSE TO THE UNITED STATES, AND WITH A LARGER CAPACITY, WHEN COMPLETED, THAN ANY OTHER ARSENAL WITHIN OUR BORDERS.”

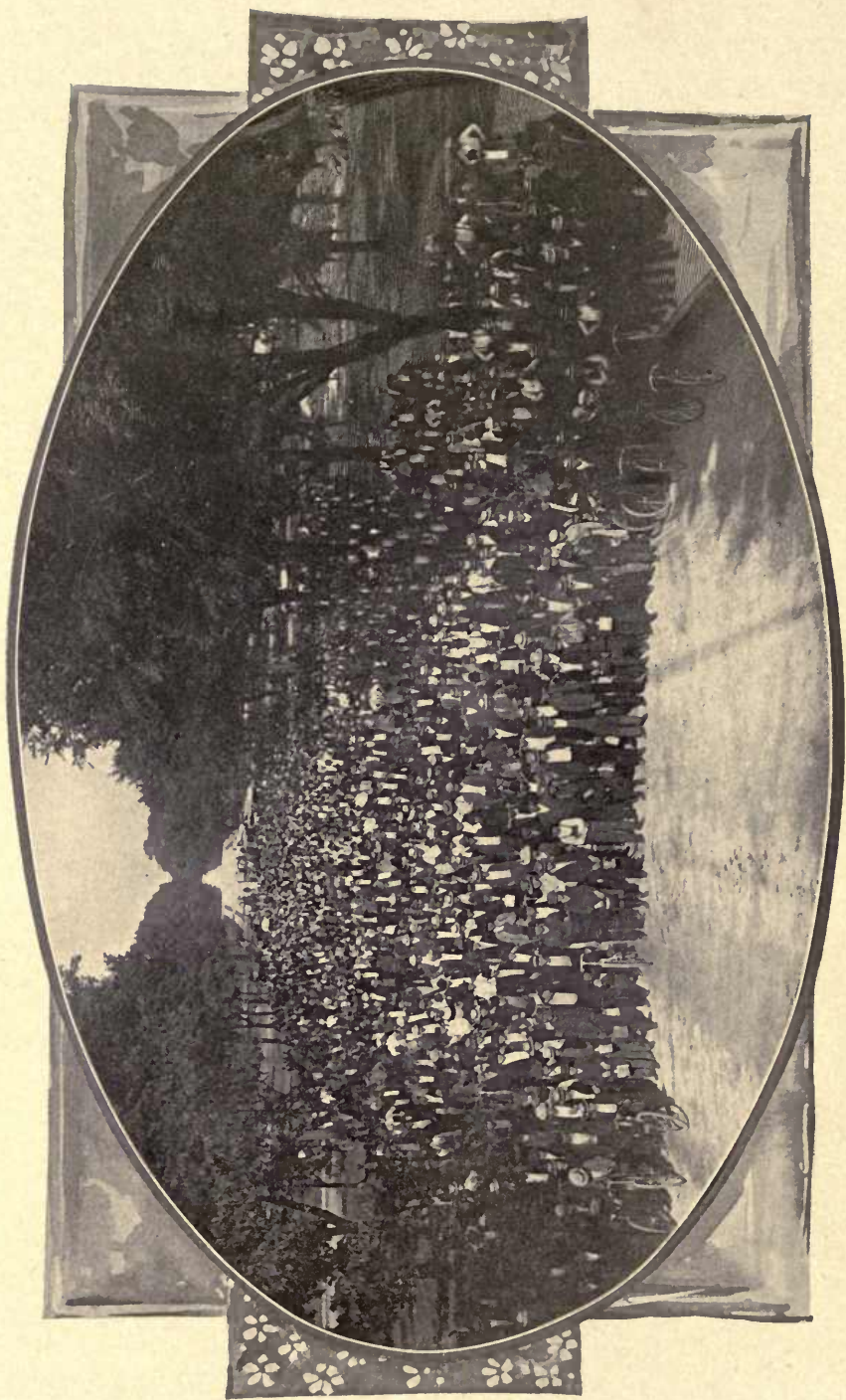
Benjamin Franklin?
BY B. F. TILLINGHAST,

AUTHOR OF “THREE CITIES AND ROCK ISLAND ARSENAL.”

“The Valley of the Mississippi is, upon the whole, the most magnificent dwelling-place prepared by God for man’s abode.”—*De Tocqueville’s Democracy in America.*



CHICAGO:
THE HENRY O. SHEPARD COMPANY, PRINTERS.
1898.



TWENTY-THREE HUNDRED ARSENAL WORKMEN.

From a photograph taken by Lieut. O. C. Horney, July, 1898.

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THREE ARSENAL CITIES.

The center of population has moved westward (in ten years) about forty-eight miles and northward about nine miles. It now rests in southern Indiana, about twenty miles east of Columbus.

The center of the area of the United States, excluding Alaska (and the new possessions in the Pacific Ocean), is in northern Kansas, in approximate latitude $39^{\circ} 55'$ and approximate longitude $98^{\circ} 50'$.—*Federal Census, 1890.*

[The movement of the center of population has been westward at the rate of five miles a year since 1790.]

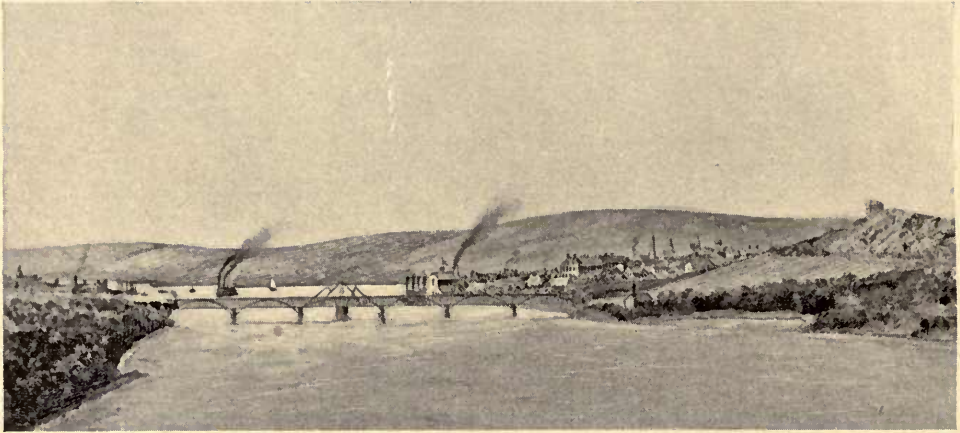
THE Upper Mississippi Valley—the most fertile section of equal area in the world—has its center of industrial activity in the three cities which overlook the Island of Rock Island. This Island is one of the largest, and by far the most beautiful, in the Father of Waters.

Together these cities have a population of some eighty thousand, about equally divided by the great river. This busy community may have a special local interest in the Island and in Rock Island Arsenal, but this vast plant has been built and is maintained by the people of the United States for national uses. Strictly speaking, the Arsenal is in no sense more local than the Capitol at Washington, a transcontinental line of railway or the long and deep artery of trade which floats an immense commerce from St. Paul to New Orleans.

It is not in the least material or significant in what order these closely linked cities—a trinity in unity—are named. Moline, Rock Island and Davenport, Rock Island, Davenport and Moline, and Davenport, Moline and Rock Island all convey the underlying fact of a common and inseparable interest. The Island is the park and the pride of each, and it is the unwritten law that no one city has an advantage over the other in this respect. There are many other interests which bind them together and promote the common good. Some of these may be mentioned.



PIER OF THE FIRST BRIDGE.

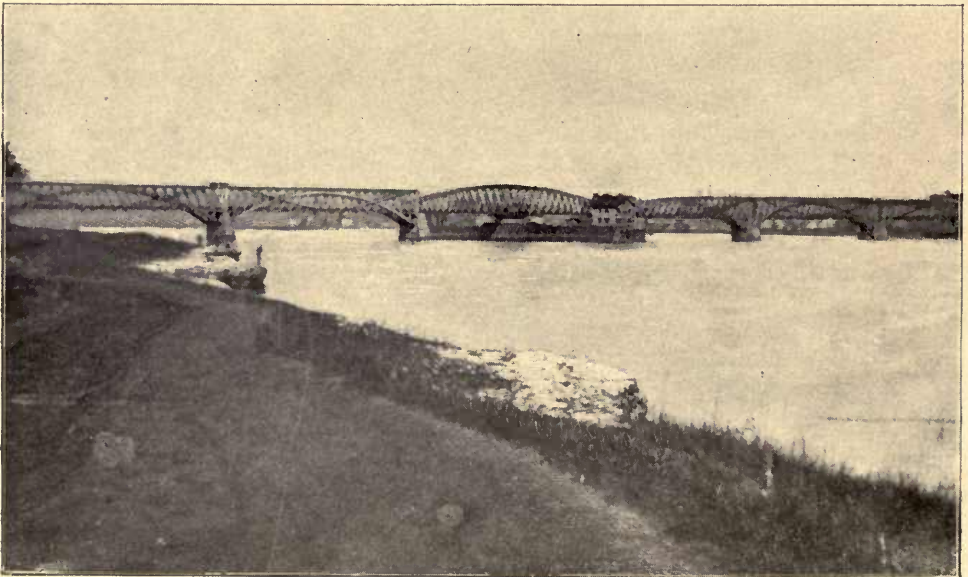


NO. 1. FIRST RAILROAD BRIDGE ACROSS THE MISSISSIPPI RIVER. FROM THE LOWER END OF ROCK ISLAND TO DAVENPORT. FIRST TRAIN CROSSED APRIL 21, 1856.

Sketched by Henry Lambach from plans destroyed by the Chicago Fire.

BRIDGES.

The Government owns and controls all bridges reaching the Island, and they are ample for any possible needs. A moss-covered stone pier, a third of a mile above the present main structure spanning the river, shows the location of the first



NO. 2. FIRST BRIDGE ACROSS THE MISSISSIPPI AS REBUILT AFTER DAMAGE BY FIRE, ICE AND COLLISION.

bridge across the Mississippi from its mouth to its source. It was built by the Chicago, Rock Island & Pacific Railway Company. It was a single-deck, Howe-truss, six-span bridge. The first train, consisting of locomotive and eight cars, passed over it April 21, 1856. On the 6th of May, that year, the first span east of the draw, 250 feet in length, was destroyed by fire, communicated by the steamboat Effie Afton, which collided with and burned at one of the piers. In March, 1868, with the opening of the river, the first pier from the Iowa shore was, by the heavy floating ice, pushed bodily downstream some twenty-five feet. The ensuing month, during a severe windstorm, the draw span was lifted from its masonry and blown

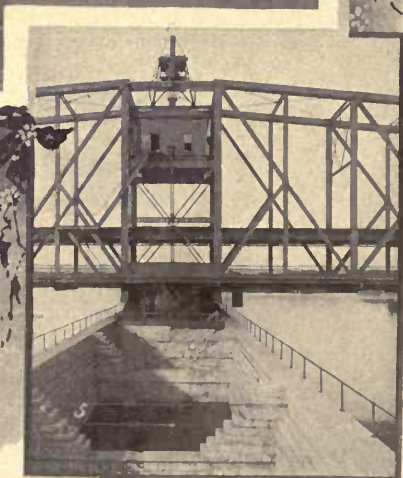


LOOKING TOWARD DAVENPORT FROM ISLAND CLOCK TOWER.

over on its side up-river, so that it hung supported only by the draw pier, with both ends free in midair.

The second bridge was completed in October, 1872, and turned over to the commanding officer of the Arsenal in February, 1873. It was built jointly by the Government and the railroad company. Its total length was 1,550 feet, divided into five spans and one draw. Its cost was not far from \$1,000,000.

This structure served until the present bridge, constructed during the winter of 1894 and 1895, succeeded it on the old piers. It is a double-decked superstructure, with double railroad track above and double street-car track and wagon road below. The trusses of this thoroughly modern bridge are calculated to carry a total moving load of 11,360 pounds per lineal foot, of which 8,000 pounds are on the railway



1. GOVERNMENT BRIDGE ACROSS THE MISSISSIPPI RIVER.
2. THE UPPER DECK.
3. SWINGING FOR A STEAMBOAT.
4. THE LOWER DECK.
5. THE DRAW PIER.

floor and 3,360 pounds on the roadway floor. The solid corrugated steel railway floor, together with the guard angles and rail plates, weigh about 940 pounds per lineal foot of the bridge. The draw span, which weighs, approximately, 2,500,000



THE MOLINE BRIDGE.

pounds, is one of the heaviest ever built. The chain motion for moving this span is one of the departures from the usual methods of bridge building. Beginning at the north end, the first span is 260 feet long ; the second, third and fourth are each 220 feet long ; the fifth is 260 feet, and the total length of the draw is 368 feet. The open space on either side of the draw pier is 162 feet. The approach span on the Davenport side is 200 feet in length and on the Island end practically one-half this length. Ralph Modjeska, son of the noted actress, was chief engineer of the new bridge, and the Phœnix Bridge Company was the builder of both structures at the present site.

At the southwest limit of the Island there is a wagon bridge, the way being twenty-two feet in the clear, in the form of a viaduct under which trains pass. There are foot walks outside the chords, each six feet wide. At its eastern or upper end a bridge is also thrown across the south branch, known as Sylvan Water, connecting the Island with the city of Moline. The length of this bridge is 711 feet. It has five equal spans of 142 feet.



THE LION'S HEAD.
Gargoyle on Bridge over Island Lake.



CITY OF ROCK ISLAND AS SEEN FROM THE ARSENAL CLOCK TOWER.

BRIDGE AND RIVER TRAFFIC.

The river is always unobstructed, except by ice, but the Government requires that a record be kept of the traffic through the draw, how many times it is opened, and the stage of the water every day in the year. Valuable information is thereby gathered. The following table tells much but by no means all of the business on and through the principal bridge. It takes no account, for instance, of the hundreds of thousands of street-car passengers. It does not give the freight tonnage. During 1897 the number of tons of freight hauled across the bridge by railroad was 2,069,602, as compared with 164,653 forty years earlier. This indicates the marvellous development that is going on.

Following is an epitome of the bridge traffic for the twelve months ended June 30, 1898 :

| | | | |
|---------------------------------------|---------|--|---------|
| Engines with trains, north, | 9,083 | Teams, south, | 254,839 |
| Engines with trains, south, | 9,582 | Pedestrians, north, | 336,324 |
| Engines, north, | 1,206 | Pedestrians, south, | 335,143 |
| Engines, south, | 896 | Steamboats, up river, | 1,656 |
| Passenger cars, north, | 17,048 | Steamboats, down river, | 1,653 |
| Passenger cars, south, | 16,949 | Barges, up river, | 419 |
| Freight cars, north, | 130,993 | Barges, down river, | 413 |
| Freight cars, south, | 132,514 | Rafts, down river, | 474 |
| Street cars, north, | 45,326 | Strings of logs, down river, | 4,441 |
| Street cars, south, | 45,568 | Strings of lumber, down river, | 639 |
| Teams, north, | 256,494 | | |

A railroad and terminal bridge, not connected with the Island, but joining the three cities, is now nearing completion, at a cost of more than a million dollars, including the approaches.

RIVER, RAPIDS AND CANAL.

The Mississippi River is the country's free waterway for nearly two thousand miles—exactly speaking, 1,982. At low water the river at Rock Island is 534 feet above sea-level. The section of river known as Rock Island Rapids extends from the lower end of the Island nearly fourteen miles up the river, the fall in this distance being twenty-one feet. From the head of the wing dam to the west end of the Island the distance is 3.20 miles. The fall of the rapids here is 6.65 feet at high water and 7.55 feet at low water. The improvement of the river channel through the rapids has engaged the Government's best engineering talent for many years. Surveys of Rock Island Rapids were made by Lieut. N. B. Buford in 1829, by H. M. Shreve in 1836, by Lieuts. Robert E. Lee and M. C. Meigs in 1837, Lieutenant Warren in 1853 and by others at later dates. Public attention has been repeatedly called to the great water-power advantages, now partially utilized.

Four miles south of the Island is the western terminus of the Illinois and Mississippi Canal, one of the most important internal improvements the country has ever undertaken. Its relation to the Government's Arsenal as an added means of transportation is recognized. The subject is deserving of the more detailed attention it receives elsewhere in this book.



OVERLOOKING THE ISLAND FROM MOLINE BLUFFS.

RAILROADS.

Several trunk lines of railroads and their connections are always ready to distribute the fabrications of the Arsenal expeditiously to any seaport or city in the United States. The transportation facilities are unlimited. Some of the railroads centering at the Arsenal are : The Chicago, Rock Island & Pacific ; the Chicago, Milwaukee & St. Paul ; the Chicago, Burlington & Quincy ; the Burlington, Cedar Rapids & Northern ; the Rock Island & Peoria.

STREET CARS AND TELEPHONES.

The Tri-City Railway Company furnishes constant communication between the three cities by its excellent and extensive system of electric lines. There are forty-two miles of track, seventy-five motor and fifty other cars. The roadbed, equip-



THE LOWER END OF ROCK ISLAND.

ment, power house, barns, etc., represent a cost of \$2,100,000. The passenger capacity of the system is unknown, but the highest number thus far carried in one day is 65,000. From one end of the line to the other the distance is eight miles. Nearly all railway stations, boat landings, public parks, Black Hawk's tower and other places of interest are on or near the street-car lines.

Another means of communication between the two sides of the river is the Rock Island and Davenport Ferry.

One of the first telephone exchanges in the West was introduced here, and it is now one of the largest in proportion to population. The number of telephones in use is 1,450 in the three cities. There is no toll charged, the exchange, like the street-car system and the banks, doing an uninterrupted business, as if State and municipal boundaries did not exist.

THE PRESS.

There are ten daily papers in the three cities, all working in accord for the general good. In fact, their editors, publishers and reporters have an organization which meets at regular intervals to consider and promote the interests of the community. These journals, in the order of their establishment in each city, are: The *Evening Democrat*, *Der Demokrat* (morning), *Evening Times*, *Evening Leader* and *Republican* (morning), in Davenport; the *Evening Argus* and the *Union* (morning), Rock Island; the *Evening Dispatch*, *Evening Republican-Journal* and *Evening Mail*, Moline. There are several semi-weekly, weekly and monthly publications.



FORT ARMSTRONG AVENUE.

A FINANCIAL CENTER.

The three Arsenal cities together form a financial Gibraltar, with ample capital for all legitimate transactions. This is a statement of fact, not of mere opinion, and is warranted by the latest sworn statements of the several institutions. The eight national banks in the three cities make this showing:

| DAVENPORT. | CAPITAL. | SURPLUS AND PROFITS. |
|---------------------------------|-------------|----------------------|
| Citizens National, | \$300,000 | \$119,000 |
| First National, | 200,000 | 70,000 |
| Davenport National, | 175,000 | 32,000 |
| Iowa National, | 100,000 | 18,000 |
| | | |
| ROCK ISLAND. | | |
| Rock Island National, | 100,000 | 82,303 |
| People's National, | 100,000 | 68,073 |
| | | |
| MOLINE. | | |
| First National, | 150,000 | 37,892 |
| Moline National, | 100,000 | 23,521 |
| Total, . . . | \$1,225,000 | \$450,789 |

To these totals should be added the capital and surplus of the private bank of Mitchell & Lynde, which does a business larger than the average of the eight national banks.

No business center of equal population in the entire Northwest is able to make so eloquent an exhibit in the way of its savings bank deposits, a certain index of the thrift of the people and of their industry. These are as follows :



THE ARSENAL MASCOT.

| DAVENPORT. | | CAPITAL. | DEPOSITS. |
|----------------------------------|-------------|----------|--------------|
| German Savings, | \$500,000 | | \$4,430,000 |
| Davenport Savings, | 250,000 | | 2,063,170 |
| Scott County Savings, | 250,000 | | 2,023,000 |
| Union Savings, | 60,000 | | 333,000 |
| Farmers and Mechanics Savings, . | 100,000 | | 359,000 |
| ROCK ISLAND. | | | |
| Rock Island Savings, | 100,000 | | 1,019,238 |
| MOLINE. | | | |
| Moline Savings, | 100,000 | | 523,000 |
| People's Savings, | 100,000 | | 311,481 |
| Total, | \$1,460,000 | | \$11,061,889 |

Here is a banking capital of \$2,785,000 and surplus and profits amounting to \$923,392 for the seventeen institutions—national, private and savings banks. They hold individual deposits aggregating, at the time of their latest statements, \$14,987,450.

THE ILLINOIS SIDE.

The boundary line separating Illinois from Iowa, midriver, places the Island in Illinois. On that side are the industrial cities of Rock Island and Moline, covering more than five miles of water frontage. The municipal limits of Moline on the east extend beyond the head of the Island, and those of the city of Rock Island far below or to the west and south. The bluffs approach within half a mile of the river in Upper Moline and recede from it as they follow the Mississippi to the lower end of Rock Island. The heights all the way are crowned with homes of comfort. Desirable residence sites are occupied below the bluffs, the fall being gradual to the bank. The business sections and railroads are generally near the river. In all that goes to make cities inviting—schools, churches, libraries, waterworks, public buildings, hospitals, good streets, well-to-do people, factories, jobbing houses, stores, parks—Rock Island and Moline are favored. Their manufactures are known throughout the world. The United States engineer's office has for years been located in Rock Island. It has charge of the Mississippi River improvements from St. Paul to the mouth of the Illinois River.

THE IOWA SIDE.

Opposite the eastern point of the Island, on the Iowa side, the rather sharp bluffs run out to the river. Here begins a narrow plateau, which gradually widens as one looks toward the west for four miles, when it approaches the bend made

by the river in turning south. The bluffs have a wavy or broken appearance, affording many choice views or lookouts. At the east, facing the Island, and almost opposite the immense shops, the city of Davenport has graded a projecting height and named it Prospect Park. Some three miles farther down is another small public park, from which a magnificent view, both up and down the valley, is obtained. Between the line of hills and the river the triangular-shaped plateau, gently sloping to the south, is ample for the accommodation of 150,000 people. The drainage is naturally good, street rising above street on the sides of the bluffs, like terraces. Back of the heights rich rolling prairie extends to the north, east and west.



MAIN ENTRANCE TO ARSENAL.

Davenport may pardonably boast of its educational institutions, both public and private, of its many charitable institutions, its schools and churches, its library, Academy of Natural Sciences, of its unsurpassed filtered-water system, its parks, wholesale and retail houses, cathedrals (being the See city of the Episcopal and Roman Catholic churches), factories of numerous kinds,—in brief, of its thrift and substantial progress.

But the purpose of "ROCK ISLAND ARSENAL: IN PEACE AND IN WAR" is told on its title-page. It does not pretend to more than glance at the environment of the Island. The three cities of themselves furnish subject-matter for a volume.

THE ISLAND OF THE INDIANS.

This was the best Island on the Mississippi and had long been the resort of our young people during the summer. It was our garden (like the white people have near their big villages), which supplied us with strawberries, blackberries, plums, apples, and nuts of various kinds; and its waters supplied us with pure fish, being situated in the rapids of the river. In my early life I spent many happy days on this Island. A good spirit had care of it, who lived in a cave in the rocks immediately under the place where the fort (Armstrong) now stands, and has often been seen by our people. He was white, with large wings like a swan's, but ten times larger. We were particular not to make much noise in that part of the Island which he inhabited, for fear of disturbing him. But the noise of the fort has since driven him away, and no doubt a bad spirit has taken his place.—*Black Hawk, through his interpreter, Antoine Le Claire.*

THE Island is a fascinating subject for the historian, but the past is so crowded by matters of present moment that little more than the order of events can be given for almost one hundred and fifty years.



BLACK HAWK,
Or Ma-ka-tai-me-she-kia-kiak.

According to Francis Parkman in his "Discovery of the Great West," Louis Joliet and Jacques Marquette first saw the Island in the summer of 1673.

Ninety-four years later Ma-ka-tai-me-she-kia-kiak, or Black Hawk, the Sac chief, was born on Rock River, a few miles south of the Island. He died in 1838, at the age of seventy-one years.

By the treaty with Great Britain in 1783 the United States was placed in possession of the east bank of the Mississippi River.

The United States gained its right to the Island of Rock Island through the Harrison treaty with the chiefs of the Sac and Fox tribes of Indians, made at St. Louis in November, 1804.

The Island was not definitely occupied by white men, and appears to have had no history, until the breaking out of the war with Great Britain in 1812. The first incident of that war

which came home to the Island was Governor Clark's expedition to Prairie du Chien. It was attacked by the Indians and nearly destroyed. Campbell's Island, five miles above, was the scene of a conflict in which thirty-six soldiers were killed.

December 24, 1814, the treaty of Ghent was concluded. September 13 and 14, 1815, treaties of peace were made with the Sacs and Foxes.

It was in the year and month last named that Col. R. C. Nichols, commanding the 8th United States Infantry, was sent up the Mississippi from St. Louis to establish a fort at or near Rock Island. The objects were to occupy the country, protect coming settlers, control the Sacs and Foxes and guard travel and trade by river.

At that time the army was supplied with provisions by contractors directly, and not through a commissary department as has since been the rule. George Davenport, after whom the city of Davenport was named, accompanied the expedition as contractor's agent, and transported his supplies in light keel-boats. The expedition reached the mouth of the Des Moines River, about 140 miles below the Island, and wintered there on account of the ice. In the following April, 1816, Gen. Thomas A. Smith arrived at the cantonment with his rifle regiment, took command, and proceeded up the river. He arrived at the Island early in May, and fixed upon the foot or west end as the site of a fort which was to be built. The troops were first landed on the Island May 10, 1816. They went into camp at once and began cutting timber for storehouses. At that time the west end of the Island, which is now bare, except for trees that have been set out along the drives, was covered with a heavy growth of oak, black walnut, elm and basswood. General Smith remained at the Island only long enough to construct abatis for the protection of the troops from the Indians and then proceeded north with his rifle regiment.



BLACK HAWK DRIVE.

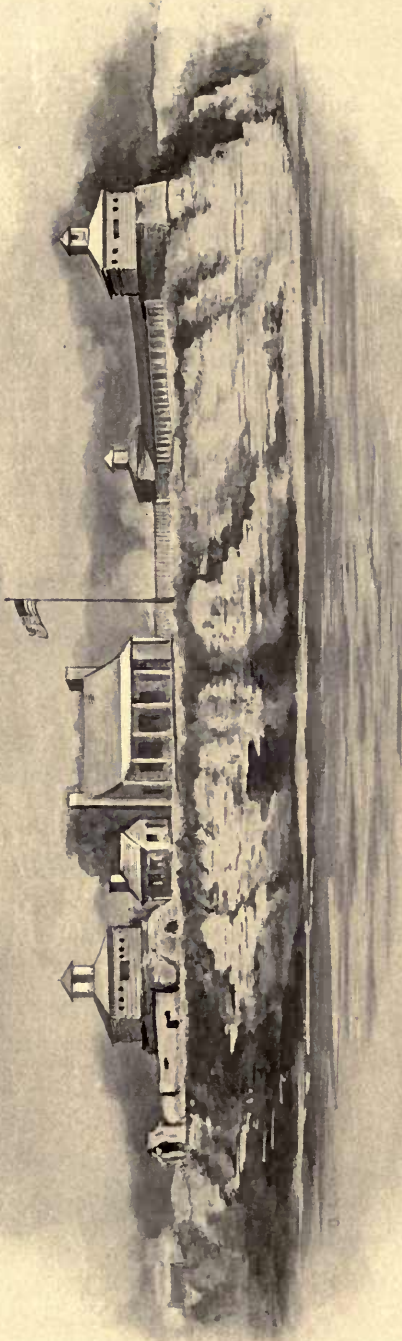
The 8th Infantry, under command of Colonel Lawrence, was left on the Island, and under his direction the construction of Fort Armstrong was begun, the name being chosen in honor of the secretary of war.



BLACK HAWK'S LANDMARK.



FIRING LYING.



FORT ARMSTRONG.

Completed 1817. Evacuated May 4, 1836.

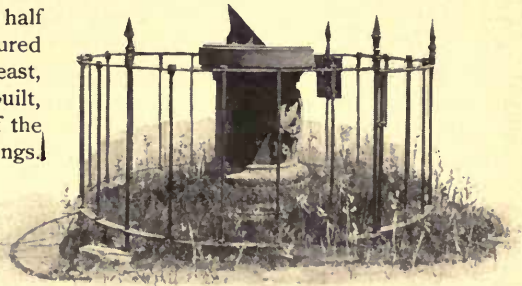
Drawn from old sketches and historical descriptions for "Rock Island Arsenal: in Peace and in War," by Mrs. Alice C. Walker.

FORT ARMSTRONG.

Defenses, musters, preparations,
Should be maintain'd, assembled and collected
As were a war in expectation.—*Shakespeare.*

SEVERAL pictorial representations of this blockhouse defense called Fort Armstrong, of more than eighty years ago, exist. While no doubt they are generally correct, they differ materially in details. Gen. D. W. Flagler, Chief of Ordnance, in his valuable and unapproached "History of The Rock Island Arsenal," with every opportunity for investigation, says :

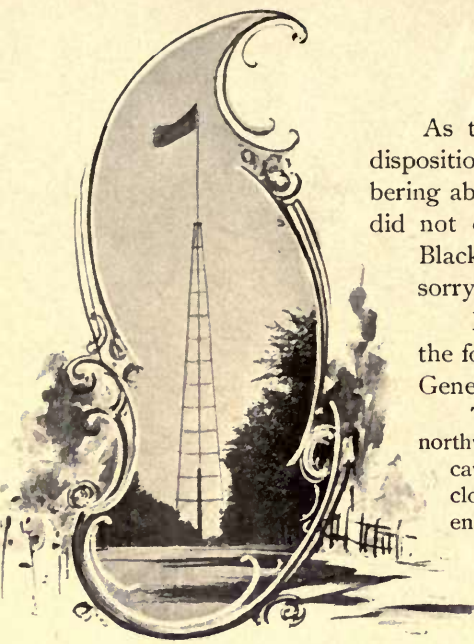
The interior of the fort was 400 feet square. The lower half of the walls was of stone, and the upper half of hewn timber. The timber and stone were procured on the Island. At three of the angles, the northeast, southeast and the southwest, blockhouses were built, and these were provided with cannon. One side of the square was occupied by the barracks and other buildings. These were built of hewn timber, with roofs sloping inward, as a protection against their being fired by the Indians, and that they might not furnish a safe lodging place for the enemy in an attack. The fort was placed on the extreme northwest angle of the Island. Its northwest corner was about 200 feet from the present location of the Island end of the bridge.



THE SUN DIAL.

Gov. Thomas Ford in his "History of Illinois" gives this description of Fort Armstrong as he saw it when approaching from the south (or west as the river runs) in the summer of 1831 :

Fort Armstrong was built upon a rocky cliff on the lower point of an island near the center of the river, a little way above; the shores on each side, formed of gentle slopes of prairie extending back to bluffs of considerable height, made it one of the most picturesque scenes in the Western country. The river here is a beautiful sheet of clear, swift-running water, about three-quarters of a mile wide; its banks on both sides were uninhabited, except by Indians, from the lower rapids to the fort, and the voyager upstream after several days of solitary progress through a wilderness country on its borders came suddenly in sight of the whitewashed walls and towers of the fort, perched upon a rock surrounded by the grandeur and beauty of nature, which at a distance gave it the appearance of one of those enchanted castles in an uninhabited desert, so well described in the "Arabian Nights Entertainments."



WHERE OLD GLORY ALWAYS WAVES.

As the fort neared completion the Indians showed a disposition to be more friendly, though the soldiers, numbering about six hundred, were watchful of attacks. "We did not object to their building the fort on the Island," Black Hawk is recorded as saying, "but we were very sorry."

In reference to the charmed cave in the rocks under the fort, the home of spirits, as Black Hawk imagined, General Flagler writes :

The cave was in the face of the limestone bluff at the northwest corner of the Island. At high water the floor of the cave was covered and boats could enter. This cave was closed, by building the abutment of the bridge across its entrance, in 1870.

Fort Armstrong was finished in 1817, but there were no exciting events until the outbreak of the Black Hawk War in 1831. Two companies of infantry were stationed there regularly. It was in reality a frontier post, visited by boats only at infrequent intervals.

Judge Spencer, one of the first settlers on the Illinois side, relates that in 1828 mail was obtained by sending soldiers on foot to Galena, about one hundred miles north. In this way the news of General Jackson's election as President was brought to Rock Island garrison.

A stirring chapter of Western history is that which deals with the Black Hawk War—the last armed stand taken by the Indians to hold their lands east of the Mississippi. This is not properly within the writer's present scope. It may be said, however, that General Gaines, then at St. Louis, came to Fort Armstrong at the head of the 6th United States Infantry. The settlers were all moved to Rock Island, and General Gaines sent for the stubborn chief. Keokuk, too, with some of his warriors, attended the conference. War could not be averted, and in the hostilities that followed Lieut.-

Col. Zachary Taylor (afterward President), Lieut. Jefferson Davis, Abraham Lincoln, and others who became of more than national prominence, took part. More than once the garrison on the Island was in imminent danger of massacre. The war continued until August 2, 1831, when, after several reverses, Black Hawk's band was practically destroyed. The old chief, his son Seoskuk and other chiefs were made prisoners and



GEN. WINFIELD SCOTT'S HEADQUARTERS, 1832.

brought to the Island, from which they were later taken to Washington. The Government took great pains to secure for Black Hawk a kind reception by the Indians upon his return from the East. The accounts of a meeting between the vanquished chief, Keokuk and others on the Island are very affecting. Black Hawk afterward established himself, with a remnant of his tribe, on the Des Moines River in Iowa, where he died in 1838.

Among the noted men who came to Fort Armstrong was Gen. Winfield Scott, and the occasion of his visit is deserving of notice. The hero of the Mexican War of sixteen years later was then forty-six. He was sent from the East with troops to direct the campaign against the Indians. He journeyed by way of the great lakes, Prairie du Chien and down the Mississippi, reaching Fort Armstrong in August, 1832. A virulent type of Asiatic cholera had broken out among the troops while on transports on the lakes, and it was brought with them to the Island. The cholera raged in its worst form in the large camp of jaded troops collected on the Island after the campaign, and was only broken up by distributing the troops in small camps on the bluffs along the west bank of the river. Several medical officers died, and General Scott, in a letter written not long after, ascribed the saving of the army from the scourge to the efforts of his chief medical officer, Surgeon C. A. Finley, afterward Surgeon-General during the Civil War.



NEAR THE CANNON'S MOUTH.

THE ISLAND FROM 1832 TO 1862.

There's but the twinkling of a star
Between a man of peace and war.—*Butler in Hudibras.*

AT the close of the Black Hawk War Fort Armstrong had well served its object—a frontier defense. An end had come to Indian outbreaks and depredations, and the pioneers were free to claim the attractive country. The garrison was, however, maintained till May 4, 1836, when the fort was evacuated and the troops sent to Fort Snelling. Lieut.-Col. William Davenport, of the 1st Infantry, was in command at the time of the evacuation, and he left Lieut. John Beach in charge, with a few men, to take care of the property. But Fort Armstrong was never regarrisoned, and in November, 1836, the property that had been left was taken away.



GEORGE DAVENPORT.

The First White Settler on the Island,
May, 1816.

From "Davenport Past and Present," by Franc B. Willkie.

General Street, Indian agent, had charge of the Island until 1838, when Col. George Davenport was appointed agent, and remained in charge till 1840. Colonel Davenport was the first white settler in the vicinity of the Island, his home for so many years. He was identified with it from 1815 to July 4, 1845, when he was murdered in his own home by an organized band of robbers and horse thieves. The murderers escaped unrecognized, but were afterward arrested, and three of them—Aaron Long, John Long and Granville Young—were

executed on the 19th of the succeeding October.

Colonel Davenport was an Englishman, born in Lincolnshire in 1783. After many hard experiences at sea he reached New Orleans in 1806. During his Island years he became famous as a trader, winning the confidence of the Indians. His house, on the northern bank of the Island, now falling into decay, is shown in the illustrations.

In 1840 some of the buildings at Fort Armstrong were repaired, and an ordnance depot was established at the fort. Capt. W. R. Shoemaker was placed in charge of the depot and of the Island, and remained until 1845, when the stores were moved to St. Louis Arsenal.

From the year last named until the act for establishing Rock Island Arsenal was passed, in 1862, the Island was in charge of a civil agent, or custodian, employed by the War Department, and it has remained under the control of that department to this time.

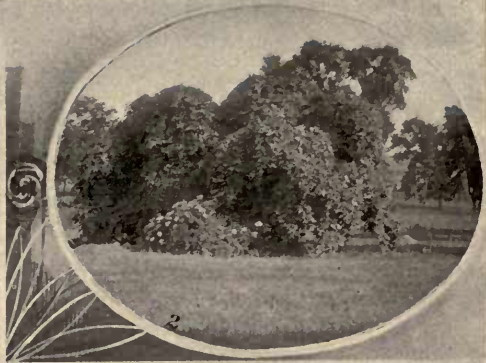
Thomas L. Drum was custodian from 1845 to 1853; J. B. Danforth, from 1854 to 1857; H. Y. Slaymaker, from 1857 to 1863. The history of these eighteen years "is full of persistent and protracted efforts on the part of squatters, manufacturing, railroad, water-power companies and others to procure, by preëmption, lease, purchase or cession, a title to the lands on the Island." So it appears that the Island has been as great a prize in the eyes of the bargain-driving business men of recent times as it was in the consideration of Black Hawk and his band, who regarded it as their dearest possession.



COL. GEORGE DAVENPORT'S HOUSE.

1. As it was in 1860.

2. As it is in 1898.



1. A STately ELM.
2. A NATURAL GRAPE ARBOR.
3. WOODS EAST OF SHOPS.
4. IN THE JUNGLE.
5. THE LINDEN TREE.

ADVANTAGES OF LOCATION.

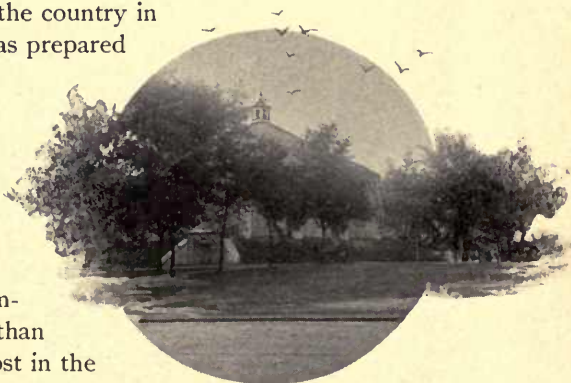
After a careful study of this question of location, there is no position which, to my mind, affords so many advantages, and, at the same time, presents so few objections, as Rock Island, in the Mississippi River.

In a military point of view it is perfectly secure from an enemy advancing either by the lakes or the river. From it supplies can be transported in any direction and at any season of the year. It is in the midst of a country teeming with coal and wood, and especially adapted to agriculture. The site is elevated far above river floods, the climate and situation are healthy; and while the Island is sufficiently isolated to secure it from sudden attacks, it is near enough to the cities of Rock Island, Davenport and Moline to afford ample accommodations for all the necessary employes.— *General Ramsay, Chief of Ordnance, in a letter to the Secretary of War, 1864.*

THE chain of circumstances and events leading up to the great Arsenal of today is of continuous interest. Link has been added to link as administration has been succeeded by administration, until the rather rough plans of more than eighty years ago have developed into a system that is approaching perfection. Further on it will be seen that when a crisis came to the country in the spring of 1898, Rock Island Arsenal was prepared to meet the sudden and enormous demands made upon it for war material in a way that helped essentially in solving the difficulties of the Government. The day that peace was declared, after 114 days of hostilities, Senator Allison, of Iowa, who had supported every appropriation bill from the first, remarked that during the comparatively short war the Arsenal had more than repaid the country for the millions it had cost in the extent, variety and character of the equipments, stores and munitions it had so promptly furnished.

It was on the 2d of March, 1825, that the Secretary of War informed the Commissioner of the General Land Office that the Island of Rock Island was necessary for military purposes, and directed that it be reserved from sale.

About the year 1835, by direction of Congress, two examinations of various sites for a Western armory were made by commissions of army officers. In September, 1840, the Chief of Ordnance, Colonel Talcott, directed the commanding officer at



THE RESERVOIR.



1. ALONG THE NORTH SHORE OF THE ISLAND.
2. AN ISLAND FARM.
3. THE DYKE AND PAPOOSE ISLAND.

4. SOLDIERS AS HAYMAKERS.
5. THE ROAD ROLLER.
6. NO THOUGHT OF WAR.

7. CLEANING UP.

St. Louis Arsenal to examine the Island of Rock Island with a view to its use for ordnance purposes. The resulting report made by Capt. William Bell shows the foresight and breadth of view of that officer. This is evidenced by the following extracts:

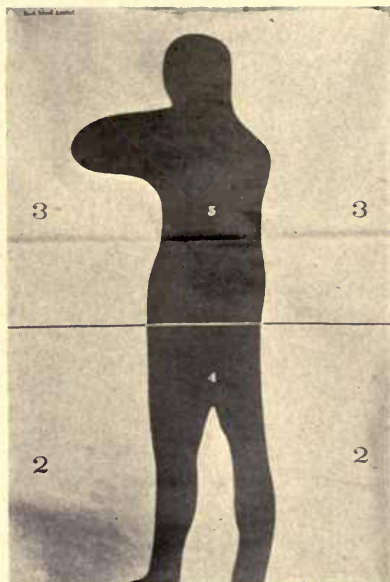
The whole Island, containing about 850 acres, belongs to the United States, having been specially reserved from sale. It lies at all times high and dry in the Mississippi, on the side of the Illinois shore, from which it is separated by about 600 or 700 feet; its greatest length, lying east and west, being about 2.61 miles, and its greatest breadth, lying north and south, being 1,463 yards; its perimeter, or circumference, being $6\frac{1}{4}$ miles.

There are but two occupants on the Island: one at the upper or east end, who has no claim upon the grounds; the other, at the north side, near the water, at the point marked "Davenport" on the accompanying sketch, which is the name of a very respectable gentleman who has lived there for many years, and who has gone to considerable expense in ornamenting the quarter section he claims, and in the erection of buildings thereon.

Captain Bell's report accurately describes the Fort Armstrong buildings; recommends repairs; speaks in high terms of the towns (Rock Island, then Stevenson, and Davenport) on either side of the river; notes the good boat landings on the Island, and dwells at length on the great available water power afforded by the fall in the river. He was evidently captivated by the natural charms of the locality, for he writes that "the productiveness, health and beauty of the country surpass anything" he had seen.

In September, 1841, Congress passed an act for a thorough examination of the whole Western country "for the purpose of selecting a suitable site on the Western waters for the establishment of a national armory." The board of three officers spent eighteen months in making most thorough examinations, its report covering 400 printed pages. Much space was devoted to the Island and many exact facts were given. Some of the more salient features of the report are these:

This beautiful and interesting Island derives its name from the circumstances of its resting upon a bed of rocks, consisting of limestone in horizontal strata, well adapted to the purposes of building. It stands in the Mississippi, at the foot of Rock Island Rapids. Its length is about $2\frac{3}{4}$ miles, and its greatest breadth four-fifths of a mile. It contains about 800 acres of excellent land, still the property of the United States. The surface of the Island is generally waving, and is pervaded by a broad valley passing centrally and longitudinally two-thirds the length of the Island. With the exception of a few acres cleared at the head of the Island (the site formerly occupied by Fort Armstrong, now used, in part, by the United States as a depot of arms for the Western country, and a large garden, with other improvements, occupied by George Davenport), the Island is covered with a dense timber growth. The Island is bounded, for the most part, by precipitous cliffs, or abrupt and rocky hill-stopes, its surface rising ten to twenty feet above the reach of the highest freshets.



A PAPER TARGET.

This report, like the preceding one of Captain Bell, may, with entire moderation, be called enthusiastic in praise of the natural advantages offered by the Island for arsenal uses. The board of officers emphasizes the water-power opportunities, discusses the question of dams, the rapid fall in the river, the rich surrounding country, the nearness of beds of coal, lead and iron. "Articles of subsistence of all kinds," the commissioners say, "for man and beast, are abundant, and these are remarkably cheap. The site is exceptionally healthy, as evidenced by the reports, now on file in the office of the Surgeon-General, * * covering a period of more than twenty years, during which the number upon the sick list at Fort Armstrong was proportionately less than at any other post in the Western country."

Quartermaster-General Jesup, writing to the Secretary of War in 1852, says :

The site of Fort Armstrong, Rock Island, is one of the most valuable in our Western country for an armory. The whole water power of the Mississippi River is available. If a Western armory is to be established, I would advise that it be placed there. I would not advise that any part of it be rented or leased.

Hon. A. C. Dodge, Chairman Senate Committee on Public Lands, writing to the Secretary of War in 1854, says:

Rock Island, as you are well aware, has long been regarded by a large portion of the people of the Mississippi Valley as an advantageous site for an arsenal of construction.

Jefferson Davis, while Secretary of War, in 1854, was the staunch friend of Rock Island as the unequaled location for the Nation's mid-continent Arsenal, and likewise he was the advocate of river improvement. He had, twenty-two years earlier, from personal visitation, formed views which were never changed. Justice requires that credit be given Mr. Davis for using the authority of his position to prevent the sale of the Island to settlers, certain influences having been set in motion to secure that end while he held the portfolio of war.

Gen. C. P. Buckingham, October 24, 1862, wrote to the Secretary of War, after some time spent in a study of the Island :

The Island is, without doubt, the best place for an Arsenal. It is high and healthy, well supplied with water from the Mississippi River, and the Chicago, Rock Island & Pacific Railroad is easily accessible. The Island contains about 900 acres of land, of which about 200 have been granted by Congress to individuals. The only question connected with the location of an Arsenal at this point is, I conceive, whether it shall be at the upper or lower end of the Island.

Without going further into the irrefutable arguments, it may be said that the full force of all these early observations has been far more than confirmed. The half century that has passed, the growth in population of the Upper Mississippi Valley and the vast region beyond, the coming of railroads and telegraphs, new discoveries of minerals, the partial utilization of water powers, the extensive river improvements, all



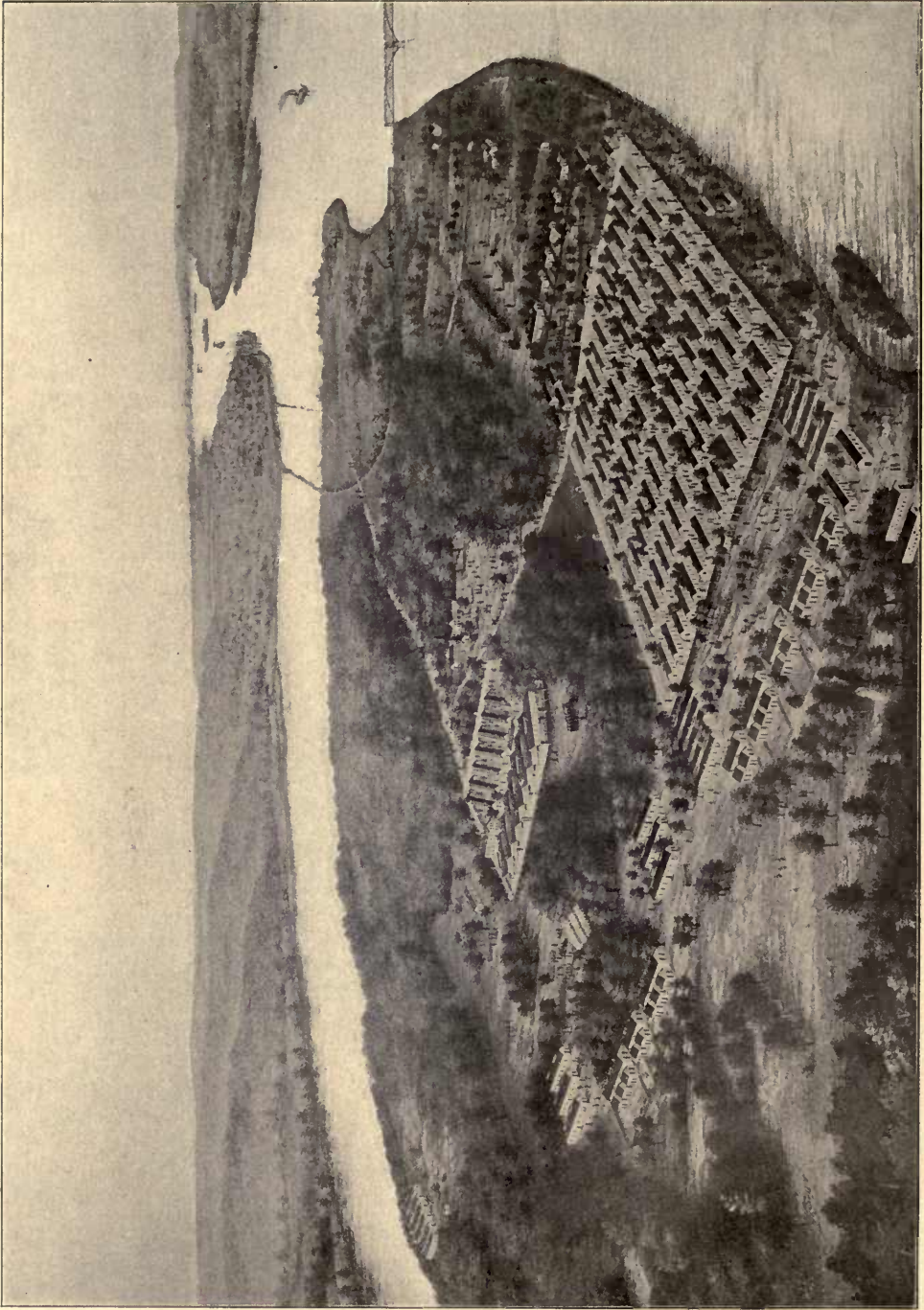
MAIN AVENUE, NEAR MOLINE.

these accentuate the reasons given so long ago for the location of the Government's largest Arsenal here.

Mere mention is all that can be made of the attempts to locate on the Island on the part of individuals and companies, of their temporary success, and of their ultimate exclusion through the purchase of their holdings obtained through franchises, the preëmption law, and other devious and questionable means. In one instance, where a settler had developed water power at the eastern end of the Island, he was paid \$145,175 to relinquish his alleged or real rights.



PLANTED CANNON.



Pesthouse. Officers' Quarters. Hospital. ROCK ISLAND MILITARY PRISON. Prison Barracks. First Mississippi River Bridge.

THE ISLAND AS A MILITARY PRISON.

I am forbid
To tell the secrets of my prison-house.—*Shakespeare.*

DURING the war between the States, 1861-65, the Island was used for a purpose never intended by those who designed it for an Arsenal. It became one of the largest military prisons in the North, through force of dire circumstances. In the early stages of the Civil War, prisoners were captured both by the Union forces and by the Confederates. These prisoners were removed as far as possible from the scenes of hostilities. Rock Island was owned by the Government; it was hardly occupied; it was secure; it offered advantages for the use to which it was put.



COL. A. J. JOHNSON, U. S. V.
Commandant Rock Island Military
Prison, 1864-65.

So extensive barracks for prisoners of war were built in the summer and fall of 1863. The construction of the buildings was in charge of Capt. C. A. Reynolds, United States Quartermaster's Department, and they were thought to be ample for the accommodation of 13,000 prisoners, though so large a number was never quartered there at one time, or, as the records show, altogether.

A full-page illustration shows with detail and accuracy not only the barracks, but all the buildings on the Island at that time. The quarters for prisoners were located on the north side, near the river front, a little more than a mile from the lower or western end of the Island. The prison itself took the form of a rectangle, covering about twelve acres. The four sides faced nearly north, south, east and west. The northeast corner of the inclosure was opposite the lower point of Papoose Island. There were fourteen east-and-west rows of one-story frame buildings, six in a row. Each of the buildings or barracks was 100 feet in length by 20 in width, with windows on the sides and doors in the ends. They were neither plastered inside nor painted outside, but well constructed for the protection of the occupants. In one end—usually the west—of each building was the kitchen. On either side of the long hall were rows of double-decked double



ROCK ISLAND MILITARY PRISON SCENES.

1. Bell Tower, Outside Entrance.
2. Prisoners Suffering Punishment Inflicted by Their Own Courts.

3. Administering the Oath of Allegiance.
4. View within the Stockade.
5. Prisoners Making Clam-Shell Trinkets.

berths or bunks for sleeping. Each building accommodated 120 persons. A main avenue, fifty feet wide, divided the seven rows on the north from the same number on the south.

Within these walls the prisoners were allowed as much liberty as possible. They were permitted to receive newspapers, magazines and books. Letters came to them every day from their Southern friends, though every piece of mail was opened and inspected and all remittances of money were taken out and receipts issued therefor, these receipts enabling the prisoners to buy such articles as were not



ROCK ISLAND MILITARY PRISON DAYS.

Captain Bucher.

A. C. Dart.

Maj. Frazer Wilson.

Capt. J. G. Robinson.

contraband. Packages of clothing and other goods were admitted after examination, and all privileges accorded Union soldiers confined in the South were extended to these Confederates. The name, home post office address, company and regiment of each prisoner was carefully recorded. They were in many cases permitted to work in clearing the Island grounds outside the prison. At one time more than forty carpenters, held as prisoners, were employed on other buildings it was found necessary to construct.

Extending around the prison barracks, some fifty feet from the sides and ends of the buildings, was the stockade. This was made of inch boards, twelve feet long,



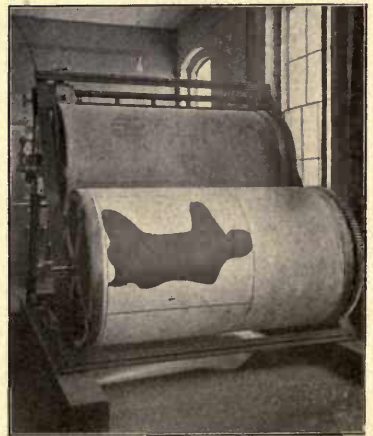
ATTENTION, PLEASE!

placed on end. Four feet from the top was a platform or parapet wide enough to allow the sentinels to pass on their beats. Armed guards were always on duty. The "dead line," a sort of trench, paralleled the stockade about twenty-five feet distant on the inside. Two or three prisoners were shot while attempting to cross the "dead line." There were sentinel boxes or houses every hundred feet along the parapet. There were no successful plans of bodies of men to escape. The nearest approach to this was an underground tunnel on the south side of the prison. The tunnel was dug, but before an escape was effected the opening was discovered. Now and then a prisoner did get away, but it was next to impossible to leave the Island after scaling the stockade or getting through the gates.

The prisoners fared well, their rations being the same as those of the Union soldiers who performed guard and garrison duty. Some of them made money by their ingenuity and skill in converting clam shells into buttons and other devices. A number of them, after the war, were content to become residents of this locality. But it cannot be denied that disease entered the prison as it visited the camps of the Nation's soldiers in Tampa, Chickamauga, Fernandina and elsewhere during the war with Spain. The large buildings in the center of the Island, where the Arsenal shops now stand, show the Confederate hospital, and farther south, on the Illinois side, were the pesthouses. During the existence of the prison, 1,961 victims of disease died here and were buried on the Island.

Few traces of prison days remain. One wing of the old post hospital may be seen just east of the north row of shops, and west of the same row are two or three buildings used thirty-five years ago for officers' quarters. They were temporary structures, and nearly all of them have from time to time been removed. The illustration, however, is practically all that is left to recall this unpleasant feature of the Island's history.

The military prison was under the control of the commissary-general of prisoners, Brig.-Gen. William Hoffman, and was commanded during the first year after its construction by Col. Richard H. Rush, and after that by Col. A. J. Johnson, United States Volunteers. Doctor Watson, of Dubuque, was the surgeon in charge, and he was assisted in his duties by Dr. P. Gregg, of Rock Island, and many other physicians. A. C. Dart, now a wholesale merchant in Rock Island, was post sutler during the life of the prison, and probably has



PRESS FOR PRINTING TARGETS.

more records of the period than any other one individual. Thomas Winkless, ex-auditor of Scott County, Iowa, was chief clerk and bookkeeper in the office of the commissary of prisoners. Hornby & McClelland were the contractors who constructed the prison buildings, and the firm of French & Davies furnished the lumber. The cost of the barracks, hospitals, guardhouses, officers' quarters, etc., is estimated to have been more than \$125,000. John Wilson Guiteau, now of New York City, was superintendent of construction under Quartermaster C. Q. A. Reynolds.

From the close of the Civil War to this time the national authorities have regarded the records of all the prisons as a sealed book, but the seal is to be broken. This is shown by the following letter from the chief of the Record and Pension Office of the War Department, under date of May 31, 1898, to the author of "Rock Island Arsenal: in Peace and in War":

The United States military prison on Rock Island, Illinois, was opened about November 11, 1863, and closed about July 22, 1865. During that period there were 12,286 Confederate prisoners confined therein.

There are no published records of Rock Island military prison, but the records of the several prisons in use during the late war are in process of compilation and will soon be published in the series of Records of the War of the Rebellion.

This, from the Rock Island *Argus* of June 22, 1865, about the time the prison was closed, fittingly ends this chapter:

THE ISLAND BURYING GROUNDS.

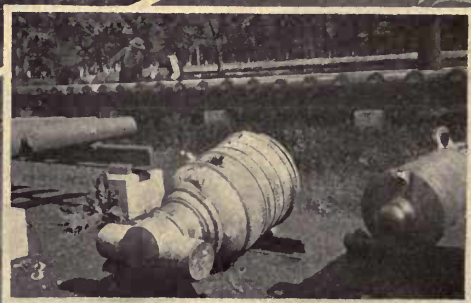
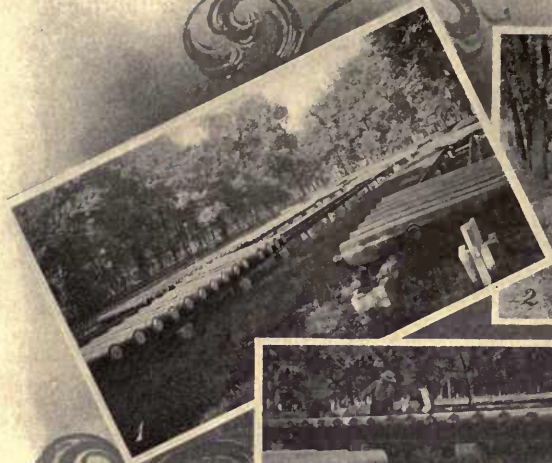
Above the hospitals, on the center road coming from Moline, out of sight from the Government buildings, secluded among the trees, lie the Confederate and Federal dead of Rock Island barracks.

The reconciling grave
Swallows distinctions first that make us foes,
That all alike lie down in peace together.

Two neat yards, separate and secure, contain the remains of those who have died at the Island since the opening of the barracks. The first is the Federal burying ground, where repose the remains of some 200 Union soldiers, each grave having a headboard giving the name of the deceased, his company, regiment and date of death. A little distance beyond this graveyard, and also inclosed with a secure fence, is the Confederate burying ground, where about 2,000 Confederate prisoners of war lie buried. Their graves are in long, deep trenches, the bodies being placed separately in strong wooden boxes and laid side by side, about two feet apart. At the head of each is a board on which is painted the number of the grave and the initials of the deceased. On the books of the post, against each number, is found a complete description of the deceased, his company, regiment and State. Each of these graveyards is wholly cleared of trees, stumps, roots, stones, and the ground neatly sodded over.



BOYS COVERING CANTEENS.



THE ARSENAL GUN YARD.

1. A View from Main Avenue.
2. The Seven Sisters.
3. A Trophy.

4. Confederate Trophies.
5. Iron Posts, Chains and Cannon Balls.

FEATURES OF THE ISLAND.

This beautiful and interesting Island.—*Report of Board of Army Officers.*

AREA AND CHARACTERISTICS.

TWO partial descriptions of the Island have been given : one by Captain Bell, written in 1840, the other by an army board one or two years later, but both underestimate the area and omit facts now better known.

The Island is not only the most beautiful, but it is one of the largest throughout the length of the Mississippi River. It is exceptional in the respect that a considerable part of it is above flood mark, and this advantage was particularly taken into account in fixing the site of the Arsenal buildings. From Chicago, the distance by rail is 181 miles; from the Missouri River at Council Bluffs, 316 miles. By river it is 332 miles north of St. Louis and 397 miles south of St. Paul. The Island is about two and three-fourths miles long, and varies in width from one-fourth to three-fourths of a mile. It contains, above low-water mark, 970 acres. Lengthwise the Island lies nearly east and west, and the course of the Mississippi by the Island is generally about eleven degrees south of west. The highest ground on the Island is the part where the great shops are located, and this rises from 17 to 23 feet above the highest high water; the rest of the high ground is generally from 14 to 20 feet above a high stage of the river. All of the high ground rests on a foundation of gray magnesian limestone, which in places crops out on the surface, but it is mainly covered with from one to eight feet of earth, principally loam and clay, and sometimes sand, gravel and other earths.



1. ISLAND GOLF LINKS.

2. GROUP OF GOLFERS.

VARIETIES OF TREES.

The surface of the Island is waving, yet not to any marked extent, and it is covered generally, except the building sites, the avenues, the cemeteries and clearings for special purposes, with sparse timber. On much of it the first growth has been



THE ISLAND LAKE.

- | | |
|---------------------------|--------------------------|
| 1. An Enchanted Spot. | 3. Shadows in the Water. |
| 2. The Bridge from Below. | 4. Another View. |

removed, and replaced by a second growth. For the most part the Government's grounds are kept trim and clean, and they have been beautified along the drives by setting out shade trees; but on the lower half of the south side of the Island nature has been almost undisturbed. Here the undergrowth is thick, and some of the trees indicate "the forest primeval." This adds to the attractiveness. The native trees are principally oak, elm, ash, basswood, hickory and walnut.

AVENUES AND DRIVES.

The avenues east and west—that is to say, from Davenport and Rock Island to Moline—are graded, rolled and drained. They are always in perfect condition for driving. The two cross-avenues—north and south—are likewise smooth. A carriage road follows the river bank from the commandant's residence nearly to the head of the Island, where it crosses to the Moline bridge and then down the shore of Sylvan Water almost to the end. This drive shows the miles of dike or embankment that has been built to protect the lower parts of the Island from overflow. There are many drives, arched with interlocking branches, in all parts of the Island,

which lead one to quiet retreats. Here the quail may be seen and the music of his whistle often heard. Feathered songsters find their home in large number, and all the year round the gray squirrels hold carnival.

A PARADISE FOR BIRDS.

Shooting and trapping are not allowed on the Island, and dogs are not seen there. It may be said that from General Rodman's time to the present all the commandants have taken pains to preserve and protect the birds. The result is that their number has been increased and many varieties that are strangers to the surrounding country are to be seen. More than eighty varieties have been counted by bird-lovers, nearly all of them song birds. Of game birds, the visitor may see Quail, Pheasant, Snipe, Woodcock, Plover and Rail; the Sap Sucker, Red-headed, Yellow-hammer and other Woodpeckers; Night, Hen and Sparrow Hawks; Rock, River and Mud Swallows; also the Chippy, Sparrow, Red-Eyed Flycatcher, Bee Bird, Humming Bird, House Wren, Linnet, Indigo Bird, Bittern, Phebe, Red-bird, Snowbird, Bluebird, Kingfisher, Sand Martin, House Martin, Orchard Oriole, Blue Jay, Rose-breasted Grosbeak, Scarlet Tanager, Brown Thrush, Wood Thrush, Screech Owl, Great Horned Owl, Catbird, Red-winged Blackbird, Whippoorwill, King-bird, Robin, Cuckoo, Turtle Dove, Yellow-birds, and others. Nearly all of these birds nest and raise their young on the Island. Dense woodlands are sparse in this part of the country, and the heartless warfare of the hunter has nearly exterminated the birds. It is fortunate that parts of the Island have been left in their original state, and that they are a natural conservatory.



1. THE RODMAN GUN.

2. THE RODMAN MONUMENT.

THE NATIONAL CEMETERY.

At the upper end of the Island, a few rods from the Moline entrance, lie the remains of nearly five hundred Union soldiers, most of whom died while serving at this post. The grounds are scrupulously cared for, and on each recurring 30th of May, Memorial Day, the graves are strewn with wreaths and flowers. It is the honored custom for thousands of the people of Davenport, Rock Island and Moline to gather there and hold patriotic services.



MEMORIAL DAY ON THE ISLAND.

1. The National Cemetery.
2. Around the Speaker's Stand.
3. Grand Army Veterans in Procession.

GENERAL FLAGLER'S HISTORY.

The one standard and exhaustive "History of Rock Island Arsenal" is that written by Gen. D. W. Flagler. The early history is elaborately recounted. It was published by the War Department in 1877, a work of nearly 500 large pages, with numerous maps and plates. The volume may be consulted at the public library in each of the three cities.

ISLAND PRIVILEGES.

Visitors hardly need to be reminded that army posts are not public parks, and that strict regulations are framed for their government. While the bridges are free at all times, a permit must be obtained, except on special occasions, in order to pass

the guards at the entrances unchallenged. Smoking, shooting, racing, fast driving and interfering with the workmen are positively forbidden on the Island. Picnics and refreshments are not allowed. Flowers, plants and shrubs must not be disturbed. But between sunrise and sunset, every day, there is no trouble for either residents or visitors to see the Island, and it is not difficult to obtain permits to the shops. The hotels have passes for their guests, the liverymen for their patrons. Bicycle permits are granted on application, but the Island is not a highway for driving between the cities.

AN ANCIENT BURIAL MOUND.

The antiquarian will find much of interest on the Island, an inviting field of investigation. The deposit of shells in the earth along the banks of the Mississippi has always attracted attention. Beds of considerable extent are found at the head of the Island. The layers are usually in horizontal position and vary from 3 to 4 centimeters to 1 meter in thickness. A valuable paper was presented to the Davenport Academy of Natural Sciences, February 28, 1873, by A. S. Tiffany, from which this extract is taken :

On the Rock Island Arsenal grounds, near the western extremity, there has been an excavation about 300 feet long and 80 feet deep. At a depth of 3 feet from the top is a deposit of shells, mostly *Unios*, but including *Melanthe Sub-solida*, and two or more species of *Helix*. This shell bed, at this exposure, varies from 6 to 16 inches in thickness. Accurate levelings prove the deposit to be 18 feet above the highest watermark known since Fort Armstrong was established on the Island (1817).

In the lower part of this shell bed were found the skull and bones belonging to one individual. The bones were quite fragile, and easily fell to pieces, but a large portion of the skull was secured. There are many fragments, bearing witness that the whole skeleton had been there. Associated with these human remains were found the point of an antler of a deer or elk, and what appears to be a fragment of the shin bone of a bison which had apparently been broken to extract the marrow.

The covering was evidently an aqueous deposit, the sedimentary lines being perfect and unbroken. Deposited with and above the shells are gravel and sand, the material becoming finer toward the top, the last foot being fine alluvium and vegetable mold.

The section has been visited by many members of the Academy, and by Prof. Alexander Winchell, while some of the bones were in place, and all agree that the covering of this prehistoric man was a sedimentary deposit. It is believed that further investigation will accumulate many evidences that man was contemporaneous with this ancient shell bed.

Prof. W. H. Pratt, in a paper read before the Academy of Sciences August 17, 1877, says :

At the head of the Island, where are found the most extensive accumulations in this region, we find, at several places along the edge of the bank, an additional deposit of shells heaped up above the general shell bed, which is itself very heavy at the same point. One of these heaps is still over two meters high above the regular continuous bed, its contents being similar



FORT FLAGLER.

in every respect. These superficial deposits slope off or thin out inland rather rapidly, extending back but a short distance from the present edge of the bank, and the face of the bank is vertical here down a meter or two to the solid limestone rock, being broken down and washed away by the high waters of every season, thus always presenting a good vertical section of the strata.

*** In this connection we ought not to overlook a bed of shells formerly existing near the foot of Rock Island, at the bottom of which the "shell-bed skull" was found by Mr. Tiffany in the fall of 1871.

Experience and examination of shell-bed mounds have fully convinced me that this was an ancient burial mound.



A TROPHY.

THE COUNTRY'S ARSENALS.

The problem of preparation for war in modern times is both extensive and complicated.

The creation of material for war, under modern conditions, requires a length of time which does not permit the postponement of it to the hour of impending hostilities.

It is not the most probable of dangers but the most formidable that must be selected as measuring the degree of military precaution to be embodied in the military precautions to be maintained.

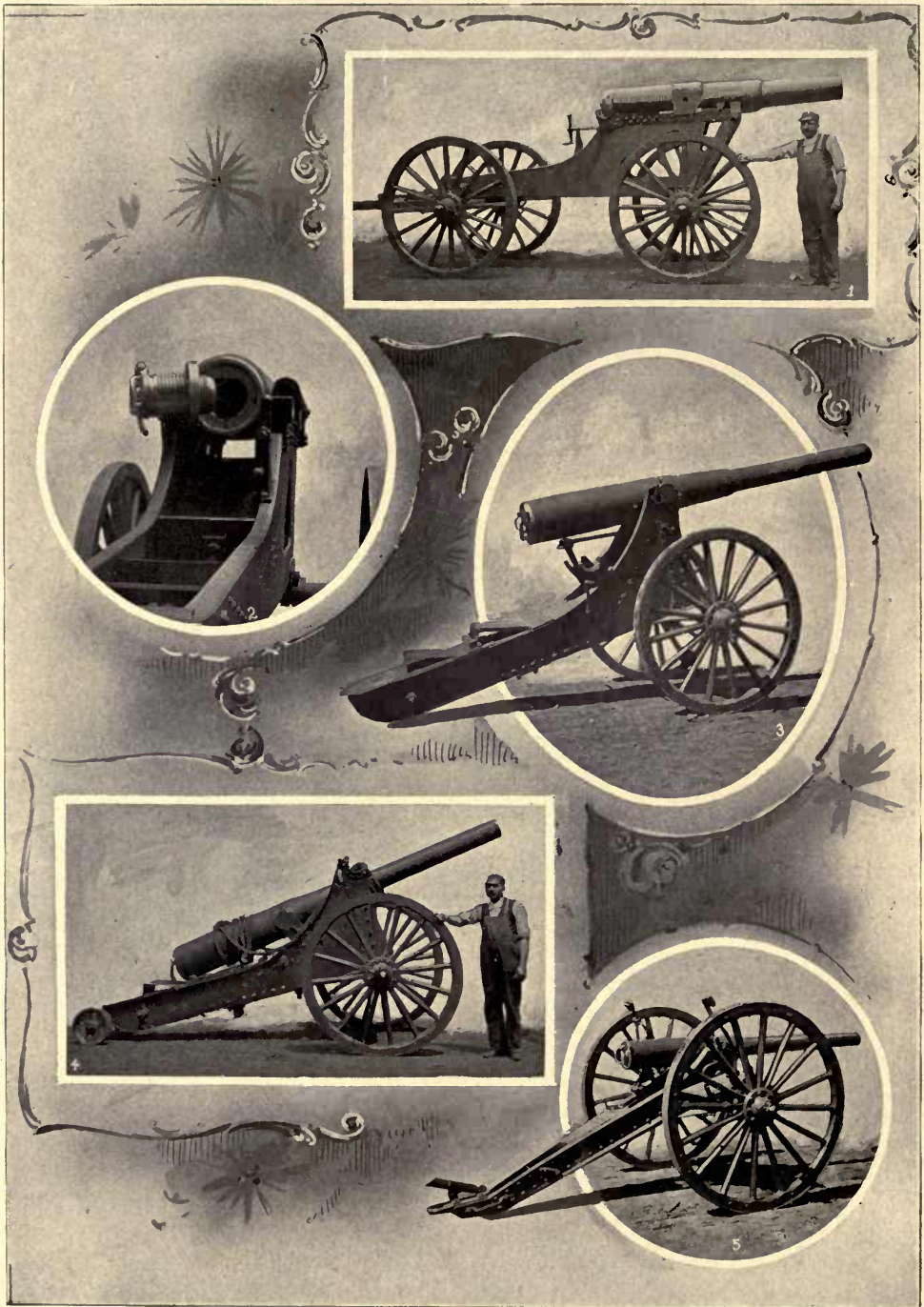
Material, once wrought into shape for war, does not deteriorate from its utility to the nation because not used immediately. It can be stored and cared for at a relatively small expense, and, with proper oversight, will remain just as good and just as ready for use as at its first production.

CAPT. A. T. MAHAN, recognized the world over as a high authority, has written impressively on the necessity of "Preparedness for War," and the foregoing extracts leave no doubt about his meaning. The nations of the earth have accepted it as conclusive, and their armies and navies are larger and stronger than ever before. It has been the policy of the United States from the first. It has built and maintained arsenals and armories, an increasing navy, seacoast defenses, and the military and naval schools in which to give practical and efficient training in war. But it has done all this with a moderation that at times has not given the feeling of security that is the right of the people. To maintain its honor and integrity, and on grounds of broad humanity, our country has been forced into war when it was not ready. What if England, Germany, France or Russia had been our foe in the last war? No sane citizen can doubt that the cost of life and treasure would have been incalculably greater, the conflict of longer duration and the loss to some, at least, of the seacoast cities frightful to contemplate.

But the war with Spain, which has won such brilliant achievements for our arms, has only added new and weighty reasons—invincible arguments—for extending

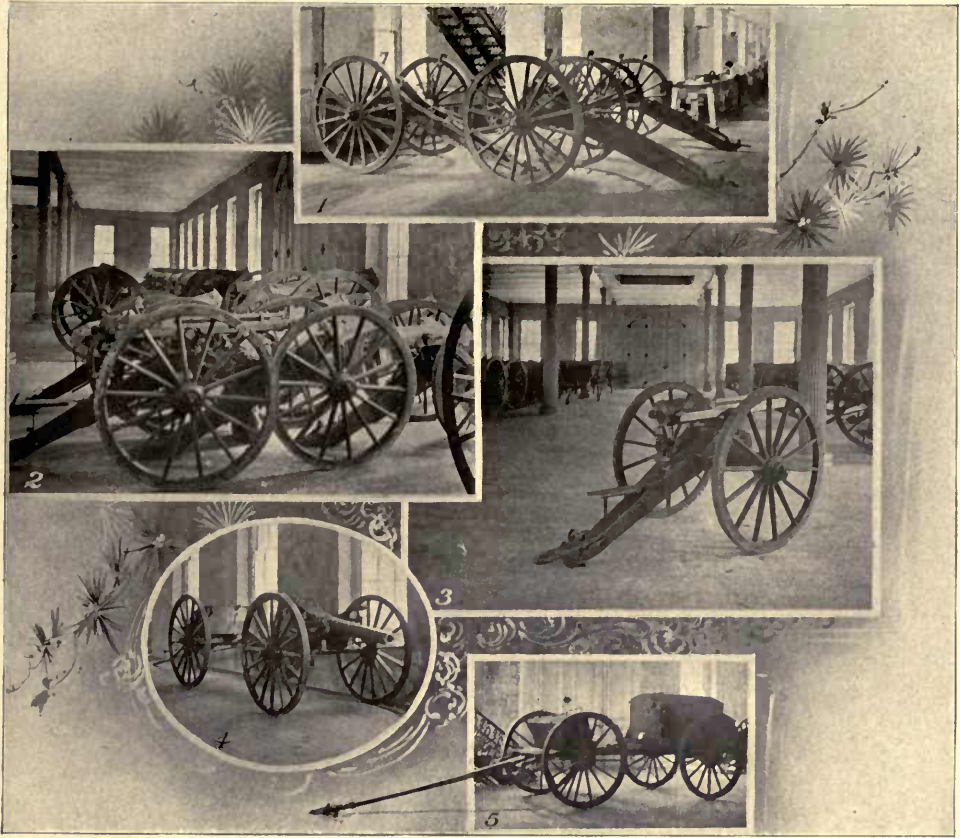


ELM DRIVE.



HEAVY ORDNANCE.

- | | |
|--|-----------------------------------|
| | 1. Siege Howitzer, 7-inch. |
| 2. Siege Gun, with Breech Open. | 4. Siege Gun, Traveling Position. |
| 3. Siege Gun, 5-inch, Firing Position. | 5. Field Gun, 3-2-inch. |



LIGHT ORDNANCE.

- | | | |
|------------------|---------------------------------|-----------------------------|
| | 1. Field-Gun Carriages in Shop. | |
| 2. Gatling Guns. | | 4. Double-Seated Field Gun. |
| 3. Gatling Gun. | | 5. Battery Wagon. |

the entire military and naval establishment. New and distant territory has been acquired, both by conquest and annexation, and this must be fortified and guarded. Serious questions have arisen and must arise, and they can only be answered by preparation. There is no escape from the heavy responsibilities that have come uninvited and unexpected. Differences of opinion may exist on how best to solve the problems, but there can be none on the urgency of preparation for defense.

THE FIRST ARSENAL.

In the first war the Colonies had neither arsenals nor armories, but in the very year of their independence the States began the manufacture of powder, and a year later (1777) brass cannon were cast in Philadelphia. An arsenal was established at Carlisle, Pennsylvania, and a foundry and laboratory were, on the recommendation of Washington, begun at Springfield, Massachusetts. This was the origin of



COMMANDANT'S HOUSE AND GROUNDS.

1. The Residence.
2. The Shaded Lawn.
3. The Garden and Greenhouse.
4. Summer House on the River Bank.
5. The Gateway.

the present National Armory there. Before 1787 the manufacture of small arms had begun. The arsenal at Harper's Ferry was commenced in 1795. These two arsenals furnished small arms and supplies during the War of 1812.

In 1838 the Ordnance Department was placed in charge of the arsenals and armories, of which there were twenty-three in the United States at the beginning of the Civil War. Some of these were small; others were intended only for repairs, and still others merely as depositories. Wisdom came from experience, and in place of the limited and widely scattered arsenals, it was determined to concentrate the work of arming, equipping and supplying the army. Hence, there are now only five principal manufacturing arsenals in the United States.

SPRINGFIELD ARMORY.

This is located on the Connecticut River, in southern central Massachusetts. Since the abandonment of Harper's Ferry Armory, Springfield has been the only manufactory for small arms—rifles, carbines and swords for the army. The Springfield rifle, which for so many years was carried by the soldiers, takes its name from this place, where it was gradually developed to its present perfection. This arm was replaced, four or five years ago, by the United States magazine rifle and carbine, and that gun has since been manufactured at Springfield Armory. Before the war, the average rate of production was slightly over 100 guns a day. This was greatly increased by the addition of a number of machines, until about 320 guns are now being turned out daily, or rather were a few weeks ago. The maximum number of employes at Springfield was reached in the month of July, 1898, when it was slightly over 1,900, with a pay roll for that month of about \$125,000. Further additions to the plant have lately been made, and it is expected that before the close of the year it will be possible to turn out 400 guns each day. Springfield Armory is in two parts, separated by about a mile. At one, known as the Water shops, the heavy forging is done; the parts are then transferred to what is known as the Hill shops, which comprise three large buildings about 300 by 60 feet, each with three floors which are well filled with machinery. There are no railway conveniences for transferring between the two parts of the armory, and this has to be done by teaming through the Springfield streets.

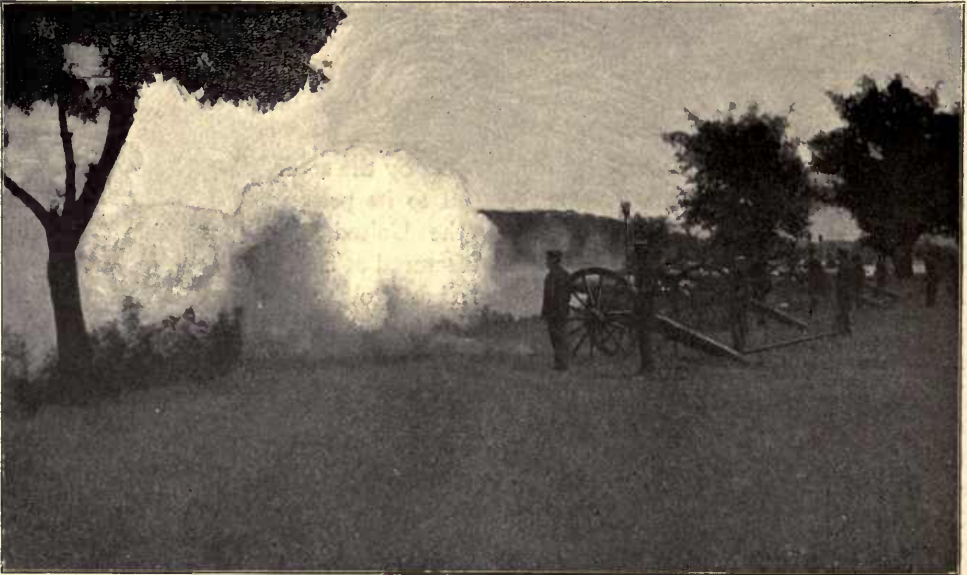
It can readily be seen how many economies could be exercised if small arms manufacture were, at least some of it, transferred to Rock Island, with its vacant shops admirably arranged and all ready for the necessary plant.

FRANKFORD ARSENAL.

This is located in the suburbs of Philadelphia. It has been established many years and is now the principal manufactory of projectiles for the army. None of its buildings are particularly modern, nor are they so well arranged as new ones would be which had been designed particularly for the purpose to which they are now put.

WATERTOWN ARSENAL.

This establishment is in the city of Watertown, just outside Boston. It is one of the older arsenals, but its development to its present capacity has only been of recent years. It is the main manufactory of the huge steel carriages for the large guns used for coast defense, corresponding in that respect to the field and siege carriages now made at Rock Island Arsenal. Watertown's principal output is the Buffington-Crozier gun carriage for 8, 10 and 12 inch rifles. The Arsenal is entirely incapable, however, of producing the number of these required for the service, and the greater part are being made under contract by different private establishments throughout the country.



BATTERY IN ACTION.
Firing a National Salute on the Fourth of July.

WATERVLIET ARSENAL.

This post is located on the west side of the Hudson River, opposite the city of Troy. Its shops have been almost entirely rebuilt within the last ten years. The principal building is the great gun factory, which is nearly 1,000 feet long and 130 feet broad. It is filled from one end to the other with enormous lathes, boring machines, sharpeners, presses, etc., required in the manufacture of our huge seacoast cannon. As the largest of these guns is over fifty feet long and weighs about 110,000 pounds, the size of the necessary machines for its fabrication can be imagined. Recently the necessary machine tools for the manufacture of the 16-inch guns, which, manifestly, must exceed the size and weight of those just previously mentioned, have been added to the shops, and one of the guns is now in process of fabrication. The

manufacture of seacoast cannon is a process which cannot be hastened, and from the first boring and turning of the various parts, and their heating and assembling in the shrinkage, of their rifling, etc., must all be conducted with due deliberation; also the immense amount of care and refinement, far greater than that required in the great majority of machine shops. Many men, therefore, cannot be employed, and though the shop has been pushed to its capacity of running twenty hours a day during the recent war, it has not partaken of the stir and bustle and rush which have been so noticeable features of the recent operations at Rock Island Arsenal.

BENICIA ARSENAL.

To the four arsenals named must be added that of Benicia, about twenty miles from San Francisco. Some little repair work necessary to put in good condition any broken or unserviceable parts of the equipment of the Pacific Coast is done at that place, but it is in no sense a manufacturing arsenal.

OTHER ARSENALS, DEPOTS AND STOREHOUSES.

There are several depots which, during the Civil War of thirty-five years ago, were used as manufactories, but no longer have a modern plant and are not capable of very much work. Some of these, however, during the war with Spain, have been running on equipment work for the infantry and cavalry soldier in conjunction with that done at Rock Island. At Allegheny Arsenal, Pittsburg; Columbia, Tennessee, and San Antonio, Texas, operations have been conducted on blanket bags and their straps, haversacks and straps, saddles, bridles and halters. In all these cases the material had been partly fabricated into the desired article at Rock Island Arsenal, and then sent to these establishments for completion. This became necessary to relieve the pressure at Rock Island, the plant not being adequate to fully complete all the stores.

Fort Monroe Arsenal, at Fort Monroe; New York Arsenal, in New York Harbor; Kennebec Arsenal, at Augusta, Maine, and Augusta Arsenal, at Augusta, Georgia, are the remaining arsenals of the country. They are mainly storehouses for the reception and distribution of the outputs of the other arsenals, and are in no sense manufacturing establishments.



OFFICER'S SWORD.

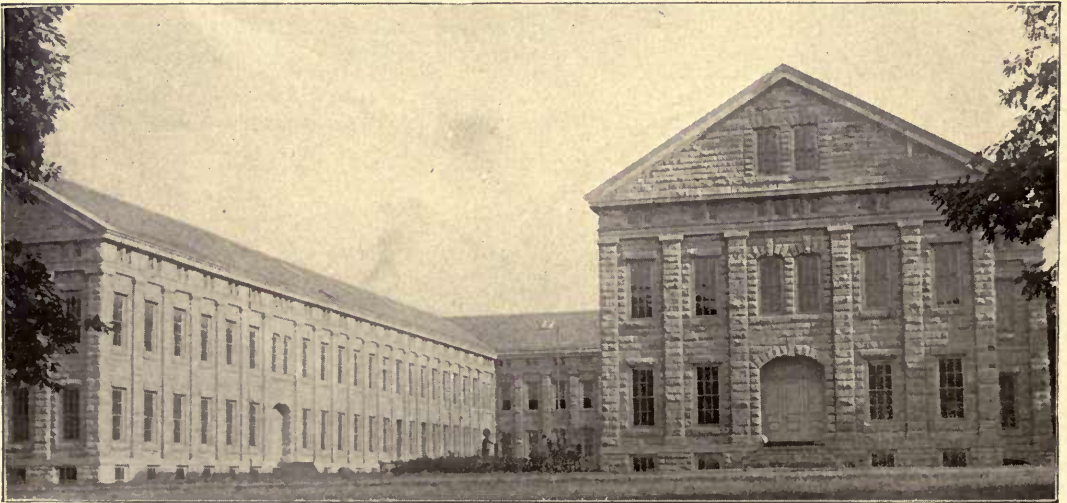
ROCK ISLAND ARSENAL.

The Arsenal designed for the manufacture of the carriages, implements and equipments, and harness for both field and siege artillery, is the Rock Island Arsenal. It is the one that is best suited for this work.—*Report of General Flagler, Chief of Ordnance, to Secretary of War, October 1, 1896.*

Economy dictates the advantage of manufacturing all our field and siege carriages at this Arsenal. Ample and most excellent shops were completed many years ago for this purpose, and are available.—*Report of General Flagler, Chief of Ordnance, to Secretary of War, October 1, 1897.*

THE act of Congress locating the National Arsenal on Rock Island was approved July 11, 1862, and it appropriated for that purpose \$100,000. This was the first action of Congress looking definitely to the building of the Arsenal.

Ground for the first building—that now so prominent at the west end of the Island, but in fact only a storehouse and really no part of the active Arsenal—was broken September 1, 1863. The tower of this building is supplied with a large clock, whose face can be seen and whose striking can be heard at a great distance. The dial is twelve feet in diameter.



A REAR VIEW OF SHOP B, NORTH SIDE.



SOUTH ROW OF SHOPS, REAR VIEW.

THE MASSIVE SHOPS.

The row of five shops south of the main avenue is for the Arsenal, and the five north of the same avenue are for the Armory. The center shop in each row is the forging shop and foundry of the Arsenal, and the other four are designed for finishing wood, leather and metal working of all kinds, specially for the manufacture of all the material of war. The center shop of the north row is the rolling mill and forging shop for the Armory, and the two shops on either side of it are finishing and wood-working or "stocking" shops for the manufacture of all kinds of small arms. The center shop in each row is only one story high, and the other four have a basement and three stories. The ground plans of all the ten shops are alike. Each building consists of two parallel wings, 60 by 300 feet, 90 feet apart. This leaves an interior court 90 by 238 feet. The porticos at the sides project 12 feet, and are 60 feet wide, and those in front project 2 feet and are also 60 feet wide. The total area of each shop, including thickness of walls, is 44,280 square feet—a little more than one acre.

The walls of these buildings are entirely of stone. The exterior or face stones are heavy ashlar, laid in courses, jointed, and having a squarely broken face, without tool marks. The backing is rubble, laid also in courses, and has its face, which forms the interior of the wall, well pointed. The average thickness of the walls is as follows: First story, 3 feet 4 inches; second story, 2 feet 10 inches; third story, 2 feet 4 inches. The amount of material entering into the construction of one of these buildings is enormous. In shop A, the first built, for instance, there are 30,115,800 pounds of rock, 26,000 of copper, 362,500 of slate, 1,331,500 of lumber, 2,199,646 of iron, 3,132,800 of brick, 200,000 of plaster.

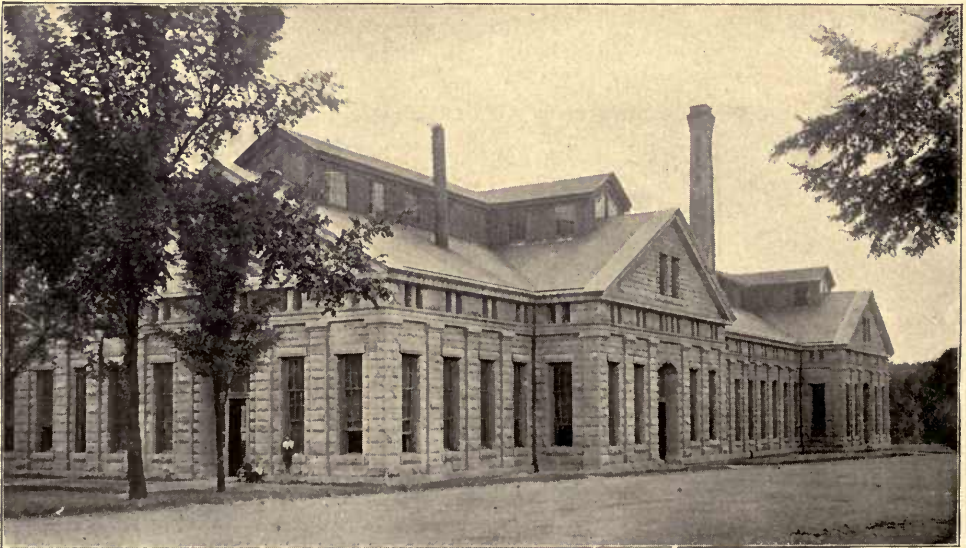
These shops are not only the largest and best for arsenal and armory purposes in the United States, but they are hardly equaled in the world. No other arsenal



SHOP K. TYPICAL OF THE EIGHT REGULAR SHOPS.

in this country even approaches Rock Island in its spacious, solid, costly and enduring buildings. In the rear of three of these shops are fireproof stone storehouses. And of corresponding modern completeness are the barracks for six families and 170 men, the commanding officer's quarters, the subaltern officers' quarters, the general offices and fire-engine house.

One powder magazine has been completed, though it is not intended that any considerable amount of powder will ever be stored at the Arsenal. Safety demands that it should be stored at the regular powder depots.

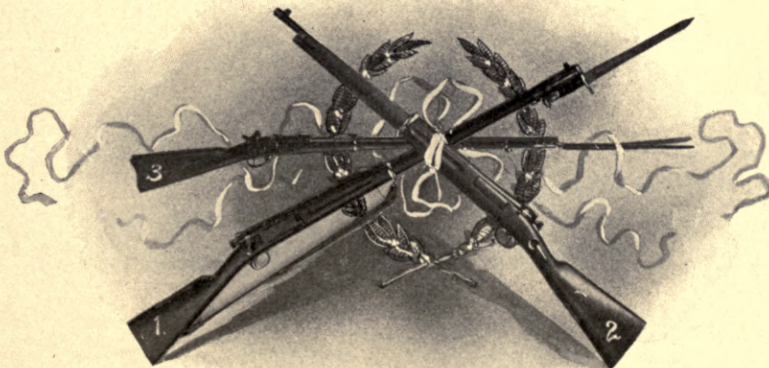


THE BLACKSMITH SHOP AND FOUNDRY.

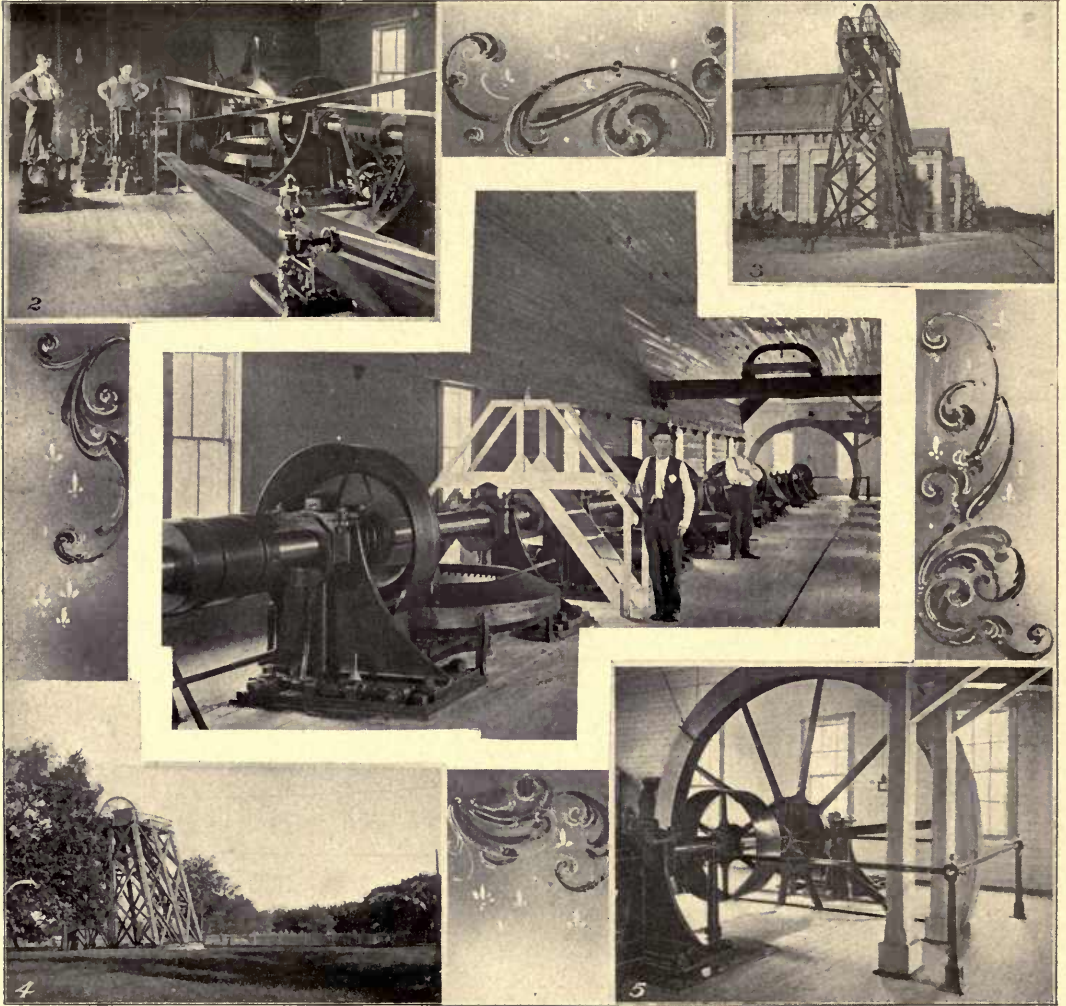
WHAT THE ARSENAL HAS COST.

A question of material value, and one that it has not been easy to correctly answer, is this: "What has Rock Island Arsenal cost?" The investment covers a period of thirty-six years, and there is actual and full value to show for it, the appropriations for preservation and production of supplies and equipments not being included in the following recapitulation of cost of construction work from 1863 to September, 1898:

| | CONSTRUCTION OF BUILDINGS AND OTHER ARSENAL WORK. | ROCK ISLAND WATER POWER. | ROCK ISLAND BRIDGE. | MACHINERY AND SHOP FIXTURES. | TOTALS. |
|--|---|--------------------------|---------------------|------------------------------|----------------|
| Under Maj. C. P. Kingsbury, 1863-1864 | \$ 231,384.72 | — | — | — | \$ 231,384.72 |
| Under Gen. T. J. Rodman, 1864-1871 | 1,855,455.62 | \$440,506.35 | \$ 6,664.33 | — | 2,302,626.30 |
| Under Gen. D. W. Flagler, 1871-1886 | 4,137,675.24 | 591,911.47 | 160,894.74 | \$92,000.00 | 4,982,481.45 |
| Under Col. T. G. Baylor, 1886-1889 | 201,200.00 | 322,000.00 | 96,250.00 | 44,000.00 | 663,450.00 |
| Under Col. J. M. Whittemore, 1889-1892 | 69,000.00 | 101,000.00 | 182,318.48 | 25,000.00 | 377,318.48 |
| Under Col. A. R. Buffington, 1892-1897 | — | 67,500.00 | 315,125.50 | 50,000.00 | 432,625.50 |
| Under Maj. S. E. Blunt, 1897-1898 | 1,500.00 | 73,150.00 | 28,375.00 | 98,627.20 | 201,652.20 |
| Totals | \$6,496,215.58 | \$1,596,067.82 | \$789,628.05 | \$309,627.20 | \$9,191,538.65 |



1. THE NEW MAGAZINE RIFLE. 2. THE CAVALRY CARBINE. 3. SPRINGFIELD RIFLE.



THE GOVERNMENT WATER POWER.

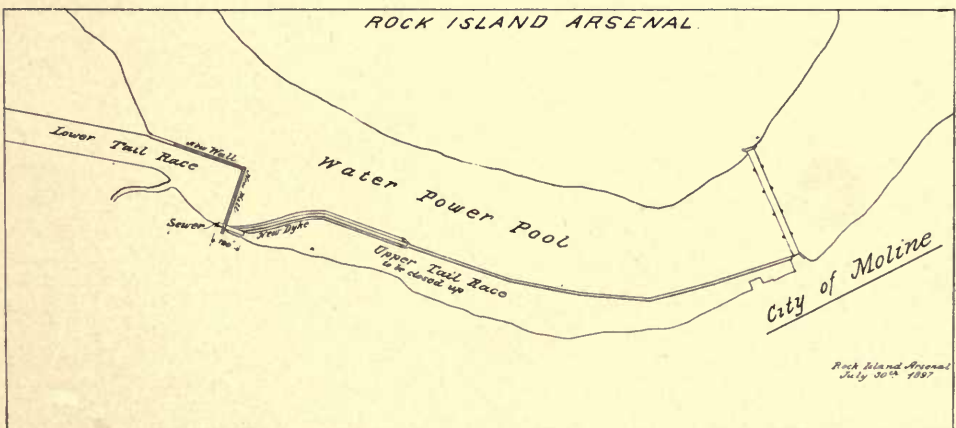
1. The Big Line Shaft. 2. Dynamo Room. 3. Putting Cable on a Tower.
 4. Wire Transmission. 5. Main Cable Driving Wheel.

THE GREAT WATER POWER.

The low-water flow of the Mississippi River here is 26,000 cubic feet per second ; the high-water flow is 251,000 cubic feet per second; the average flow is 62,000 cubic feet per second. Using the low-water flow of the river, about all of which will be available, we have 45,500 gross horse-power, the second largest water power in the world, Niagara Falls ranking first.

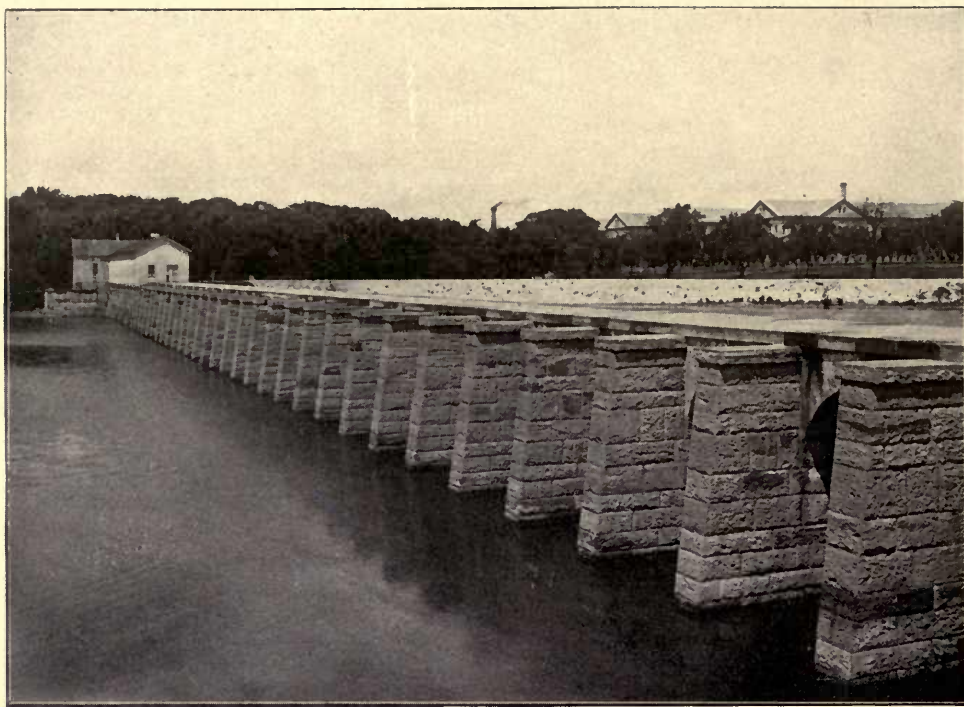
Here, 384 miles below St. Paul, there are rapids over a succession of rocky chains extending across the river, and the descent is 20.4 feet in a distance of 14.75 miles. The rapids consist of a series of pools alternating with rapids over rock in place, which crosses the river in a series of dams; these are called chains, and there are ten such designated on the United States Engineer's maps.—*Extracts from an Address by E. W. Boynton, City Engineer of Davenport, before the Western Waterways Convention, held in Davenport, October 5 and 6, 1897.*

EXPERIENCED engineers from the early days of sixty years ago and more, when Lieut. Robert E. Lee and others made surveys of the Rock Island Rapids, up to this time, have remarked the great available water power that the fall in the Mississippi River furnishes at all stages. The economic value of this power, so long acknowledged, has been intensified during the past decade that has witnessed such wonderful advances in our knowledge and application of electricity. The Rock Island Rapids water power is more than a possibility—it is an actuality ; one that runs giant machines in the Arsenal shops and in the cities of Moline, Rock Island and Davenport; one that turns night into day by its illumination; one that makes this locality great as an industrial center, and one that must make it much greater in the



NEW WATER-POWER DAM.

(The two wings are 192 and 208 feet long, respectively, with a heavy triangular pier at the angle. There are twenty-five wheel openings—twelve in one wing and thirteen in the other.)



GOVERNMENT WATER-POWER DAM, FROM BELOW.

near future. Water power, both developed and undeveloped, is the prized possession of this busy community.

This water power, as has been shown in the extract at the head of the chapter, is almost unlimited. On it the United States Government has constructed dams and gates which make ready for use as wanted nearly 4,000 horse-power. The Moline Water Power Company will have, when the improvements now under way are completed, thirty gates in their dam. They have modern wheels, each of which gives them 100 horse-power with an ordinary $6\frac{1}{2}$ or 7 foot head of water, or they have altogether a developed horse-power of 3,000.

The Arsenal has forty openings in its fine dam, and eight of these openings have wheels in them. The Government, therefore, has at its command for supplying the Arsenal with motive power, when the thirty-two wheels are put in, a capacity of 4,000 horse-power, as stated. The improvements in progress, for which contracts were let last August, consist in running a water-tight dam from the Duck Creek chain of rapids down the river until it meets the present Arsenal wing dam above the head of the Island, with the anticipated effect, instead of having the head of the water obtained from the east end of the Island down, of getting that from the Duck Creek chain westward. This, at low stage of water, it is expected, will add about $2\frac{1}{2}$ feet to the head and from twenty-five to fifty per cent to the available water power at the dams.

THE ARSENAL IN PEACE.

To be prepared for War is one of the most effectual means of preserving Peace.—*Washington to Congress, January 8, 1790.*

SINCE General Lee surrendered to General Grant, the commander of the Union army, on April 9, 1865, at Appomattox Courthouse, Virginia, the country has been at peace. The energy and wealth of the people have for thirty-three years been closely directed to developing the marvelous resources of the Nation. So intent were the people in pursuing the arts of industry, commerce and agriculture that they forgot the axiom of the old philosopher, "We should provide in Peace what we need in War," and the more modern truth of "Eternal Vigilance."

Congress has been asked time and again by officials of the army and navy to make more liberal appropriations for equipment and defense, in view of an emergency that might suddenly confront the country.

Repeatedly has the Chief of Ordnance, Gen. D. W. Flagler, pointed out the urgent necessity, in the interests of economy as well as of defense, for more money with which to provide the empty shops at Rock Island Arsenal with machinery.

But the country had fallen into a state of overconfidence and unwarranted security. From this it was suddenly aroused when, on April 25, 1898, formal declaration of war was recommended by President McKinley, and a bill declaring that "war exists between the United States of America and the Kingdom of Spain" passed both houses of Congress.

Quickly came the calls for 125,000 volunteers; for 75,000 more volunteers, and for immunes. The force of the regular army was largely increased, and in a few weeks the little organization of less than 25,000 effective men was enlarged to 278,500. The navy was strengthened. Battleships were bought wherever they



HEADQUARTERS BUILDING.

could be found, and old hulks, to be later sunk, were pressed into the service. The volunteers were ready, and the available maximum of 10,000,000 men for military duty was in reserve. Hundreds of millions of dollars were offered the Government. But with all these magnificent "sinews of war," there was delay; costly, impatient and dangerous waiting. The willing soldiers could not be equipped, and they were not for nearly three weary months.

The great Washington's injunction had been disregarded. War came, and the country was not prepared for it; and a cessation of hostilities followed after 114 days, given to "getting ready" rather than to fighting, so far as the army was concerned. Had the foe been a stronger power, what in reason would have been the consequences?

What Rock Island Arsenal has done in time of peace, owing to the inaction of Congress, is far below what it might and ought to have been. It has slowly added to its machinery and men, and its output has been steadily increased, but not at a

rate equaling the Nation's progress in other directions.

The history of the Arsenal for the past eight years is told officially in the following extracts from the reports of the Chief of Ordnance to the Secretary of War, and in those of the commanding officer:

[From the report of the Chief of Ordnance, October 10, 1890.]

The manufacture of equipments for the infantry, cavalry and artillery soldier, the horse equipments for cavalry and the artillery harness has been transferred to the Rock Island Arsenal. This transfer, while largely increasing the force of workmen and manufactures at Rock Island, will afford much needed space at Watervliet for the accessories of gun-making.

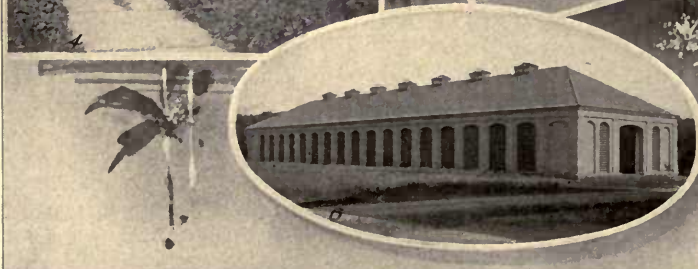
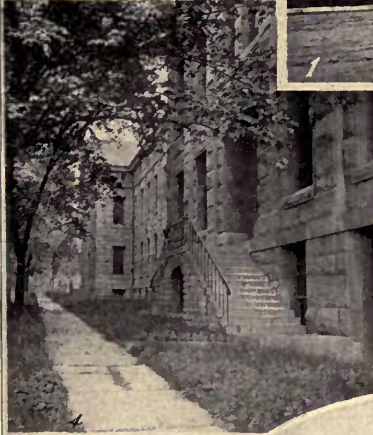
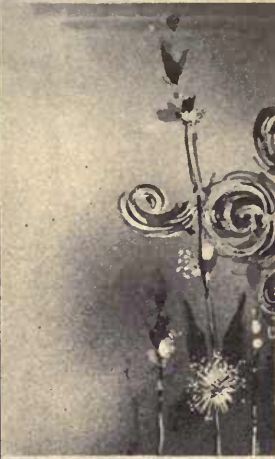


ASSISTANT OFFICERS' QUARTERS.



STOREHOUSE A.

(Located at the foot of the Island, and the only one of the Arsenal buildings in full view of passing trains.)



1. ELEVATION OF A SHOP'S SIDE PORTICO.
2. THE OLD HOSPITAL.
3. A POWDER MAGAZINE.

4. ALONGSIDE SHOP A.
5. QUARTERMASTER'S OFFICE.
6. LUMBER DRY-HOUSE.

A further transfer of manufactures from other arsenals, including field carriages and implements, is contemplated to be made to the Rock Island Arsenal in order to concentrate there as much work as is consistent with the best interests of the public service.

[From the report of the Chief of Ordnance, October 1, 1891.]

It is expected at an early date to utilize some of the excellent and extensive facilities of this Arsenal for manufactures by transferring the construction of field and siege carriages and the equipments therefor, and some other manufacturing work, to this Arsenal.



THE BARRACKS.

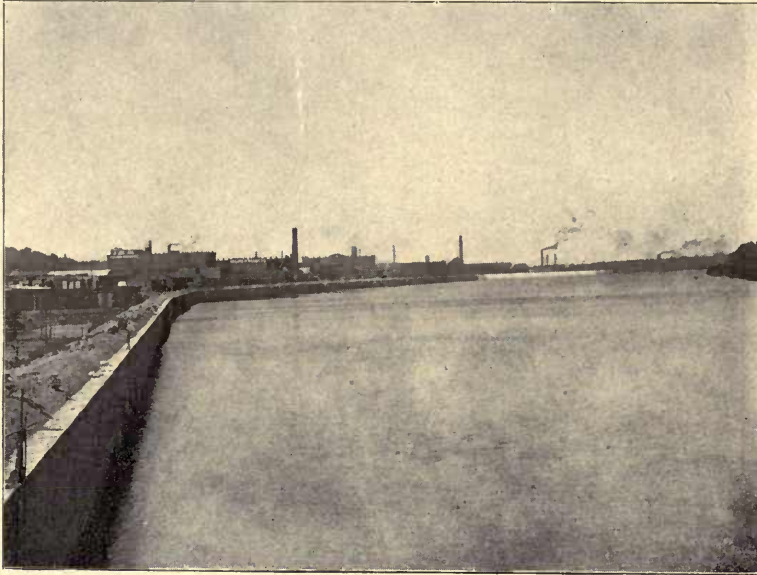
1. Front View. 2. Rear View.

[From the report of Capt. M. W. Lyon, commanding Rock Island Arsenal, June 30, 1891.]

During the year the equipment plant of Watervliet Arsenal has been transferred here, and all the work formerly done there is now included in our manufactures. The standard of work turned out has improved, and no complaints of any kind have been heard by us.

[From the report of the Chief of Ordnance, October 1, 1892.]

The manufacture of field and siege artillery carriages has been transferred to Rock Island Arsenal, and the plant therefor is being established. The manufacture of nearly all equipments for the army is already established at this Arsenal.



SYLVAN WATER, OPPOSITE MOLINE.

[From the report of the Chief of Ordnance, October 1, 1893.]

The necessary work required for placing old and new machinery in other shops has been progressing rapidly, with a view to preparing for the additional output required of this Arsenal.

[From the report of the Chief of Ordnance, October 1, 1894.]

The plant for the manufacture of field and siege artillery carriages inaugurated at Rock Island Arsenal two years since is now in active operation. It is organized for the construction of: (1) machine-gun carriages; (2) field-gun carriages, steel, for 3.2-inch breech-loading field guns; (3) limbers, caissons, battery wagons and forges for 3.2-inch breech-loading field guns; (4) carriages and limbers for 5-inch breech-loading siege guns and 7-inch breech-loading howitzers.

The equipment of the infantry, cavalry and artillery services are largely supplied from this Arsenal. * * * More machinery is needed and should be added for more economical work.

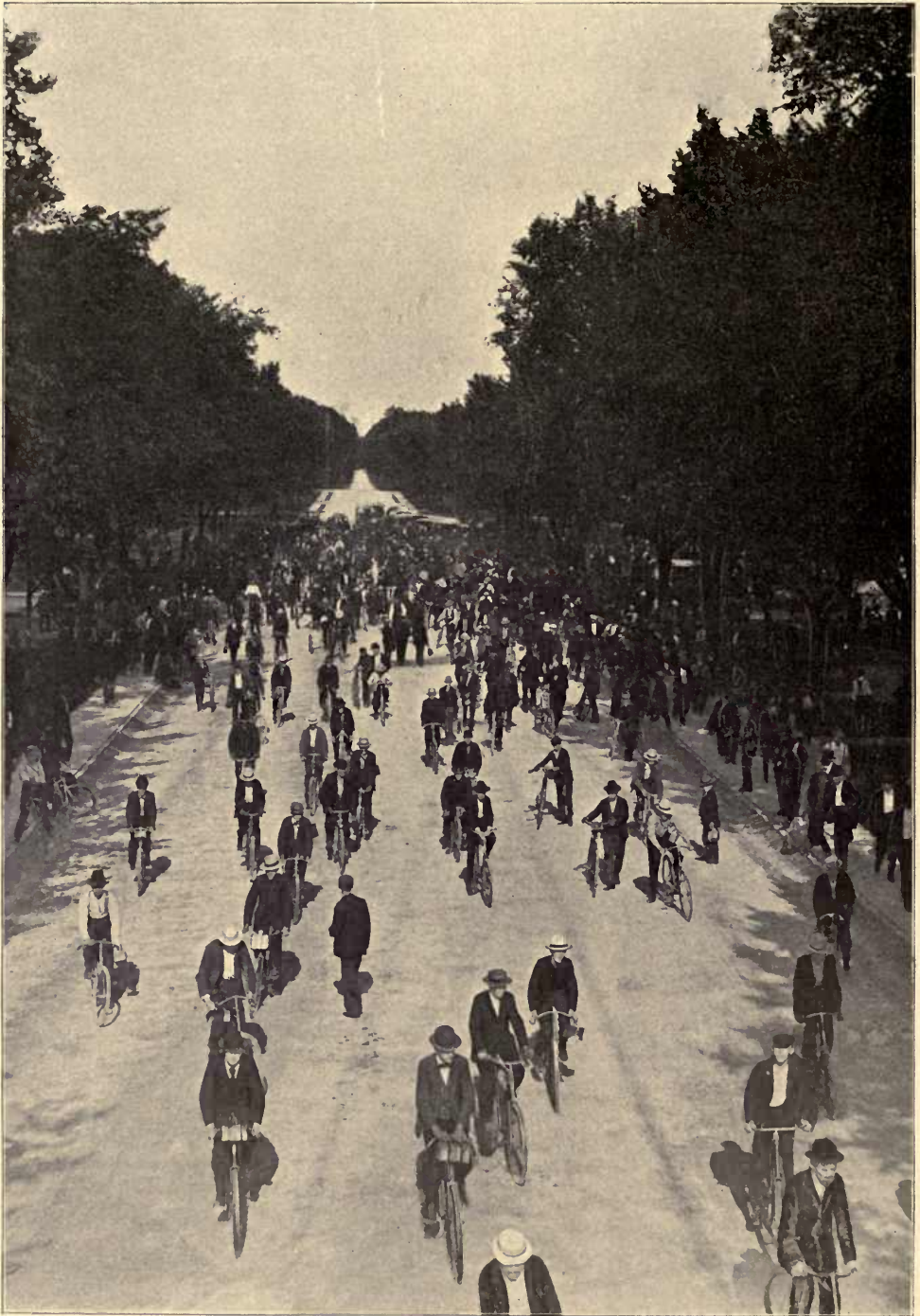
[From the report of the Chief of Ordnance, October 1, 1895.]

All infantry and cavalry equipments, artillery harness, target materials, and other similar supplies for the use of the army and the militia, are manufactured at Rock Island Arsenal, and this work has been satisfactorily performed during the year to the extent of the appropriations available therefor.

The field and siege gun carriages and implements for our artillery service are manufactured at this Arsenal.

[From the report of the Chief of Ordnance, October 1, 1896.]

The work to be carried on in the various departments at the Rock Island Arsenal included the completion of fifty 3.2-inch field-gun carriages, with their limbers complete; twenty 5-inch siege-gun carriages, and twelve 7-inch howitzer carriages.



ARSENAL WORKMEN LEAVING FOR HOME.

THE ARSENAL IN WAR.

The efficient work done at Rock Island Arsenal during the few months of the late war with Spain has more than returned, in advantage to the country, the great cost of its construction.—*Hon. W. B. Allison, Chairman, Senate Committee on Appropriations.*

IT has been the unchanged intention of the War Department and of Congress, since 1862, to make Rock Island Arsenal, in the words of General Benet when he was Chief of Ordnance, "the grand ordnance manufacturing establishment in the Mississippi Valley, with larger capacity when completed than any other Arsenal within our borders."

The broad plans that have been so well laid, when fully completed and the shops are crowded to their capacity, look to the arming, equipping and supplying of an army of 750,000 men. It is estimated that the capacity of this Arsenal will be, finally, from two and one-half to three times that of all the arsenals the United States had during the Civil War, and fully equal to all the necessities of the Northwest and the Mississippi Valley, from the Alleghanies on the east to the Rockies on the west.



FOUNDRY AND ROLLING MILL.

An approach to a realization of this grand design has been made during the war of this year with Spain. Like magic the incomplete Arsenal responded to the heavy demands made upon it. It should be borne in mind that while not more than one-fifth the floor space is supplied with the special machinery required, Rock Island Arsenal has been first of all the arsenals in the United States in the magnitude of the work performed, in the great variety of product, in the number of employes and in the aggregate of wages paid in a single month.

In the respects named, in the large size and substantial character of the buildings, and also in the area of the military reservation containing the Arsenal, Rock Island stands preëminently first.

VARIETY OF PRODUCTS.

At this Arsenal all the numerous articles that go to make up the equipment of the infantry, cavalry and artillery soldier, with the single exception of his arms, are fabricated. The blanket bag, with its straps, in which the soldier carries the articles of clothing which are kept about his person; the haversack, intended for his rations; the canteen, fashioned from sheet tin and covered first with felt and then with a heavy thickness of duck, which the soldier uses for his water supply or for carrying his coffee between camps; the meat can, a most ingenious device, part frying pan, part plate, with the handle which secures all the parts together, are made here; also the tin cup, used as a coffee boiler, which by its handle can be carried conveniently, secured to the haversack. Knives, forks and spoons used in the mess equipment are also furnished from here; and the bayonet scabbards, made in the rough at other arsenals, are sent to Rock Island to be finished with the leather frogs and the swivel, and large brass hook which permits the soldier to carry them.

The cavalry and horse equipment, comprising first the saddle, made from the raw lumber through its different operations of planing, cutting into length, trimming in the band saw, giving finished shape on the eccentric turner, and finally smoothing and preparing for the assembling of the completed tree, are all performed here. The tree, afterward covered, first with rawhide and then with leather, is then furnished with the necessary rings, hooks and straps for carrying the cavalryman's many articles. Carbine scabbards, great leather pouches fastened to the saddle and forming the receptacle for the carbine when the soldier is mounted; saddlebags, which for the cavalryman serve the same purpose as the blanket bag of the infantry soldier, are made out of leather and provided with the necessary conveniences for carrying them on the cantle of the saddle; surcingles, curb bridles, watering bridles, halters and their straps, lariats, picket pins, nose bags, horse brushes, currycombs, all from their names sufficiently specifying their use, are also a part of the output of this Arsenal. Pistol holsters,



THE STEAM HAMMER.



GROUP OF DAY FOREMEN.

- | | | | |
|-------------------|--------------------|---------------------|-----------------------|
| 1. W. C. Verder. | 5. G. D. Petcher. | 9. W. B. Lancaster. | 13. H. S. Bollman. |
| 2. J. D. Johnson. | 6. H. H. Schoede. | 10. W. H. Carl. | 14. Emil Beck. |
| 3. Hiram Shunk. | 7. Phillip Morgan. | 11. R. C. Munson. | 15. George Patterson, |
| 4. Otto Corken. | 8. F. H. Davis. | 12. D. C. Thompson. | Master Machinist. |

spurs and straps, saber belts and plates, the saber knots and other articles of the cavalryman's equipment are likewise produced at Rock Island, besides hundreds more of comparatively minor importance.

FIELD AND SIEGE GUN CARRIAGES.

In the preceding chapter on "The Arsenal in Peace" it has been shown from the official reports of the Chief of Ordnance how the variety of work has been extended during the past few years. The need of the partial preparation has been more than demonstrated by the shipments to the front during the past few months. Reference is made to the manufacture of the 3.2-inch field carriage, with its limber and caisson, its battery wagon and forge; and also the carriage and limber for the 7-inch howitzer and for the 5-inch siege gun. These are made of steel, forged and fashioned to shape under hammers and presses, and finally assembled into the finished



1. FOR PEACE OR WAR.
 2. FRYING PAN.
 3. DOUBLE-WEB BELT.

4. SADDLEBAGS.
 5. INFANTRYMAN'S EQUIPMENT.

6. A BLANKET.
 7. CAVALRYMAN'S EQUIPMENT.

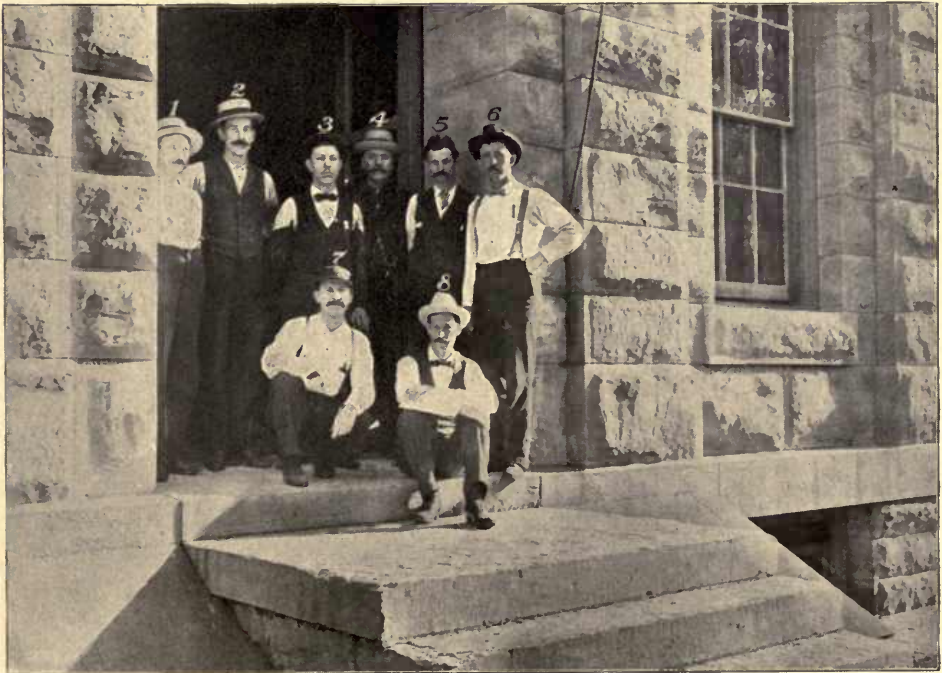
article. To these are also added the most innumerable articles forming a part of a battery equipment—the sponges, priming wires, sights, anvils, lanterns. To continue the enumeration would be almost equal to taking an inventory of a hardware store. Artillery harness for these batteries is made here, with its great number of spare parts issued to the service.

A GREAT WORKSHOP FOR REPAIRS.

Besides the regular fabrications, the Arsenal is a great workshop for repairs upon all of these stores, first issued to the field and then, after much service, turned in as no longer being quite equal to the work required of them. Here they are again put into shape, worn parts replaced, old parts cleaned where possible, until the article assumes almost the appearance of new.

A DEPOT OF ISSUE.

The Arsenal is also the greatest depot in the country for the issue of supplies to the army. Much of the ammunition and many of the small arms made elsewhere are sent to Rock Island and from here distributed to the soldier. The receipts and shipments are, therefore, enormous—much more than those of all the other arsenals combined—and the railroad track with its sidings is always well provided with cars.



GROUP OF NIGHT FOREMEN.

- | | | | |
|--------------------|---------------------|---------------------|-------------------|
| 1. Chris Pedersen. | 3. Homer Tilton. | 5. J. B. Schoessel. | 7. C. C. Wilson. |
| 2. J. H. Winter. | 4. Samuel Westberg. | 6. H. J. Risley. | 8. W. H. Bragdon. |

AN INDUSTRIAL CENTER.

The rapidity with which the normal number of employes, about five hundred, was raised to nearly six times that effective force in the emergency of the war hardly needs comment. It demonstrates that the great plant is ready for expansion, and that the output can be increased to almost any extent without confusion. The character of the employes is shown by the quality of their product. Government work is of the highest standard. This cluster of cities, Davenport, Rock Island and



IN THE HARNESS SHOP.

1. General View. 2. Cutting Room. 3. Another View. 4. Canteen Straps.

Moline, is an industrial center, with thousands of artisans, mechanics and other skilled laborers. When the local supply is inadequate, the demand can be quickly met. The plow factories, steel works, axle and wheel shops are the largest and best of their class in the country.

SOME OFFICIAL FACTS.

The annual report for 1898 of Maj. S. E. Blunt, commandant at Rock Island Arsenal, to the Chief of Ordnance, is one of the most interesting and important ever made from this post. It covers a period of nearly fourteen months, and includes the time of most active operations. It gives exact information on many points not



THE TIN-CUP SHOP.

elsewhere accessible. Permission to use essential parts of this report has been granted, and the facts in the following summary may, therefore, be regarded as entirely trustworthy :

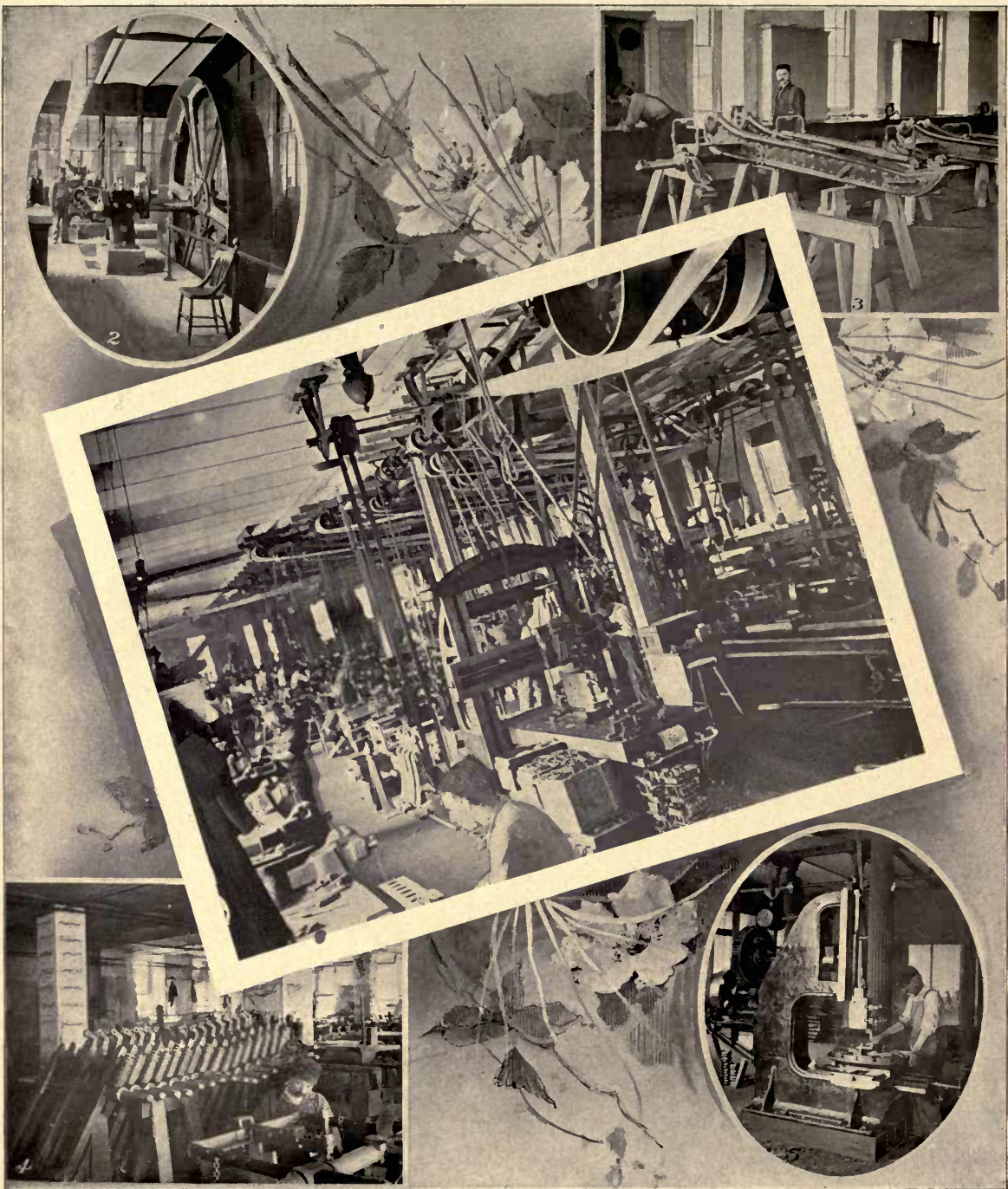
GROUNDS AND BUILDINGS.

The grounds and roads on the Island have not only been maintained, but much improved and made more attractive. In this regard over two hundred young trees were set out along Main avenue. This avenue throughout its length has been resurfaced with macadam.

ENORMOUS EXPENDITURES.

The experience of the present war, urges the report, has fully demonstrated that for the proper supervision of the many and varied manufactures of this Arsenal, and for the inspection of material and stores received and issued to the army, more assistant officers are necessary. The magnitude of the operations of the Arsenal, with its 2,900 employes, its day and night shifts, its purchases of material for fabrications of field and siege carriages, and for equipments for artillery, cavalry and infantry soldier, as well as of completed equipments from many contractors, * * * can be briefly summarized by the statement that since April 1, 1898 (to August 15), they have involved expenditures from funds allotted to this Arsenal of over \$2,600,000.

It is recommended that quarters be provided for two of these officers.



THE MAIN MACHINE SHOP.

1. A General View.

2. 400 Horse-Power Engine, Shop C.

3. Making Field-Gun Carriage Trails.

4. Bed Frames for Caissons—Machine Shop.

5. Slotter at Work, Shop G.

FIELD AND SIEGE CARRIAGES.

Major Blunt gives some space to the comparatively new and highly important department of field and siege carriages. The basement and first floor of the west wing of Shop G have been prepared for use as a machine and erecting shop for field carriages, limbers, caissons, battery wagons and forges, and for siege carriages and limbers. He adds:

For these two floors the following machines were purchased and all installed during the winter, with their counters and other subsidiary shafting: Six engine lathes of different sizes, three column shapers, eight upright drill presses, three milling machines, one planer, one horizontal boring and drilling machine, one universal radial drilling machine, one bolt cutter and two tool grinders. The necessary number of machinists' bench vises and grindstones were also procured and placed. * * * To provide additional facilities for rapidly turning out



THE MAIN BLACKSMITH SHOP—INTERIOR.

field and siege carriages, etc., the preparation of the basement and first floor of Shop G for the reception of machinery has recently been extended to include its central portion and the east wing. In the central portion the first floor on its street front will comprise a commodious tool room, extending from wing to wing, and so provided with machine tools that all tool making and repairing will be conducted within its limits. Convenient office and store rooms have been made on the court side of this part of the shop. The basement and first floor of the east wing are now ready for the installation of the machinery which has been ordered under the appropriation made for this purpose at the last session of Congress. Some of the machinery has been delivered, and it is hoped all will be established and in operation before the close of the calendar year.

The plant still remaining in Shop C is sufficient and suitable for a very limited production of field and siege carriages or for repairs upon those that may be turned in from the field. Operated in connection with the larger plant in Shop G, it is estimated an annual output can be

reached of about ninety field carriages, ninety caissons and fifteen battery wagons and forges, or fifteen complete six-gun batteries; and in addition about twenty siege carriages, with their limbers. It is believed this is not sufficient for the probable needs of the army and that a further provision should be made for completing the plant on the first floor and basement of Shop G and for its extension into the second floor.

SMALL ARMS.

Last winter the work was begun of cleaning and repairing a number of Springfield rifles sent to Rock Island Arsenal for that purpose. The necessary plant was established in rather a small way, beginning with an output of about forty guns a day. The demand greatly increased and the work was extended until it occupied the entire front and most of the west wing of Shop D. Late in June eighty-five men and boys turned out about five hundred completed rifles or carbines a day. In July there was an increase to about six hundred rifles a day.

The increase of the number to be repaired from the original 10,000 to nearly 50,000, and from the more moderate output of 100 a day to the 600 finally demanded, also added considerably to expenses for equipment. Up to June 30, when 31,000 had been repaired, the cost per gun for tools and equipment had been about 3 cents, the cost for material used in the work about $3\frac{1}{4}$ cents, and the labor charges about $61\frac{3}{4}$ cents, or a total cost of about 68 cents a gun.

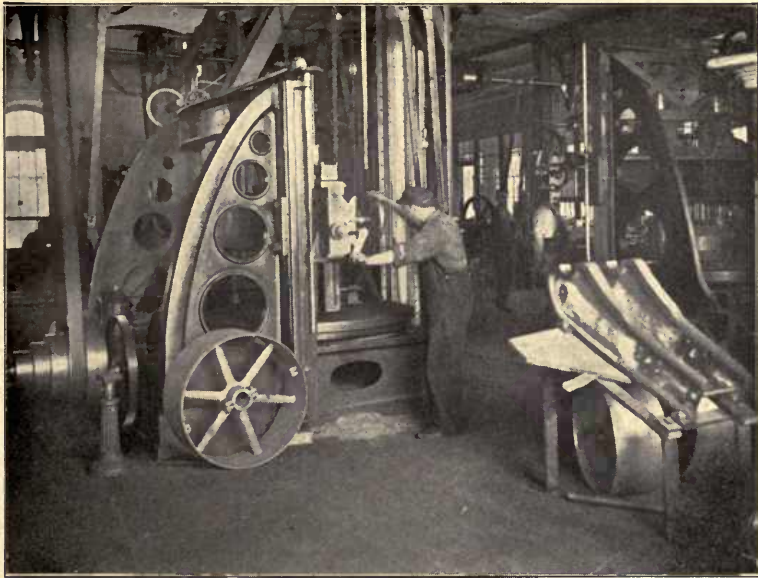


IN THE CARPENTER SHOP.

FROM PEACE TO WAR.

The transition of the Arsenal from the ordinary state in time of peace to the activity and rush of war suddenly forced upon the country came without confusion. In a few weeks the normal force of less than 500 employes was increased to more than 2,900. New machinery was installed as new men were added. How the Arsenal met the emergency is described by Major Blunt in these words:

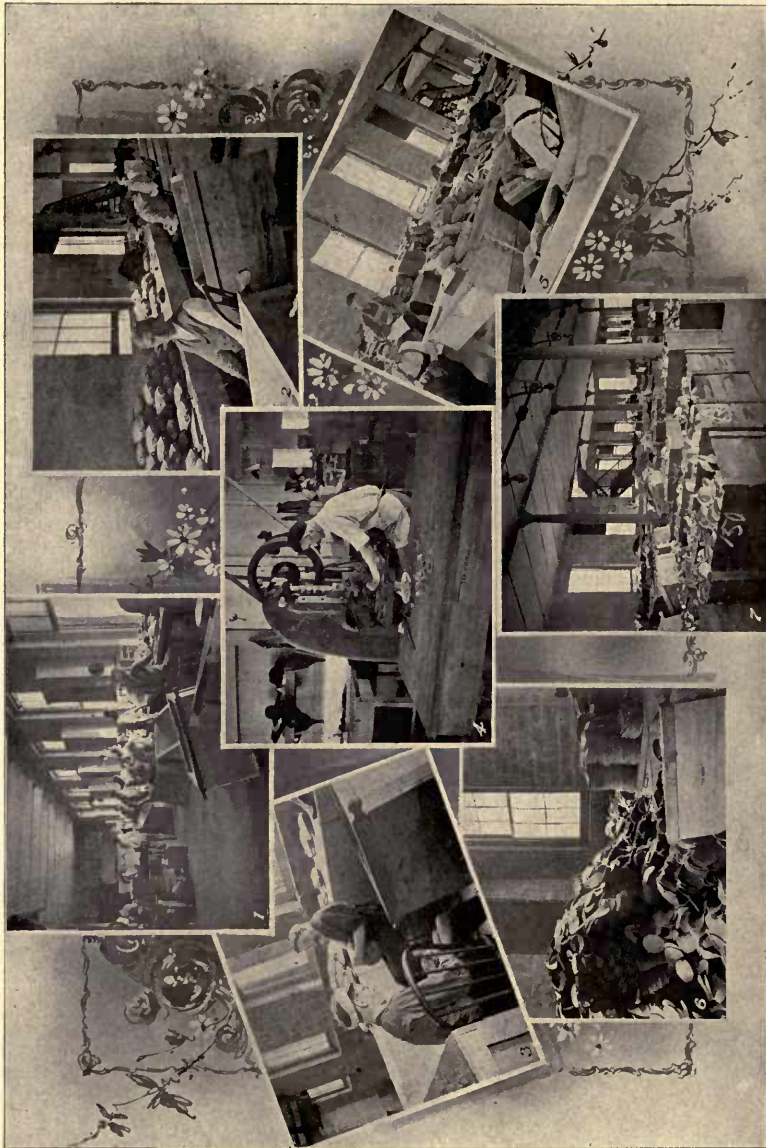
Until this year no canteens had been made at this Arsenal, the surplus left over from the war of 1861-65, when repaired and recovered, being sufficient to meet the ordinary demands of the army. The production of meat cans and tin cups had also been always on a moderate scale. The plant in the tin shop had, therefore, comprised only one power press and one power shears, with several folders and other minor tools. * * * Soon five large presses, one of them back-gearred, and one medium and four small presses were added; also two double-



A CORNER IN THE MACHINE SHOP.

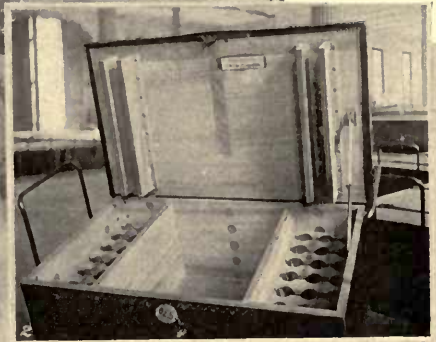
seaming machines, two forming rolls, seven burring machines, two wiring machines, one large and one small turner, one beading machine, one groover, four squaring shears, two 30-inch and four 20-inch folders, one setting-down machine, four soldering and two double-seaming stakes, as well as a number of minor tools and appliances, were added.

In the equipment part of the machine shop the plant for the manufacture of buckles, rings, loops, squares, brass hooks of different shapes, saddle irons, ovals and studs, curb bits, snaps, and the many other similar parts of infantry, cavalry and horse equipment, had been based upon the ordinary demands of the army in time of peace, and was entirely inadequate for the immense increase in production so suddenly required from the Arsenal. As for the other shops, the necessary machinery was, however, soon obtained, until fifteen power presses of different sizes, two 3-spindle and one 1-spindle drill presses, two hand milling machines, two 14-inch and two 11-inch speed lathes and a number of different minor bench tools and appliances had been added to the shop equipment. Thirteen additional braziers' furnaces were also



THE TIN SHOP.

1. Soldering Canteens.
2. Canvassing Canteens.
3. Putting in Corks.
4. Making Meat-Can Handles.
5. Felt-Covering Canteens.
6. Stack of Covers.
7. Canteens Ready for Covering.



GENERAL STORES.

- | | | |
|-------------------------|---------------------------|---------------------|
| 1. Cords of Targets. | 2. Open Ammunition Chest. | 3. Stoves in Stock. |
| 4. Steel Horse Collars. | 5. Bayonets. | |

installed, and a 750-gallon Springfield gas machine and a Sturtevant steel-pressure blower to provide the necessary fires.

Increased facilities were likewise added to the blacksmith shop, the foundry and other departments. How this enlarged the output one paragraph from the report will explain :

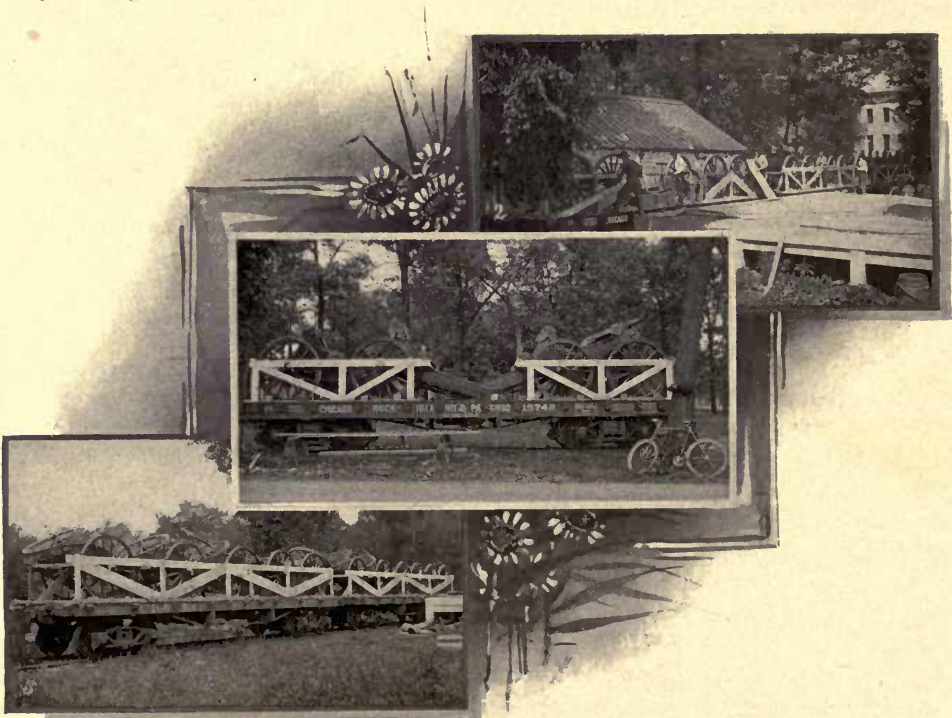
In the west wing of Shop G nearly four hundred men and boys engaged in sewing, first the felt and afterward the duck covers upon the canteens as made here, or upon those purchased from contractors. The force, as they became more expert, finally reached an output of 8,000 canteens per day. In all, nearly seven hundred men and boys were employed on this floor.

Further details as to how the force was multiplied and the output extended and varied will prove interesting. Major Blunt says :

On March 1, 1898, the usual force of slightly less than five hundred men was employed at the Arsenal, engaged in work upon field carriages and caissons, siege carriages and limbers,

and the different articles of infantry equipment, cavalry accouterment and horse equipment which, under the usual orders, had been undertaken earlier. Work was so progressing that all the equipments, based upon the ordinary demands of the army in time of peace, would be completed late in June; the siege carriages and limbers were nearly finished; the field-carriage work had only been started a few weeks before.

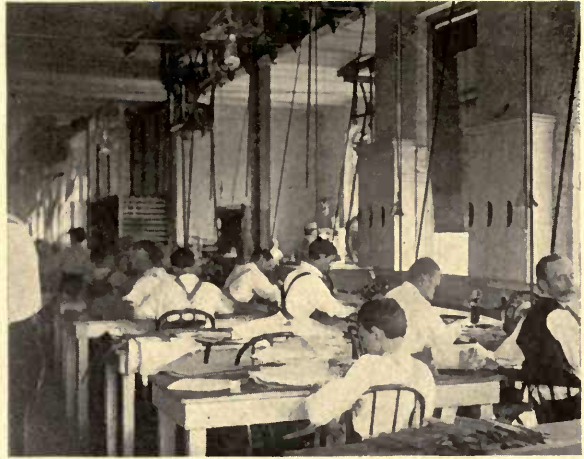
The record shows that the war which came was anticipated, and, so far as possible, preparations made for it. March 9, General Flagler, the Chief of Ordnance, directed by wire "that work be pushed on all existing orders as rapidly as possible, and that extra shifts of workmen be employed." Steps were promptly taken to comply with instructions, but three days later the telegram of March 9 was partially rescinded. March 26, orders came to manufacture 25,000 sets of infantry equipments, and the number of men was increased to 608 at the end of that month. April 5, orders came in these words: "Press work on all field and siege carriages as rapidly as possible, employing extra shifts of men as far as economical." April 21, instructions were received increasing the infantry equipments to 75,000 sets, and ordering 10,000 sets of horse equipments and 100 sets of artillery harness for led horses. The next day equipment work was put into two shifts, the first of ten hours and the second of eight hours. This a few days later was changed to ten hours for each shift, and work was so continued twenty hours per day until the reductions began, early in August.



SHIPMENTS TO CUBA.

1. A Full Carload.
2. Loading the Carriages.
3. Caissons and Limbers.

On May 5, continues Major Blunt, a telegram was received directing me to provide 54,000 sets infantry equipments, 5,000 sets cavalry accouterments and 5,000 sets horse equipments in addition to those previously ordered, and specifying that they were to be turned out at the rate of 1,500 of the former and 200 of the latter per day, or faster, if possible. I was also advised that the commanding officers of Allegheny, Indianapolis and Columbia arsenals and the master harnessmaker from San Antonio Arsenal would visit this Arsenal to confer with me regarding what fabrications could be advantageously undertaken at their respective arsenals.



A CORNER IN THE SEWING-MACHINE ROOM.

This conference was duly held, and as a result the manufacture of 30,000 each of blanket, bag, shoulder and coat straps, haversack straps and canteen straps was commenced at Allegheny Arsenal; of 25,000 blanket bags and straps and haversacks and straps at Indianapolis Arsenal, and also at Columbia Arsenal; and 3,000 saddles, curb bridles and halters at San Antonio Arsenal. All the buckles, hooks, rings and other similar parts of these equipments were made here and sent to those arsenals; the duck for blanket bags and haversacks was stamped here and then shipped there. The curb bits for the bridles and the saddletrees were also completed here. Many of the smaller tools were furnished, and also men to serve as foremen.

May 9, telegraphic orders were received for the manufacture of 102 field carriages and limbers, 150 caissons and limbers and 17 battery wagons and forges, and instructions to also procure material for 24 carriages for siege howitzers and for the same number for 5-inch siege guns. June 6, instructions were received to "manufacture or to procure by purchase" 10,000 sets cavalry and horse equipments in addition to previous orders, and that the work be "prosecuted with all possible dispatch." June 15, orders came to make up 3,600 more sets of horse equipments. To meet these "rush" orders it was necessary to let contracts among fifty-two bidders for work to the value of \$570,602. June 22, directions were wired to increase what might be called the "mess outfit" part to 5,000 per day, or to 6,000 if it could possibly be done, and steps to reach that number were at once taken. June 25, the manufacture of 148 sets artillery harness for wheel horses was ordered, also 188 sets for led horses; and on the 27th, instructions to provide 75,000 additional sets of infantry equipments, except certain specified articles. July 7, 12,000 more sets of horse equipments were asked for. These large orders made the calling on contractors imperative for work amounting to \$208,087.50. At this time there were forty-six different firms or individuals delivering finished articles of ordnance stores at Rock Island Arsenal, ready, after proper inspection, for issue to troops. The larger part of this order for 12,000 sets of horse equipments it was, however, contemplated to fabricate at this Arsenal, where the facilities for all such work had been very much increased. To quote from Major Blunt's report again :




IN THE FOUNDRY.

1. Pouring Off—Brass Foundry. 2. Iron-Melting Furnaces. 3. The Main Molding Room.
 4. Old Shells for Recasting. 5. The Brass Molders.

CONTRACT WORK.

At the close of the war, 131 different firms or individuals were, or had been, delivering material at this Arsenal, and the amounts of some of the principal stores ordered were as follows: 351,400 yards of dyed duck and 1,008,000 yards of cotton webbing, of various widths, for haversacks, blanket bags and canteen covers; 654,000 pounds of tin plate for meat cans, canteens and tin cups; 79,900 pounds brass wire and 89,500 pounds of sheet brass for the buckles, rings, hooks, etc., of the different equipments; 954,000 feet linen rope for lariats; 205,300 pounds harness-leather backs and 1,262,000 square feet collar, bridle and bag leather for straps, saddles, carbine scabbards, saddlebags, etc.; 116,200 pounds of copper and 1,161,900 pounds of steel and iron for gun carriages, etc., and for the various parts of equipments; 133,000 feet of basswood and ash for saddletrees, and 690,000 feet of other lumber for ammunition chests, packing boxes, work benches, etc., besides many thousand pounds of minor articles.



No.

PAY.

Month of

.....

\$

A PAY ENVELOPE—EXACT SIZE.

WAR PERIOD PAY ROLL.

THE NUMBER OF WORKMEN AND AMOUNT OF MONTHLY WAGES AT DIFFERENT PERIODS.

| DATE. | NAMES ON ROLL. | AMOUNT OF MONTHLY ROLL. |
|--------------------------|----------------|-------------------------|
| March 31, 1898 | 608 | \$ 32,708.39 |
| April 30, 1898 | 1,077 | 48,789.06 |
| May 31, 1898 | 1,784 | 90,179.82 |
| June 30, 1898 | 2,312 | 126,659.24 |
| July 31, 1898 | 2,902 | 175,030.73 |

It will be observed that in the last three months, when work was being prosecuted more nearly to the capacity of the Arsenal with its present plant, the sum paid in wages to the employes aggregated nearly \$400,000.

No difficulty whatever was experienced in securing all the men to whom employment could be given—in fact, the applications far exceeded the vacancies in all grades, from the skilled mechanic to the laborer, and, if the capacity of the plant had so permitted, several

times the number actually employed could have been obtained. The single exception to this was in regard to harnessmakers, but even in this case I believe no difficulty would have been experienced if the magnitude of the orders to be ultimately given had been known to me more in advance.

EFFICIENT EMPLOYES.

As the force was increased, the necessity for foremen and inspectors familiar with the successive operations (for there was no time to teach and develop new men) grew with the expansion of the work. They were found among the old employes, and from their ranks a number of temporary appointments to these positions were made. They proved capable and efficient, and when necessary, as was frequently the case, worked overtime with entire willingness; in fact, the spirit they displayed permeated, with very few exceptions, the entire force, the men being apparently animated by the desire to observe the shop rules and regulations to the best of their ability and to render all possible assistance to the Government in the existing emergency.

Major Blunt in particular commends Mr. George Patterson, master machinist. Mr. Patterson was transferred from Watervliet Arsenal, where he had been the principal assistant foreman in the Armory gun factory while Major Blunt was himself in charge there. Speaking of Master Machinist Patterson, the commandant says:

His experience and abilities have since proved of great value, and with his assistance many modifications in the details of manufacture have been introduced which will considerably diminish both the time and cost of production, especially of gun carriages and similar work, but also of many articles of equipment.



THE CROWDED MAIN AVENUE.

1. A Morning Scene.

2. In the Evening.

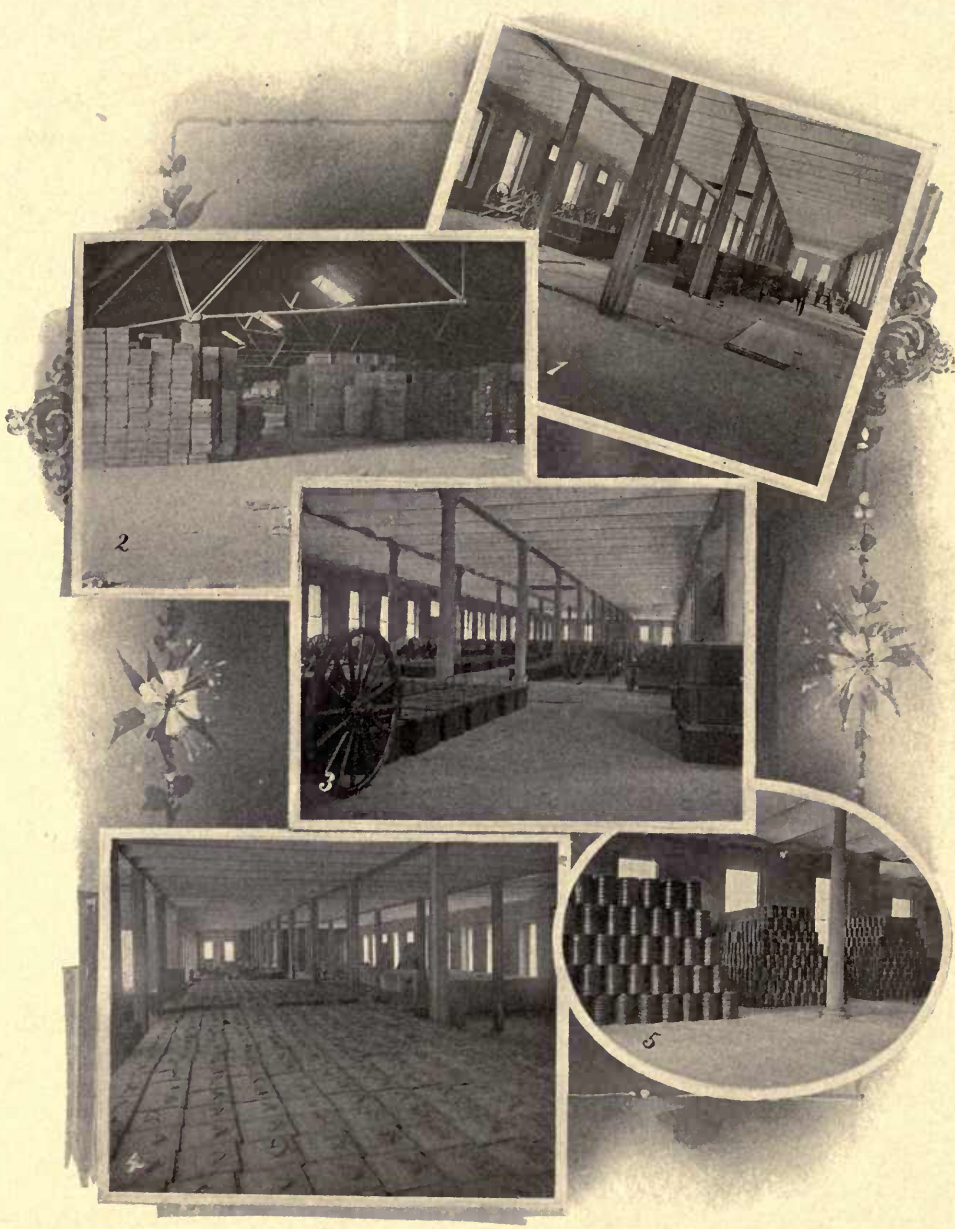
THE ARSENAL'S OUTPUT.

The principal articles of ordnance stores, either made at Rock Island Arsenal altogether or in part, and received from contractors between April 15 and August 15, may be tabulated as follows:

| ARTICLES. | TOTAL PROVIDED. | ARTICLES. | TOTAL PROVIDED. |
|--|-----------------|---|-----------------|
| 3.2-inch breech-loading rifles and other field guns, | 25 | Bayonet scabbards, hook attachment, | 194,432 |
| Carriages, 3-inch and 3.2-inch breech-loading rifle, | 53 | Blanket bags, | 68,798 |
| Limbers, 3.2-inch and 3.6-inch breech-loading rifle, | 210 | Blanket-bag shoulder straps, pairs, | 88,560 |
| Caissons, 3.2-inch and 3.6-inch breech-loading rifle, | 120 | Blanket-bag coat straps, pairs, | 71,767 |
| Combined forge and battery wagon, | 1 | Canteens, | 259,505 |
| Carriages, 7-inch siege howitzer, | 11 | Canteen straps, infantry, | 202,162 |
| Various implements and equipments for 3.2-inch and 3.6-inch batteries, | 1,390 | Canteen straps, cavalry, | 27,207 |
| Various implements and equipments for 5-inch and 7-inch batteries, | 705 | Gun slings, | 155,885 |
| Miscellaneous artillery implements and equipments, | 914 | Haversacks, | 143,932 |
| Artillery harness, led-horse, sets, | 479 | Haversack straps, | 152,495 |
| Artillery harness, wheel-horse, sets, | 148 | Meat cans, | 241,599 |
| Artillery harness, extra parts, | 2,440 | Tin cups, | 260,248 |
| Springfield carbines, caliber .45, | 17,500 | Knives, | 210,211 |
| Springfield rifles, caliber .45, | 24,300 | Forks, | 184,029 |
| Colt's revolvers, caliber .38, | 23 | Spoons, | 287,923 |
| Sabers and swords, | 2,447 | Waist-belt plates, | 21,223 |
| Carbine slings, | 8,085 | Curb bridles, | 1,051 |
| Carbine-sling swivels, | 4,626 | Bridles, watering, | 20,973 |
| Cartridge belts, calibers .30 and .45, | 37,325 | Curb bits, | 4,546 |
| Cartridge-belt plates, | 50,444 | Carbine boots, | 7,041 |
| Cartridge boxes, calibers .38 and .45, | 7,069 | Carbine scabbards, | 20,520 |
| Pistol holsters, calibers .38 and .45, | 16,151 | Currycombs, | 29,769 |
| Knapsacks, light artillery, | 150 | Halter headstalls, | 18,333 |
| Saber belts, cavalry, | 18,880 | Halter straps, | 25,087 |
| Saber attachments, | 16,129 | Horse brushes, | 20,641 |
| Saber knots, | 2,377 | Lariats, | 11,588 |
| Spurs, | 43,307 | Lariat straps, | 30,445 |
| Spur straps, | 52,324 | Links, | 5,836 |
| Waist belts, | 11,317 | Nose bags, | 17,031 |
| | | Picket pins, | 27,335 |
| | | Saber straps, | 14,674 |
| | | Saddles, | 13,801 |
| | | Saddlebags, pairs, | 20,262 |
| | | Side lines, | 2,848 |
| | | Saddle blankets, cavalry and artillery, | 30,732 |

STORES RECEIVED AND ISSUED.

During the first nine months of the fiscal year (beginning July 1, 1897), the usual amount of infantry equipments, cavalry accouterments, horse equipments, materials for target practice, artillery harness, carriages, caissons, projectiles and powder, small-arm ammunition and many other articles of ordnance stores were issued to the regular army, to colleges and to the militia, and a great quantity of similar articles in an unserviceable condition were turned in here for the repairs necessary to make them again fit for issue.



INTERIORS OF SHOPS.

1. The Paint Shop. 2. An Attic. 3. Caissons and Limbers. 4. Small-Arms Stores.
 5. Tons of Saluting Powder.

During the last quarter of the fiscal year these transactions greatly increased. I have, therefore, in the following table, separately included them, and though not properly belonging to the year, yet, as forming part of the issues of the same war period, have also added a report for July, 1898. The weights are given in pounds.

RECEIPTS OF ORDNANCE STORES FROM REGULAR AND VOLUNTEER ARMY AND MILITIA.

| | JULY 1, 1897, TO MARCH 31, 1898. | APRIL 1, 1898, TO JUNE 30, 1898. | TOTAL FOR YEAR. | JULY, 1898. |
|---------------------------------|--|--|--------------------|-------------|
| In less than carload lots . . . | 542,720 | 256,857 | 799,577 | 192,796 |
| In carload lots | | 1,008,083 | 1,008,083 | 125,059 |
| Totals | 542,720 | 1,264,940 | 1,807,660 | 317,855 |

ISSUES OF ORDNANCE STORES TO REGULAR AND VOLUNTEER ARMY AND MILITIA.

| | JULY 1, 1897, TO MARCH 31, 1898. | APRIL 1, 1898, TO JUNE 30, 1898. | TOTAL FOR YEAR. | JULY, 1898. |
|---------------------------------|--|--|--------------------|-------------|
| In less than carload lots . . . | 1,031,010 | 756,938 | 1,787,948 | 1,286,347 |
| In carload lots | | 3,388,128 | 3,388,128 | 436,915 |
| Totals | 1,031,010 | 4,145,066 | 5,176,076 | 1,725,262 |

The total weight of issues and receipts of these finished stores is 6,983,736 pounds for the fiscal year ending June 30, 1898; for the four months from April 1 to July 31 it is 7,451,123 pounds.

Considering so much of the war period as extended from April 1 to July 31, the stores issued to troops aggregated 5,868,328 pounds, or an average of 48,101 pounds per day, Sundays included. This statement of an average hardly permits, however, an accurate judgment of the daily shipments of the Arsenal during its heaviest period. They were much lighter in April than in the following months, and had begun to decrease in the latter part of July. About the middle of June they for days at a time exceeded 120,000 pounds.

COST OF CONTRACT WORK.

While fairly favorable prices were obtained for the \$1,110,000 worth of finished articles of ordnance stores procured under contracts, yet in all cases they exceeded, in some instances considerably so, the cost at which similar stores were at the same time being turned out at the Arsenal.

ARGUMENTS FOR THE ARSENAL.

Taking different items for comparison, Major Blunt far more than makes good his statement. In the matter of saddles alone there would have been a saving to the Government of about \$30,000 if sufficient saddles had been in store at the breaking out of the war, or if the plant at Rock Island Arsenal had permitted their manufacture with the necessary rapidity. And besides this, as the commandant says: "It must also be remembered that the articles obtained by purchase, especially at such a period, as has unquestionably been the case with most of those recently procured under contracts, are often inferior, both in material and workmanship, to

those produced in the Government shops. This fact was universally acknowledged by all contractors who visited this Arsenal during the last few months and examined the work in progress." Assuming the cost of purchases to average about 14 per cent, the commandant reasons it "would mean an expenditure of about \$150,000 since the declaration of war that with proper facilities for manufacturing at this Arsenal need not have been made."

UNDEVELOPED CAPACITIES.

Rock Island Arsenal, observes Major Blunt in concluding his report for 1898 to the Chief of Ordnance, "has now a water power sufficient, if properly utilized, for operating all the machinery that could be placed in its shops. It has ten as fine buildings as exist at any arsenal, or as can be found at any private establishment. They are admirably suited to the purpose for which they were erected, yet in only one of the ten has an adequate amount of machinery been installed, and in two others only fractional parts of the shops are occupied.

"As at present equipped, only about one-fifth of the floor space available has been used for machinery and employes, and it is consequently no exaggeration to maintain that the recent output has borne only that proportion to what could have been accomplished if every floor of every shop had been provided with power and machinery and other facilities for the proper prosecution of work.

"What the undeveloped capacities of the Arsenal are can be surmised by considering, with the multiplier suggested, the figures given in a previous summary for its summer's output. Substitute for some of this product, if deemed advisable, other lines of manufacture not yet introduced, but for which the buildings and their surroundings are adapted, and it will be evident that if the capacity of the Arsenal were fully developed, it would easily prove equal to the task of expeditiously and economically producing the equipment for a large army.

"To attain this end considerable sums will, however, be necessary, but, if judiciously expended, no better or, in the long run, more economical use could be made of the public funds."



THE OLD MILL AT THE HEAD OF THE ISLAND.

THE FUTURE OF THE ARSENAL.

God grants liberty only to those who love it, and are always ready to guard and defend it.—*Daniel Webster.*

IT has been shown by official figures how Rock Island Arsenal promptly met the sudden and enormous demands made upon it during the war with Spain; but vast as the output was then, and varied as the products were, the Arsenal was not taxed to more than one-fourth its capacity when fully completed. No one is more intimately acquainted with the building of the shops or with what they are intended



ONE OF MANY EMPTY ROOMS.

to do than Gen. D. W. Flagler, the commandant from 1871 to 1886, and for the past eight years Chief of Ordnance, United States Army. General Flagler, in answer to questions in regard to his plans for the future of the Arsenal, and in a conversation during his late visit of inspection to the Island, said:

I have in no particular changed my views as to the wisdom of completing Rock Island Arsenal in accordance with my plans at the time I left it in 1886. No new buildings have been commenced since that time, only because appropriations for their construction were not available. The buildings still required to complete the plans are as follows:

Two stone storehouses like A and Storehouse K, already built. These are to be located—Storehouse I at the intersection of South and East avenues, and Storehouse B at the intersection of North and West avenues.



1. GOING TO THE DEPOT.
2. PACKING EQUIPMENT.

3. A STOREHOUSE.
4. AN UPPER FLOOR STOREROOM.

5. CARS READY FOR LOADING.



WHERE MACHINERY IS NEEDED.

Three brick storehouses for lumber, iron and steel, and for artillery and artillery projectiles, similar to the lumber storehouse south of Shop C, are to be located in rear of Shops G, H and D. (The location of all the shops, other buildings and avenues are shown on the map of Rock Island Arsenal on page 58.)

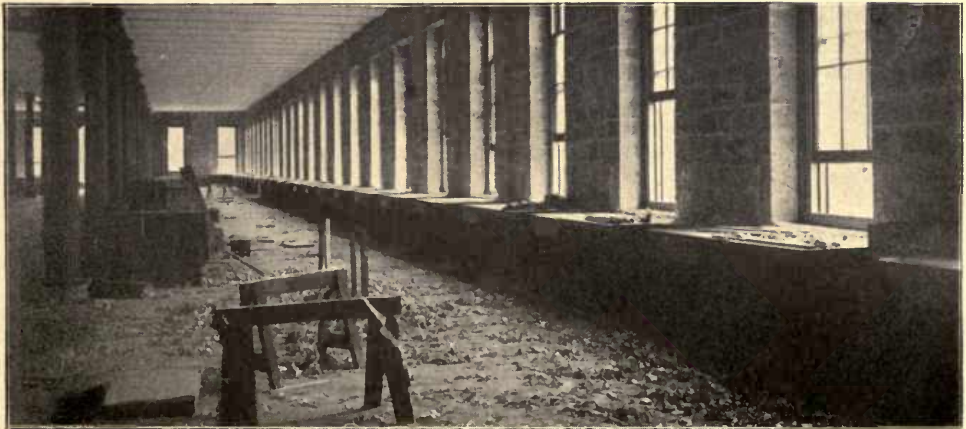
Coal sheds for storing and elevated track for dumping coal in rear of Shop E.

A hospital, stables, and about four additional sets of officers' quarters.

Nine additional inexpensive wooden laboratory buildings on the site which has been prepared for laboratories, on the west side of West avenue, on the plateau near Sylvan Water.

There are required not less than two additional ammunition magazines, similar and adjacent to the one already constructed, near Sylvan Water, and about 650 yards west of West avenue.

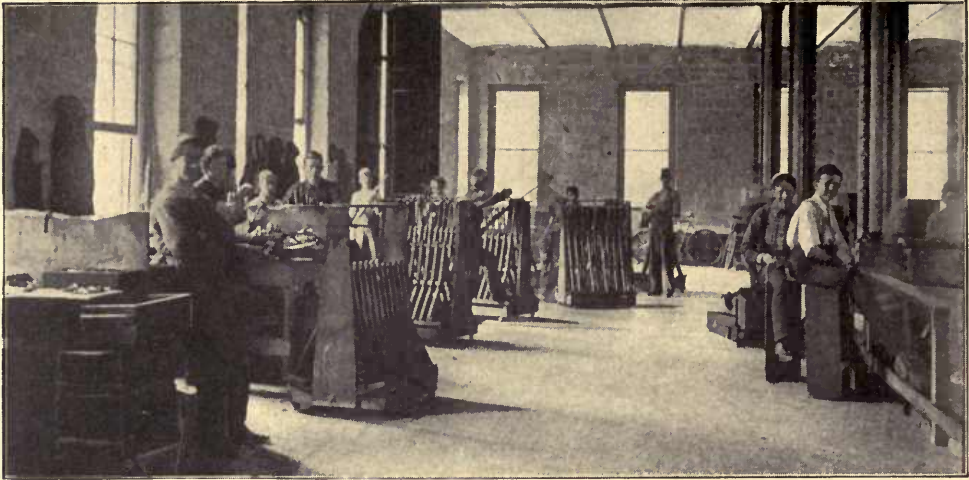
Two small powder magazines, about midway between East avenue and Moline bridge, but about 500 yards from each other. The location of these is shown on maps of the Arsenal which I have prepared.



GETTING READY FOR WORK.

The total estimated cost of these buildings is \$465,000. Water wheels, penstocks and fixtures for utilizing the water power and machinery for transmitting the same to the shops are also required. The cost of these depends upon the plans employed.

The utilization of the five Armory shops at an early day is very important. I cannot say that the late war has made the wisdom of utilizing these shops any more apparent, as I think this was impossible. The necessity for the Armory, in connection with our military system of not keeping a large standing army, but of being ready to make one when required, is a plain and perfectly apparent fact. It appears to me that no experience could make it plainer or more apparent. I left at the Arsenal plans and estimates for the machinery for these shops. I should think that, roughly, it would not be much less than \$1,250,000.



REPAIRING RIFLES AND CARBINES.

CAPACITY OF THE ARSENAL.

I have always placed the capacity of the five Armory shops at 2,500 rifles, revolvers or carbines per day. The adoption of magazine arms reduces this estimate, but I still think that by working two shifts of men the output could be made 2,000 per day.

The capacity of the five Arsenal shops south of Main avenue is not easy to state, because of the great variety of manufactures. A part of Forging Shop E, three stories of Shop G, and probably a part of Shop H, would be used for the construction of field and siege carriages and their implements and equipments. The use of a large part of Shop C, as is done now, for repairs, general work and a harness shop would naturally continue. A large part of Shop A, probably all of the three lower stories, is required for the manufacture of field, siege and small-arm ammunition, except that the loading or charging of the same—that is, all operations involving the addition of the powder—would be continued at the laboratory buildings on West avenue, south of Shop A, which have been mentioned. The rest of these buildings, including nearly all of the top stories of four of the shops, are designed for harness and equipment work. They require additions and much fitting up to adapt them for this work, but can be made available. Temporary wooden buildings could be added for this work if necessary, but I think our experience during the past summer shows that this would not be necessary. I think this experience has shown that there would be capacity for turning out, should it be required, 10,000

sets of infantry equipments, and their complement of horse equipments, per day. The manufacture of artillery harness would be carried on in the same shops, but so much time is required for the manufacture of this harness that it would be wise to carry a part of the harness on hand.

Our experience during the past summer shows that the capacity for the manufacture of small-arm cartridges should not be less than half a million per day, and it would be better if it could be three-quarters of a million. The three lower stories are ample for this, and also for the manufacture of the requisite amount of field-artillery ammunition.

I have not the means at hand of estimating the cost of the machinery and for completing the fitting up of these five shops as proposed here, but do not think it would be much, if any, less than \$600,000. The principal item would be for machinery for manufacture of small-arm cartridges, and, next to that, the additional machinery for the manufacture of carriages, and machinery for the manufacture of modern field-artillery ammunition.

The annual report of the Chief of Ordnance to the Secretary of War bears date October 1, 1898. It is a document of far more than ordinary import because it covers the work done during the war with Spain, and makes suggestions and recommendations in the way of providing for the future. In this review General Flagler devotes more attention to Rock Island Arsenal than in any other report that he has made. Following are extracts :

For many years the annual appropriations for these equipments (infantry, cavalry, artillery and horse) have been barely sufficient, with the utmost economy, to meet the annual consumption of the regular army. There was, therefore, only a small supply of these equipments on hand at the commencement of the war.

It has been the plan of the Department to be prepared to manufacture and supply the equipments as fast as armies could be raised. A portion of the Rock Island Arsenal was constructed for this purpose. It is important to determine from our experience in this war whether this plan is feasible for future wants.

Much credit is due to the commanding officer of the Rock Island Arsenal for his vigorous and efficient labor in installing the plant at the Arsenal and providing these equipments. Attention is invited to his report. (The report of Major Blunt, here referred to, will be found on pages 71-86 of this book.) The plant was installed and the number of employes engaged on the work was increased from about 400 on April 13, to about 2,900 on August 31, 1898. On the latter date the department was turning out about 6,000 sets of infantry equipments per day. The work was commenced on April 13, and pushed with all possible dispatch, and in advance of the appropriations made by Congress in the two deficiency bills of May 31 and July 7.

Funds were not available for enabling the Department to take any action for increasing field artillery for armies taking the field, until April 21, 1898. The number of batteries that could be equipped was absolutely fixed by the number of modern field guns on hand. There were not enough carriages and harness even for these guns, and the manufacture of the carriages and harness was at once commenced at the Rock Island Arsenal, and pushed to the utmost, and the same action was taken in regard to implements and equipments of all kinds at this and other Arsenals.

There was a shortage of harness at the outbreak of the war, but the resources of the Rock Island Arsenal enabled this to be made up rapidly enough to keep pace with the completion of the carriages and caissons.



A LONELY WAY.

General Flagler devotes two pages of his printed report to reviewing the work done at Rock Island Arsenal, adding the following comment :

On March 1 the number of employes was something less than 500, while on July 31 over 2,900 employes were engaged at the Arsenal in doing various kinds of work there undertaken. No great difficulty was experienced in securing all men to whom employment could be given, with the single exception of harnessmakers, and, had the magnitude of the orders to be ultimately given been known in advance, it is probable that even these workmen could have been obtained.

Previous reports have been made as to the inadequacy of the post hospital. It is an old frame structure, erected during the Civil War. The inspector-general has reported that this building is "utterly unfit for hospital purposes, and not worth repairing." Estimates have been repeatedly submitted, and are again included this year. It is really a cruelty to place a sick man in this structure.

The supervision of many manufactures at the Arsenal requires more assistant officers. The magnitude of the operations of the Arsenal, with its 2,900 employes, its night and day shifts, purchases of material for artillery, cavalry and infantry soldiers, and the inspection and examination of equipments received from many contractors, has involved since April 1, 1898 an expenditure of over \$2,600,000. (This was up to the middle of August.) Additional quarters are required for assistants, and steps should be taken to provide at least two sets of officers' quarters.

A large number of Springfield arms and other ordnance stores have been repaired at the Arsenal.

Perhaps the most interesting feature of the report of the Chief of Ordnance, certainly so to the readers of "ROCK ISLAND ARSENAL : IN PEACE AND IN WAR," is found in his discussion of the Springfield Armory. He says :

The experience of the department during the late war with Spain has emphasized the necessity, frequently pointed out in my reports, of equipping another armory for the manufacture of small arms. The utmost capacity that could be provided at the Springfield Armory would be about two hundred completed arms for each eight hours' work, or about five hundred per day, since only two shifts of ten hours each can be worked with due regard for economy and perfection of work.

A large reserve of magazine rifles should be provided as soon as possible. To this end the armory buildings at Rock Island Arsenal should be utilized. Their equipment with the necessary machinery, which has already been begun, should be pushed to completion and the manufacture of magazine arms commenced.

The capacity of these buildings is sufficient for increasing the daily output to 2,000 magazine arms per day.

COMMANDANTS AT THE ARSENAL.

'Tis an office of great worth,
And you an officer fit for the place.—*Shakespeare.*

NO Government post in all the United States has been more favored from the beginning in the high character and acknowledged fitness of the officers designated to command it than Rock Island Arsenal. The War Department always has regard for the special qualifications of its officers in particular lines of duty.

MAJ. C. P. KINGSBURY.

July 27, 1863, Maj. C. P. Kingsbury, Ordnance Department, was assigned to the command of the Arsenal. Under his direction the storehouse at the western end of the Island, the first building of the Arsenal, was constructed. This building is nearly on the site of old Fort Armstrong, and the window frames of the basement are made of oak obtained from the fort. During Major Kingsbury's command, which lasted until June 30, 1865, the military prison was in use. This proved an annoyance, and the commandant had others to contend with of a more or less serious nature—the railroad right of way, the contests of land claimants not the least among them.



GEN. THOMAS J. RODMAN.

Commandant Rock Island Arsenal,
August, 1865, to June, 1871.

GEN. THOMAS J. RODMAN.

General Rodman succeeded Major Kingsbury, assuming his duties August 3, 1865, and his command continued until his death, June 7, 1871. Of the significance of this appointment General Flagler says :

No better evidence could be desired that the Ordnance Department intended to construct a great Armory and Arsenal at Rock Island than the fact that an officer of such high standing as General Rodman, and one whose services were so valuable to the department in every way, was selected for the command.

General Rodman was a distinguished soldier, a conscientious officer, who rendered to his country invaluable services in war and in peace. He was graduated from the Military Academy in 1841; served at Allegheny Arsenal till 1848. He was in command of the Arsenal in 1854, and of the one at Baton Rouge, Louisiana, in



GEN. D. W. FLAGLER, CHIEF OF ORDNANCE.
Commandant Rock Island Arsenal, 1871 to 1886.

1855-56. Except while in service in the Mexican War, he devoted much time to experiments in casting heavy guns on hollow cores. His inventions were numerous. The first 15-inch Rodman gun was completed in May, 1860, and attracted close attention in the military world. During the Civil War General Rodman was in command of the Watertown Arsenal. Many 13 and 15 inch Rodman guns were made for the monitors and forts along the coast. He originated the idea of making heavy guns without preponderance at the breech, on which plan all the heavy cast-iron cannon were subsequently constructed in the United

States. In March, 1865, he was brevetted lieutenant-colonel, colonel and brigadier-general for his services in the Ordnance Department.

It was February 7, 1866, that General Rodman submitted plans to the Chief of Ordnance comprehending ten great shops, in two rows of five shops each, those on the north being designated for the Armory and those on the south for the Arsenal. These plans were approved, and General Rodman began the execution of his mighty work. He lived to see his plans for the Arsenal materialize in the construction of two of the shops and the quarters for the commanding officer. At the request of the Chief of Ordnance, he was buried upon the Island, in a slightly spot set apart for that purpose, near the National Cemetery. There a modest shaft stands.

GEN. DANIEL W. FLAGLER.

General Rodman's successor was another eminent soldier, one who had made a brilliant record in the Civil War, though much younger and of lower comparative rank. On recommendation of the Chief of Ordnance, Capt. D. W. Flagler, then on duty at Rock Island Arsenal, was assigned to the command of the post, June 15, 1871. He served until May, 1886, when he was sent to Frankford Arsenal, Philadelphia; a period of nearly fifteen years, or about half the constructive stage of the Arsenal. Captain Flagler fully comprehended the far-reaching scope of the work before him, and gave it the best years of his life. It became a part of him, and he was deeply attached to it. The plans, as he received them, were imperfect in the details compared with the elaborate plant that has grown from them, with the many changes and improvements that have been made. Inventions of practical value, resulting in conceded economy, were applied by him. The progress of construction was supplemented by the manufacture of stores for the army. The commandant proved that ordnance stores can be manufactured here and distributed to the army cheaper than they can be fabricated in the East and brought West. During this command eight shops were entirely built—the commanding officer's quarters, buildings for officers' quarters, the soldiers' barracks, post buildings, a complete system of sewers, the Moline bridge, roads, streets and avenues, the water-power wall, grading and ornamentation of grounds. During the fifteen years the Arsenal was largely shaped and adapted to its purpose as we see it at this time.

General Flagler was born in New York, March 24, 1835. His father's grandfather, Simon Flagler, came from Holland in 1735, and settled near Poughkeepsie, New York, where his grandfather, John Flagler, was born. The general's father, Sylvester Flagler, was born near Albany, and settled on the Holland purchase in western New York. He was graduated from West Point, June 24, 1861, No. 5 in his class. His rank was second lieutenant, captain in 1863, major in 1874, lieutenant-colonel in 1881, colonel, and in 1891 brigadier-general and chief of ordnance. His retiring year is 1899. He was promoted several times for gallant service in



MAJ. STANHOPE E. BLUNT.
Present Commandant Rock Island Arsenal.



CAPT. O. B. MITCHAM.

battle, and likewise honorably mentioned. His range of service has been wide, and he participated in several battles and skirmishes of the Civil War. He was chief of ordnance, Army of the Potomac, in 1862 and 1863; engaged in the battles of Fredericksburg, Chancellorsville and Gettysburg. He has held commands at Augusta Arsenal, at Frankford and Watertown, aside from his long term at Rock Island. His wide experience in the Ordnance Department, his anticipation of events, his scientific acquaintance with modern arms and the distinguishing quality of always being ready have been of inestimable value.

COL. THOMAS G. BAYLOR.

This officer, who had more than won his rank, whose gallant conduct is history, who had served at Watervliet, Fort Monroe, and on important boards, followed Colonel Flagler, June 2, 1886, and continued in command until December 1, 1888, when he was assigned to Frankford Arsenal, where he died, September 19, 1890. Colonel Baylor was born in Virginia, May 4, 1837, and graduated from the Military Academy, July, 1857.

COL. JAMES W. WHITTEMORE.

The next commandant at Rock Island Arsenal was Colonel Whittemore, assigned in November, 1889, and continued until March 14, 1891, when he was relieved and granted leave of absence for one year, at the expiration of which he was sent to the United States powder depot, Dover, New Jersey. He served there until March, 1897, when he was assigned to Frankford Arsenal. Colonel Whittemore retires in 1900. He graduated from West Point in 1860, and his meritorious services have been deservedly recognized. His command at Rock Island Arsenal, like that of his successor, was comparatively brief.

COL. A. R. BUFFINGTON.

Colonel Buffington took command February 26, 1892, and retained it until March 22, 1897, when he was assigned to the United States powder depot, where he is now serving. He is a Virginian, born in 1837. His



CAPT. W. S. PEIRCE.

retiring year is 1901. He served actively during the Civil War, was commandant at Watervliet, Indianapolis, Allegheny, Baton Rouge, Watertown, Detroit and other Arsenals. He was an inventor, and one who refused to accept private gain when he could be of service to his country. Colonel Buffington's name is intimately connected with the barbette disappearing gun carriage, so formidable for use in the seacoast defenses of the country. His command at Rock Island, though not long, was marked by new and important constructive work.

MAJ. STANHOPE E. BLUNT.

The three distinctive stages of Rock Island Arsenal are those dealing with the plans, the construction and the operation, yet a clear separation is not possible, the one is so linked into the other. But with the first period General Rodman was eminently connected; with the second and the beginning of the third, General Flagler, and with the third, during the first war the Arsenal was called upon for extraordinary service, Major Blunt. The present commandant was selected to operate the plant on an increasing scale of magnitude when hostilities were not imminent, but there is positive reason to believe that he met the emergency demands in a way to more than satisfy the War Department.

Major Blunt is given more than ordinary prominence, for an officer of his rank, in the official publication known as "Records of Living Officers of the United States Army." He was born at the Boston Navy Yard, September 29, 1850, of distinguished parentage on both his father's and mother's side. He

was graduated from the Oswego High School in 1868, and from West Point, June 14, 1872, standing No. 3 in his class. He was assigned to the 13th Infantry, at Fort Douglas, Utah, and served in northwestern Wyoming and the Yellowstone Park until March, 1874. He was promoted and placed in command at Fort Steele, Wyoming; of Medicine Bow; and performed engineering duty in Colorado and New Mexico in one of Lieutenant Wheeler's exploring and surveying parties. He was transferred to the Ordnance Department November 1, 1874. He was stationed at Frankford Arsenal until August, 1876; at the Military Academy to August, 1880, acting as instructor in mathematics, ordnance and gunnery. He was promoted to captain August 24, 1880, the first of his class to reach that grade. He served as chief ordnance officer and inspector of rifle practice at Fort Snelling and at army headquarters at Washington to July, 1888, as inspector of rifle practice and as aid-de-camp to General Sheridan, with rank of lieutenant-colonel, and subsequently with



LIEUT. O. C. HORNEY.



THE COMMANDANT'S OFFICE.

rank of colonel. During this period he was in charge of different army divisions and department rifle competitions, winning prizes and medals in several matches. He has been complimented in orders by Generals Sheridan, Terry and Schofield for services in connection with rifle practice, the last named saying of Captain Blunt : "His services in connection with the development of an effective system of rifle practice in the army have been of the highest importance, and his name will long be honorably connected with this great advance in the military service of the country." He was assistant at Springfield Armory from 1889 to 1894 ; at Watervliet Arsenal from September, 1894, to March, 1897. In the meanwhile he served on several important boards of officers.

His "Rifle and Carbine Firing," published in 1885, and "Firing Regulations for Small Arms," in 1889, both prepared by order of the Secretary of War, are the authorized guides for instruction in the army and in the national guard of the different States. Among his other writings are the article "Target Practice," 1886, in *Farrow's Military Encyclopedia* ; "Modern Military Rifle," 1893, read before the International Congress of Engineers at Chicago ; the article on "Small Arms," 1895, in *Johnson's Cyclopaedia*.

March 25, 1897, Captain Blunt was assigned to the command of Rock Island Arsenal. His promotion to the rank of major was made July 7, 1898.

TEMPORARY COMMANDANTS.

Between the relief of one commanding officer and the assumption of command by his authorized successor, Rock Island Arsenal has been commanded by the following officers by virtue of their rank, according to the customs and rules of the service :

Maj. John R. McGinness, from November 30, 1888, to November 17, 1889.

Capt. Marcus W. Lyon, from March 14, 1891, to February 26, 1892.

ARSENAL OFFICERS.

Capt. Orin B. Mitcham, assistant at the Arsenal, is an officer of varied experience. He is a Virginian by birth ; was graduated from West Point, June 17, 1874, and promoted to be a second lieutenant in the 4th Regiment of Artillery.

He served on garrison duty, Fort Canby, Washington, nearly two years preceding March 21, 1876. He was transferred to duty at the Artillery school at Fort Monroe, thence to garrison in South Carolina, at Washington Arsenal, and again at Fort Monroe. He was assistant instructor and professor of modern languages at the Military Academy ; transferred to the Ordnance

Department and promoted to be first lieutenant June 23, 1879. He was assistant at Rock Island Arsenal two years, from 1881 to November, 1883. For the following three years he served in Wyoming. He was again at West Point as assistant instructor in gunnery for nearly four years, until August 28, 1890. About that time he was promoted to be captain. He was



CORNELIUS J. BROWN.
Chief Clerk Commandant's Office since 1872.



ASSISTANT OFFICERS' ROOMS.



CIVIL ENGINEER W. OTTO GRONEN'S OFFICE.

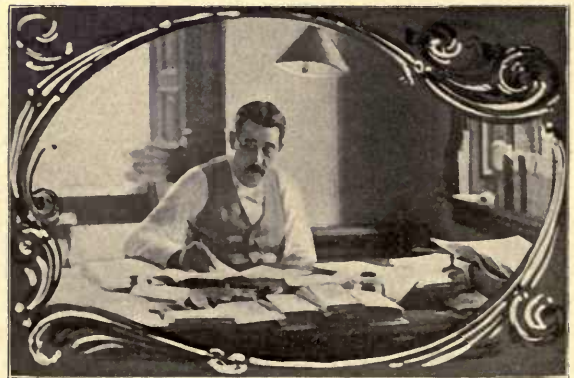
assistant inspector of steel at the Midvale Works, Pennsylvania; assistant at the Watervliet Arsenal, and came from there to Rock Island four years ago last August.

Capt. William S. Peirce is a native of Vermont, thirty-four years of age. He was graduated from West Point in June, 1888, and commissioned second lieutenant, 2d Artillery, serving with that regiment three and a half years at Fort

Barrancas, Florida; Fort Warren, Boston Harbor, and Fort Riley, Kansas. January 15, 1892, he was appointed first lieutenant, Ordnance Department, and served at the gun factory, Watervliet Arsenal, for three years. His next station was the Proving Ground at Sandy Hook, New Jersey, and the period was two years, and his duties were connected with the testing of heavy guns, powders and high explosives. He was recorder of the board for testing rifled cannon. April 24, 1897, Lieutenant Peirce was ordered to Rock Island Arsenal, where he was assigned to the charge of the machine, equipment and blacksmith shops and foundry. July 7, 1898, he was promoted captain.

Lieut. Odus C. Horney was born at Lexington, Illinois, September 18, 1866. He was appointed to West Point from Ohio, and graduated from that academy June 12, 1891, receiving his appointment as second lieutenant of the 7th Infantry. He served with the regiment at Fort Logan, Colorado, from 1891 to 1893, being in command of Company E for nearly a year. He was appointed first lieutenant in the Ordnance Department May 2, 1894, and since June 19 of that year he has served at Rock Island Arsenal. He has had charge of the carpenter and harness shops and of the water-power improvements. He is now in command of a detachment of ordnance and hospital corps.

Lieut. Clarence C. Williams, a Georgian by birth, graduated from West Point with the class of '94. He was transferred to the Ordnance Department in 1895. Lieutenant Williams, who has been on duty in the Philippines, left there for Rock Island Arsenal on October 26.



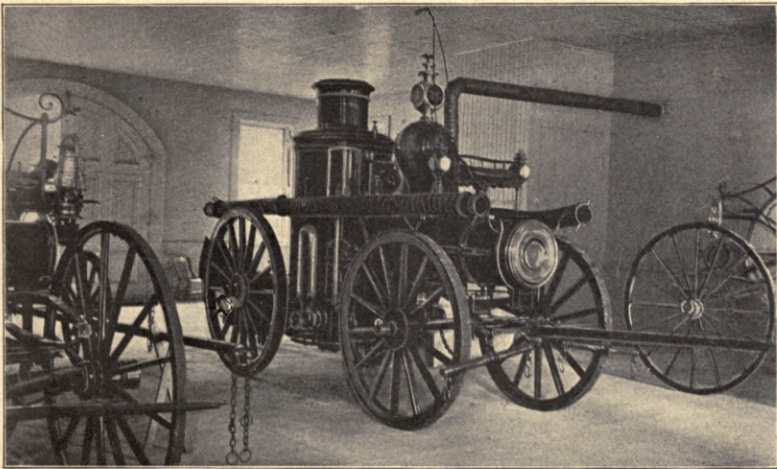
GEORGE DURNIN,
Paymaster's clerk, struggling with three
thousand names just before pay day.

THE CIVIL STAFF.

Although the Arsenal is in charge of the Ordnance Department, and the commandant and associate officers are army men, the thousands of employes in the offices and shops are from civil life. Commandants, as has been shown, come and go, but many of these faithful civilians remain. Among them are :

W. Otto Gronen, who, in charge of the drawing and engineering office, has served under every commandant, beginning early in 1870.

Cornelius J. Brown, who has been chief clerk since 1872.



READY FOR FIRE.



CUBAN MACHETES.

(These weapons, which very evidently have seen service, were found in a shipment from the battlefields about Santiago received at Rock Island Arsenal. On the unsheathed machete to the left are cut the words "Troop C," on the second "J. C. Goodwin, Tempe, A. T. [Arizona Territory], U. S. A.," and on the third the initials "W. F. H.")

REASONS FOR CONTINUED SUPPORT.

Reasons strong and forcible.—*Shakespeare.*

AT some length the arguments for a more liberal support of Rock Island Arsenal by Congress have been given in this book. They may be recapitulated here, not in the order of their force, perhaps, for that is not material, but essentially:

1. The location was selected after exhaustive examinations by army boards, and that a mistake was made has never been charged. All the original reasons for the site have been strengthened.

2. The location is not only central, but, on account of this, stores made here can be sent more quickly to their destination, whether that be north, south, east or west. This economy of time might easily be a very serious matter. The fact of the short hauling of freight in delivering the output is also economy of money.

3. The surrounding and contributing country for five hundred miles is not equaled in the world for fertility—for the production of breadstuffs. Hence, living nowhere in the United States can be cheaper.

4. The transportation facilities not only include, directly and indirectly, the great railroads, but the Mississippi River washes the shores of Rock Island, and the western terminus of the Illinois and Mississippi Canal is only three miles to the southwest.



GEN. NELSON A. MILES.

(The Commanding General of the United States Army has visited Rock Island Arsenal since his return from Cuba and Porto Rico. He expressed surprise and gratification at the extent and character of the work done there during the war with Spain.)



HUNDREDS OF SADDLES.

(Equipment used by Roosevelt's Rough Riders. Shipped to Rock Island Arsenal from Santiago, Cuba, for repairs and to be reissued.)

5. Coal, iron, lead, copper and other minerals used in the fabrication of stores and munitions are within easy reach ; likewise lumber and leather.

6. The largest water power in the country, Niagara alone excepted, is available, and a part of it is actually utilized.

7. The military reservation on which the Arsenal is located is owned by the Government, and it is the largest military post in the United States.

8. The Arsenal shops, now practically finished at a cost of nearly \$7,000,000, are the most expensive, the most capacious and the best adapted to the intended uses of any in the country.

9. In the crisis of 1898 the Arsenal was conspicuously first in the variety and magnitude of its output.

10. In time of peace as well as in war Rock Island Arsenal is the largest depot in the country for the issue of supplies to the army.

11. The security from attack by a foreign enemy is as perfect as the Nation affords. The navy of no foe can reach it, nor is it possible for an army of invasion to approach it.

12. The records at the War Department show that the health of this post has been exceptional from the first. The excellent natural sanitary conditions have been supplemented by approved drainage systems. The climate is temperate.

13. The Arsenal is in the center of an industrial community upon which calls may be made at any time.

14. While nearly \$9,000,000 has been expended in constructing the great shops, the water power and the bridges, all controlled by the Government, only \$309,627 has been appropriated for machinery and shop fixtures. Because of this oversight, acres of floor space are idle, and work is done at a disadvantage.

15. A comparatively small present outlay would vastly add to the effectiveness of the Arsenal and the economy of operating it.



THE ARSENAL COAT OF ARMS.

THE ILLINOIS AND MISSISSIPPI CANAL.

It is a fact too well known to require extended discussion, that water routes generally, when they come into competition with transportation by land, are the most efficient and certain regulators of freight charges known.

There is nothing so democratic as free waterways and highways constructed and maintained by the public for the people.—*Captain W. L. Marshall's Report, Chief of Engineers, U. S. A., June 21, 1890.*

THE reasons which have been and are presented in support of the construction of the Illinois and Mississippi Canal may be thus summarized:

1. Cheap transportation to the East is even more an absolute necessity to the Upper Mississippi Valley than is such transportation to the South. In the direction of securing the latter very much has been done. But the main arteries of commerce flow from the West to the East, and from the East to the West.



L. L. WHEELER.

(Engineer in direct charge of the building of the Illinois and Mississippi Canal, under Maj. W. L. Marshall, Corps of Engineers, U. S. A.)

2. It is the particular misfortune of the Upper Mississippi Valley that it has no share in the vast benefits which accrue to the lake region in the matter of competition and cheap transportation, secured through the use of a water route which has its westward terminus at Chicago and its eastern in New York Harbor. The potency of the competition in freight charges maintained by the water route of the lakes, the Erie Canal and Hudson River stands confessed.

3. The great gain to the entire region west of Chicago to result from the extension to the water-route competition and cheapness to which attention has been directed, may be approximately estimated on comparison of railroad freight charges on lines of commerce with which water routes of transportation come into competition and those on which no such competition is known.

4. The vast volume attained by the annual cereal product of the States directly tributary to the Upper Mississippi presents yet additional support to the plea for an all-water transportation route to the East.

5. The fact that the producers of the Northwest do and must increasingly look to the exportation of their cereals, provisions, dairy products and cattle, as

offering the surest market and the largest profit, has also great weight in the argument urged in behalf of the Hennepin Canal.

6. Scarcely less important to the Upper Mississippi Valley region than the export of its products, rendered possible and profitable only when cheap transportation is secured, is the ready and inexpensive delivery of its imports. The aggregate of these increases year by year, while it has already reached proportion and value which are literally immense.

7. It is essential to a correct understanding of the demand for the completion of the Illinois and Mississippi Canal that the fact be fully comprehended that Chicago is the natural and the inevitable center of the commerce of the entire Northwest.

8. During the past few years there has resulted a radical change in the methods of transporting cereals. Grain is no longer sacked for shipment. Instead, it is carried in bulk from the various points in Minnesota, Wisconsin and Iowa on the Upper Mississippi; the grain is

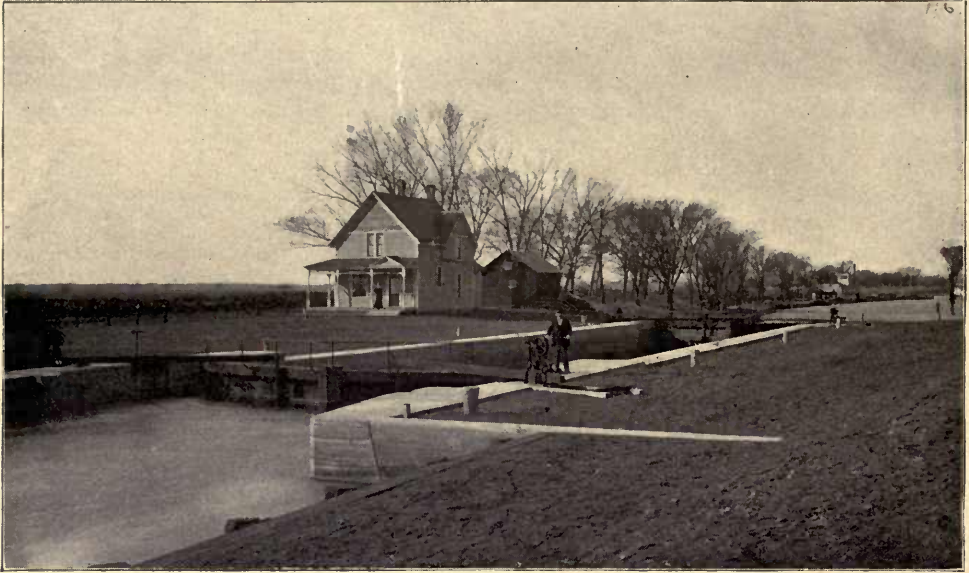


A SECTION OF THE CANAL READY FOR WATER.

loaded into barges in bulk, and in them floated down to railroad elevators, there to be transferred to railroad cars and carried to Chicago, or moved farther down the river to St. Louis, there to be transferred to larger barges, and in these carried to New Orleans. What is needed, then, is that grain-laden barges shall be enabled to float from any Mississippi River point direct to Chicago just as originally placed in cargo.

9. It is not pretended by any intelligent advocate of the Illinois and Mississippi Canal that it will or can compete with the railroads in the transportation of light freights or perishable goods.

10. So rapidly are increasing the yearly products of the Northwest that, as is well known to shippers and business men generally, it has already become a serious question, during the periods in which grain and stock are being pressed forward to market, whether the limits of capacity in railroad freight transportation have not been nearly reached.



ILLINOIS AND MISSISSIPPI CANAL.
(Lock 36, second above the Mississippi River.)

11. The railroads cannot possibly carry bulky and heavy freights as cheaply as these can be transported on canal, river and lake. This is as true as to the railroads which have been made the recipients of generous aid from the General Government, through grants of public lands—which in themselves would today constitute a princely domain—as it is of roads built wholly through the investment of private and corporate money.—*From an Argument by the late Edward Russell, appearing in the Report of the Chief of Engineers, U. S. A., 1883.*

The project under which the Illinois and Mississippi Canal is being built was reported upon in 1890, and the total estimated cost as given in that report is \$6,925,960. The report of 1890 was based upon incomplete surveys, and more detailed surveys have made several important changes in the project which may materially change the cost of construction.

The primary object of this work is to provide a navigable waterway from the Upper Mississippi River to the Upper Illinois River, and in conjunction with the Illinois River and the Illinois and Michigan Canal, to furnish a short waterway from the Upper Mississippi River to Lake Michigan.

The present distance from Rock Island Arsenal to Chicago by water is 610 miles. When this canal is completed the distance will be reduced to 190 miles, a saving of 420 miles from all points on the Mississippi River above the Arsenal.

The summit level of the canal is 196 feet above the Illinois River where the canal enters it, and 96 feet above the Mississippi River at the mouth of Rock River. These differences of level are overcome by twenty-one locks on the eastern slope and by ten locks on the western slope. In addition, one guard lock is required on

the western section and one on the feeder, making a total of thirty-three locks. The locks have chambers 35 feet wide and 170 feet long, and provide a depth of seven feet over the miter sills.

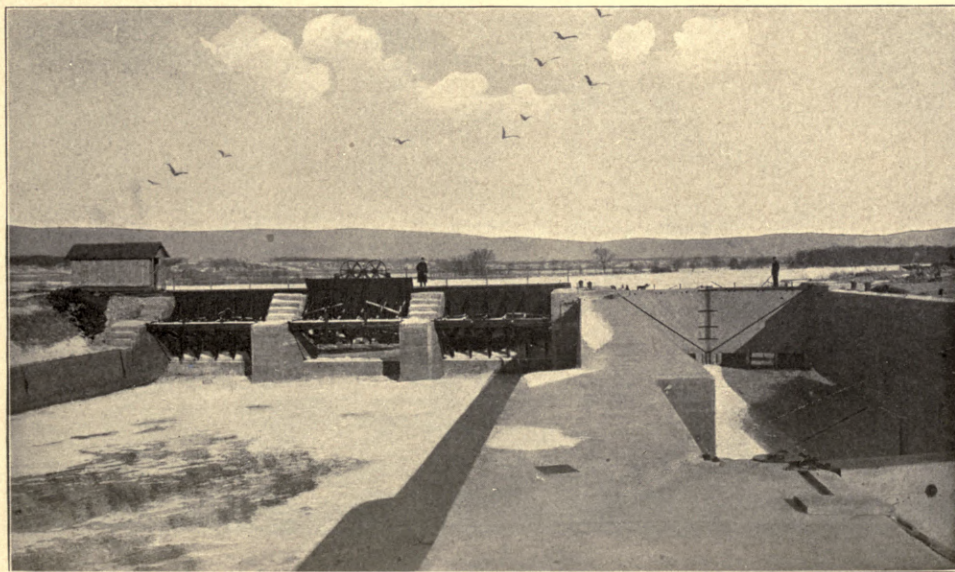
The amounts appropriated by Congress for this work are as follows:

| | | |
|----------|-----------|--------------------|
| In 1890, | | \$ 500,000 |
| In 1892, | | 500,000 |
| In 1894, | | 190,000 |
| In 1896, | | 45,000 |
| In 1897, | | 875,000 |
| In 1898, | | 1,427,740 |
| Total, | | <u>\$3,537,740</u> |

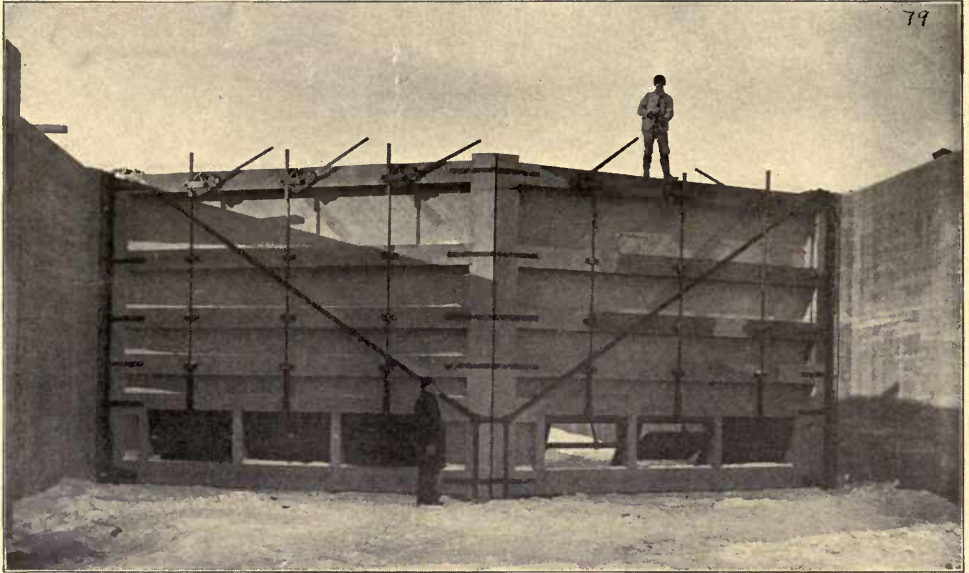
The estimated amount required to complete the canal is \$3,388,220.

With the money appropriated five miles of canal at the western or Mississippi River end were built, and have been in operation since April, 1895. This part of the canal enables boats to enter Rock River above the lower rapids and gives access to eight miles of river navigation which forms part of the main canal line. Several coal mines are reached from this part of Rock River, and the coal from them now finds a market along the Mississippi River.

On the eastern section of the canal route the earthwork for sixteen miles is finished and work is in progress over eight additional miles. The drainage structures for twenty-four miles are built and the masonry for twenty-one locks practically completed.



SHOWING SLUICE GATES AND LOCK 35.



CANAL GATES FROM FLOOR OF LOCK.



A STEAMER WITH TOW—IN THE CANAL.

On the feeder the entire right of way has been secured and is now being fenced. Contracts for eight miles of earthwork have been let, and it is expected that the whole feeder will be under contract by June 30, 1899.

On the western section, in addition to the five miles already in use, the right of way for sixteen miles has been secured and all necessary lands described.

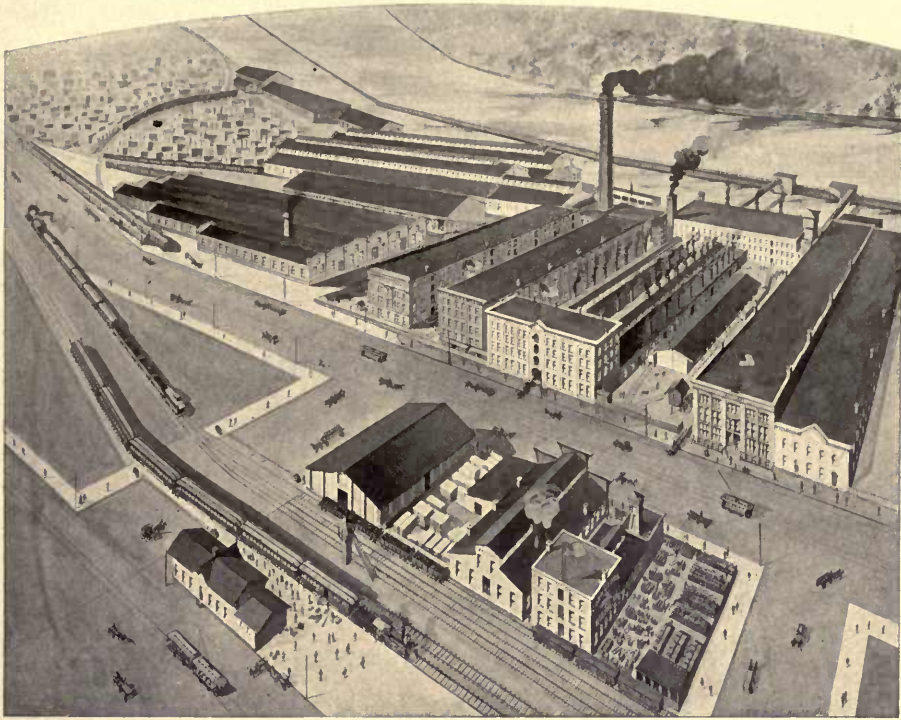
The most detailed description of the Illinois and Mississippi Canal, however, will not give the reader so distinct an impression as the excellent and accurate map to be found elsewhere in this book. This map was reproduced from a much larger one, specially made under the direction of L. L. Wheeler, Assistant Engineer, in charge of field and construction work from the beginning. This map also shows correctly the location of Rock Island Arsenal, the surrounding cities, the railroad lines to the eastward, Rock River from its terminus to Dixon, Illinois—in fact, all the territory immediately tributary to the canal. Every mile of the waterway can be easily located and all distances can be computed.



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Designer of the Davenport City Hall,
shown on this page, and
Moline High School, on page xxix.



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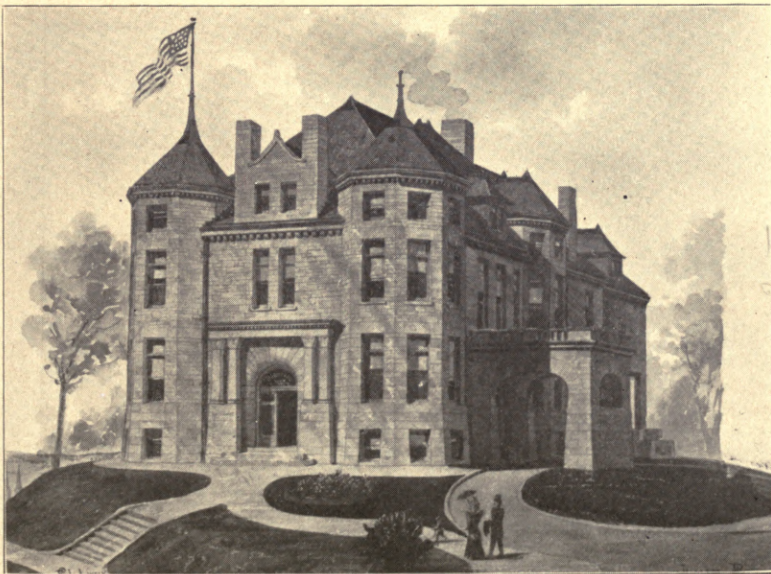
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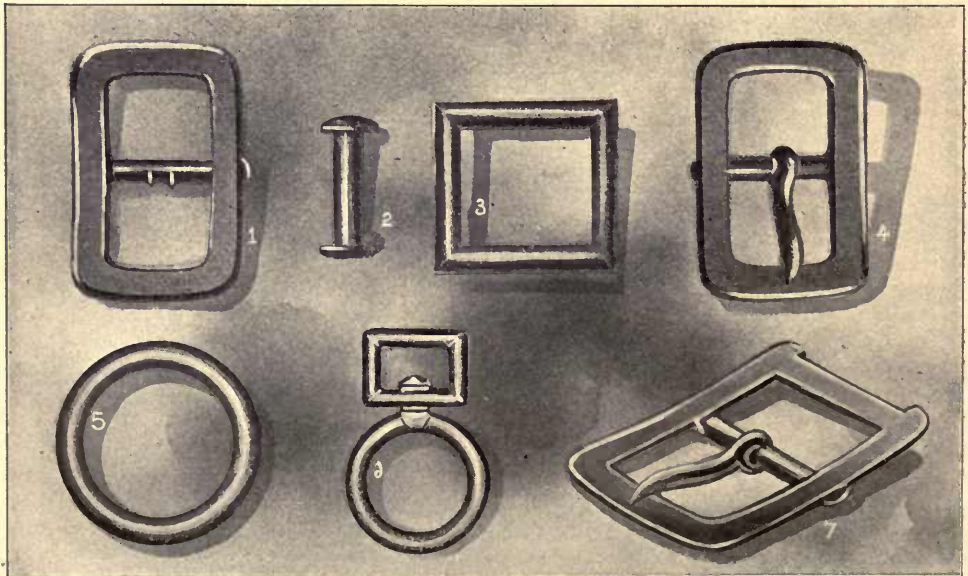
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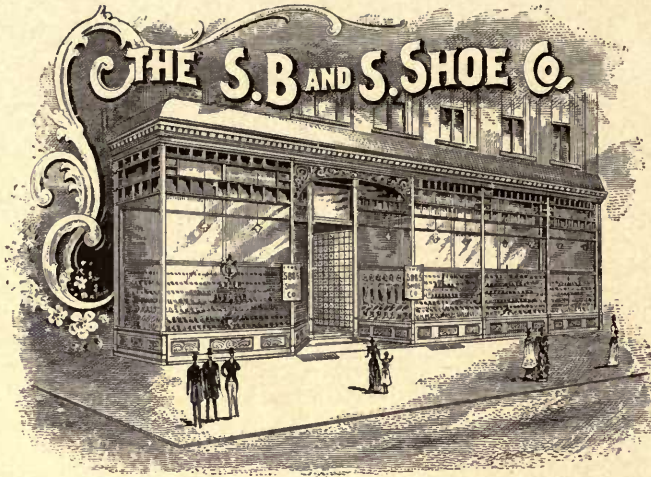


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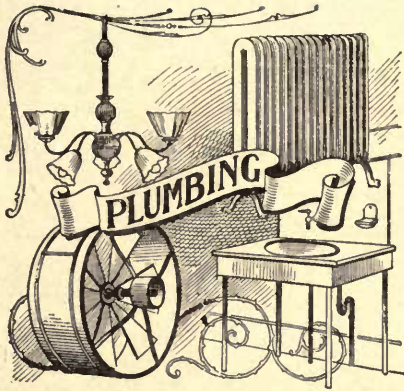
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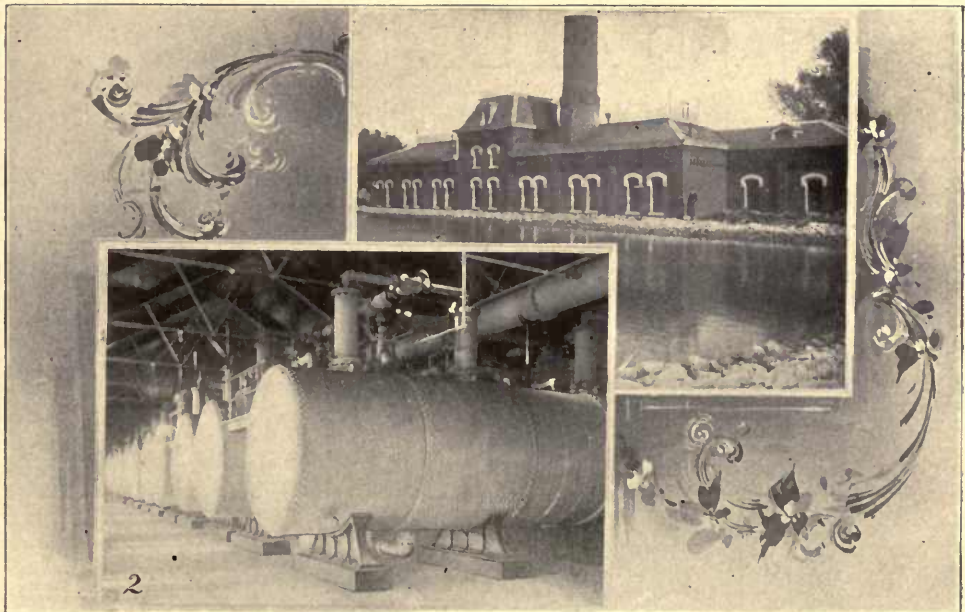
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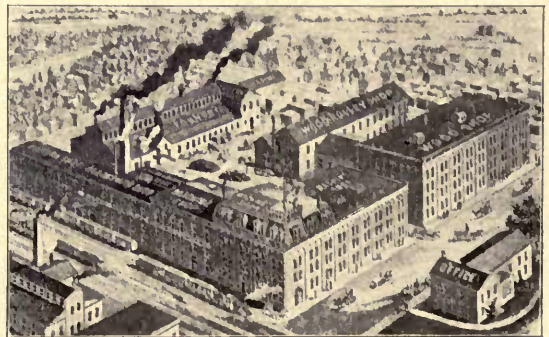
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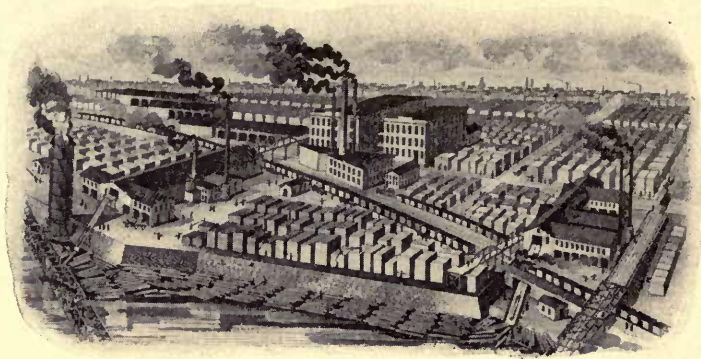
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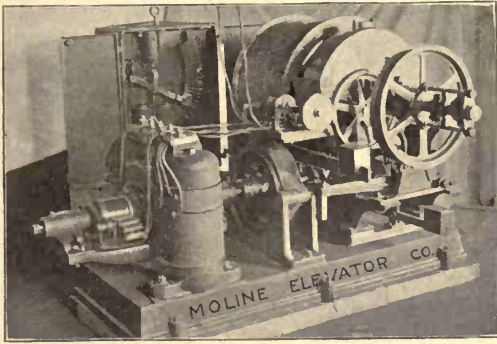
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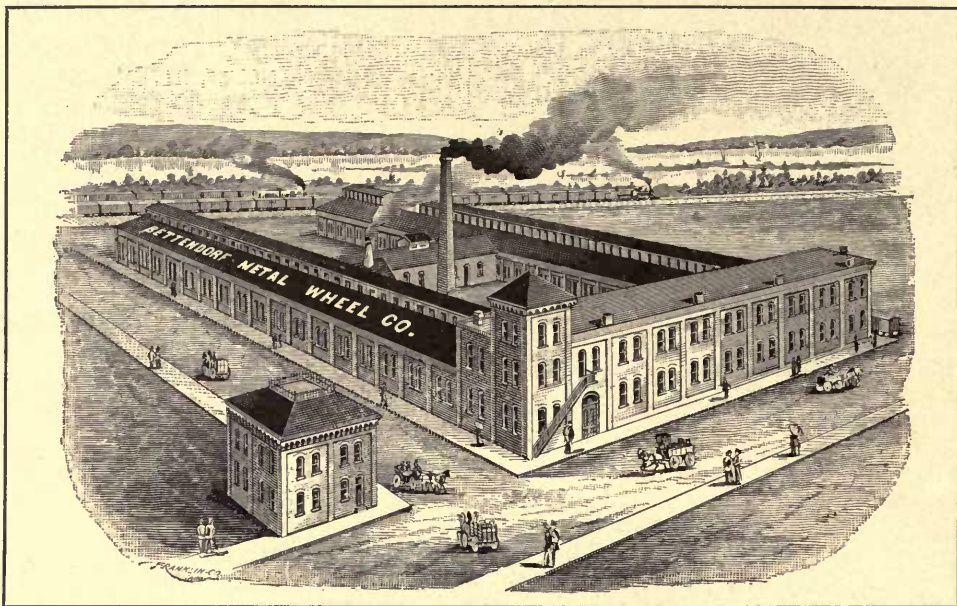
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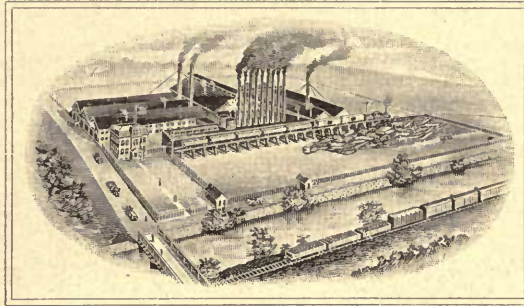
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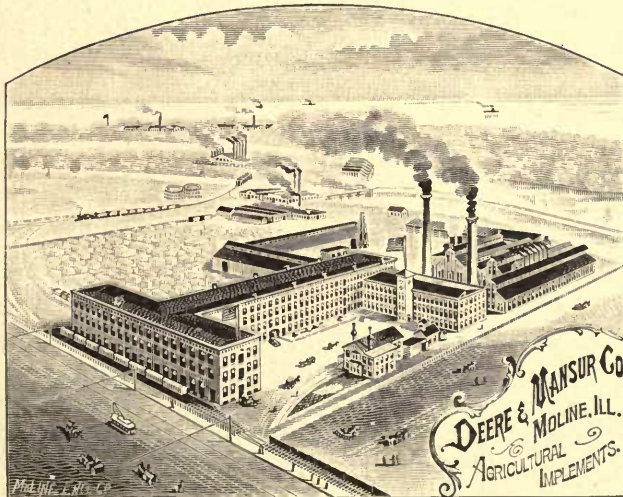
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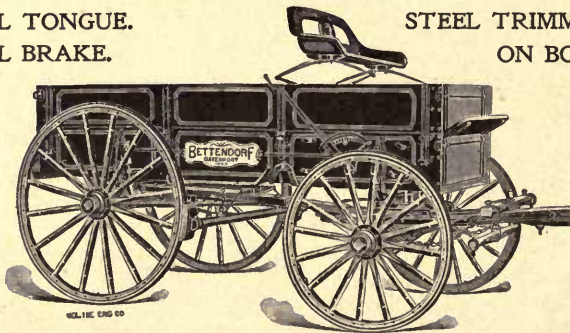
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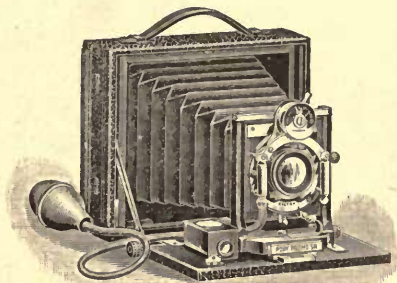
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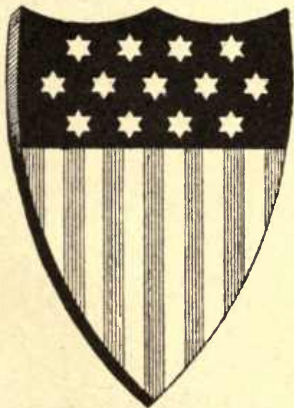
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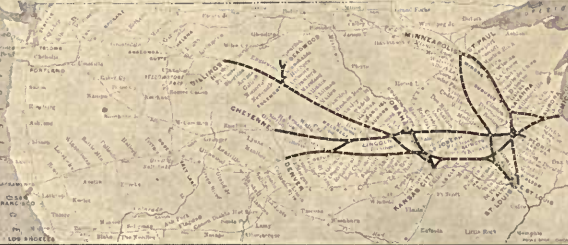
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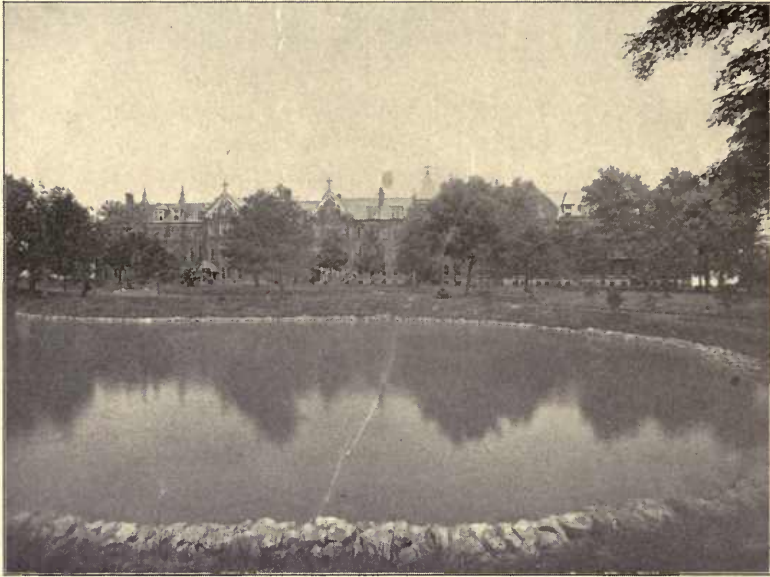
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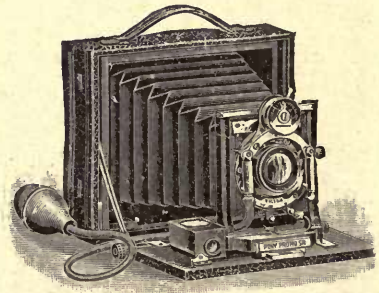
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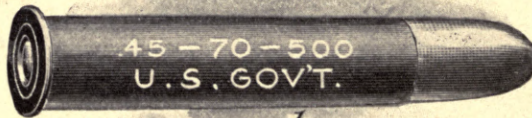
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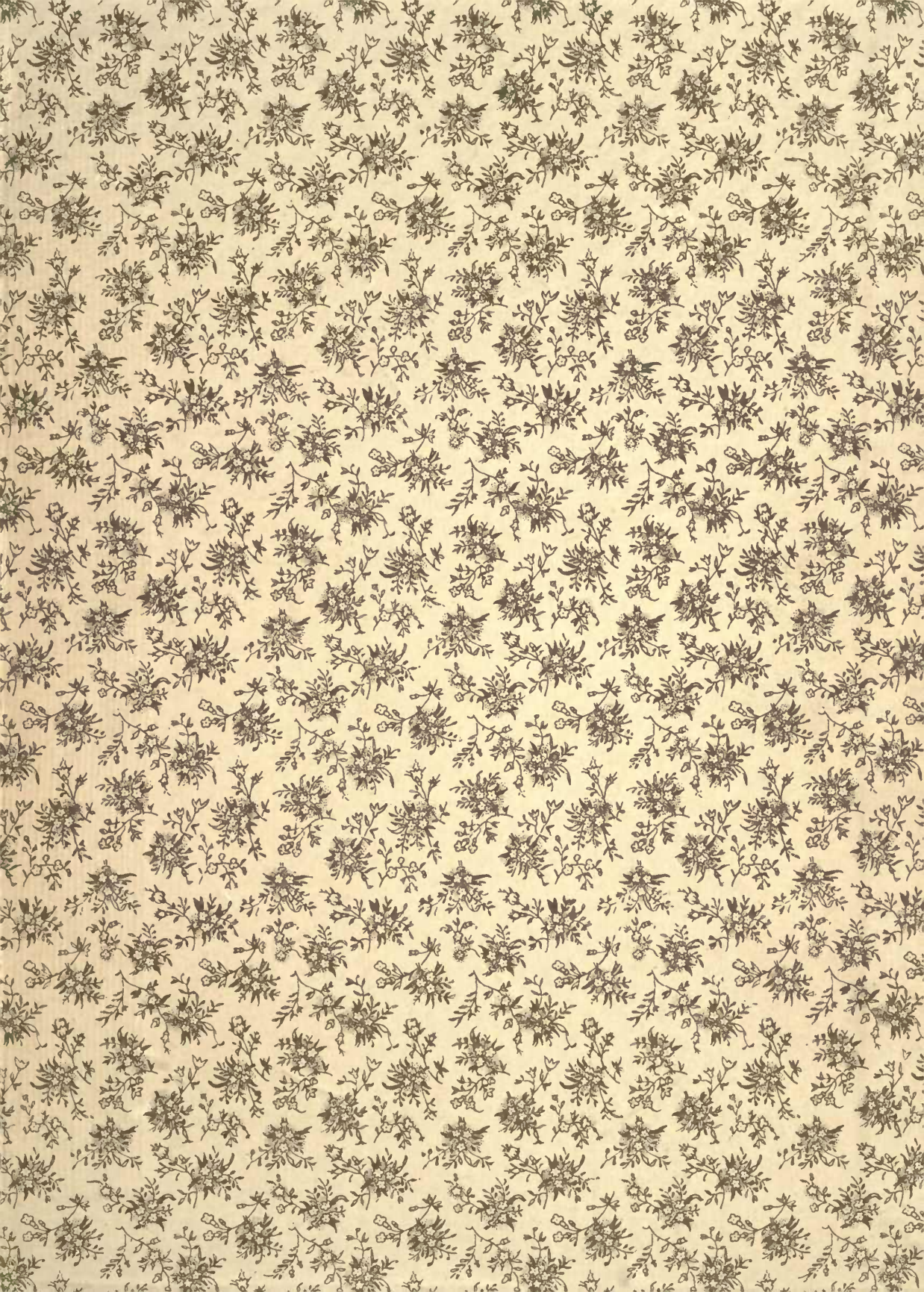
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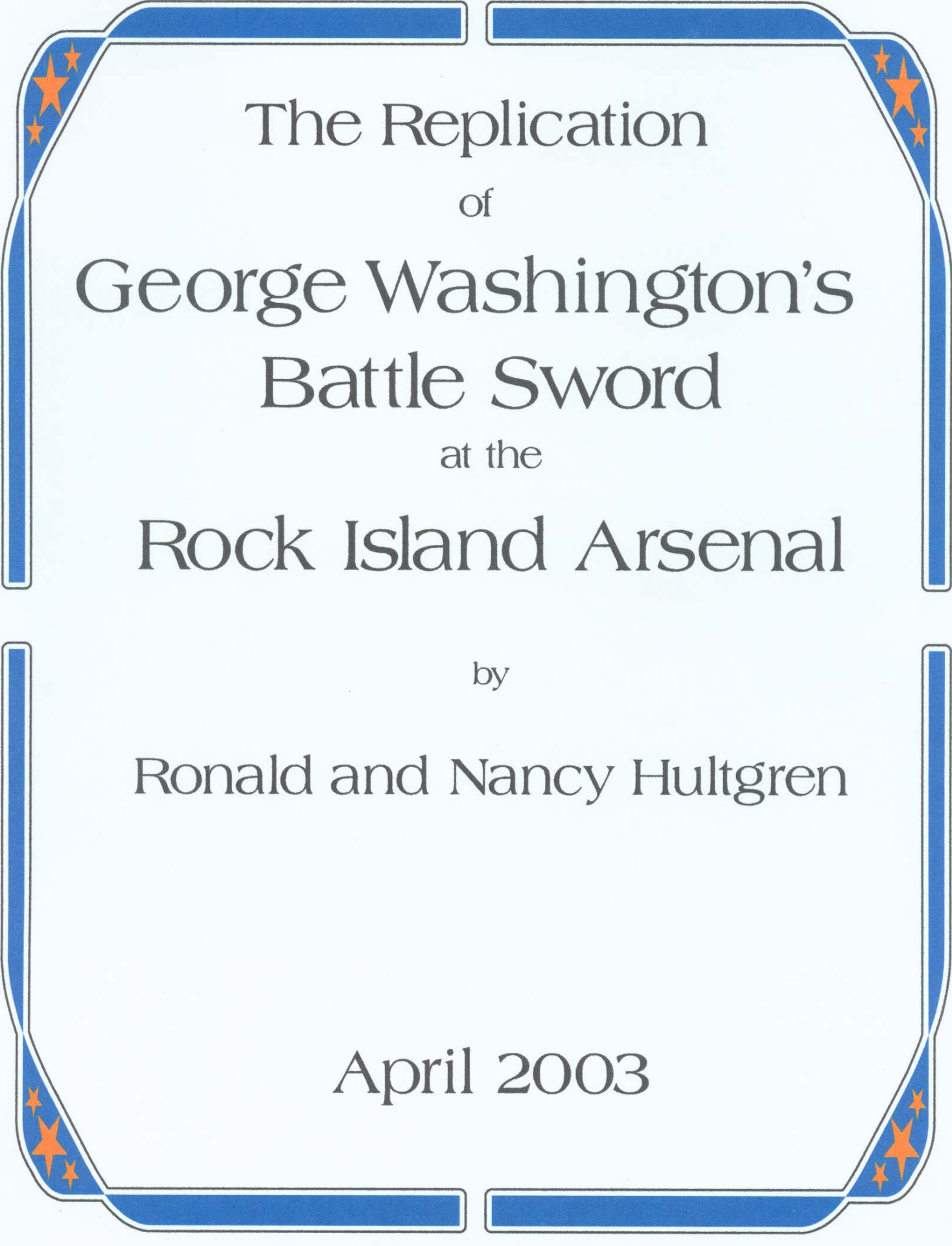
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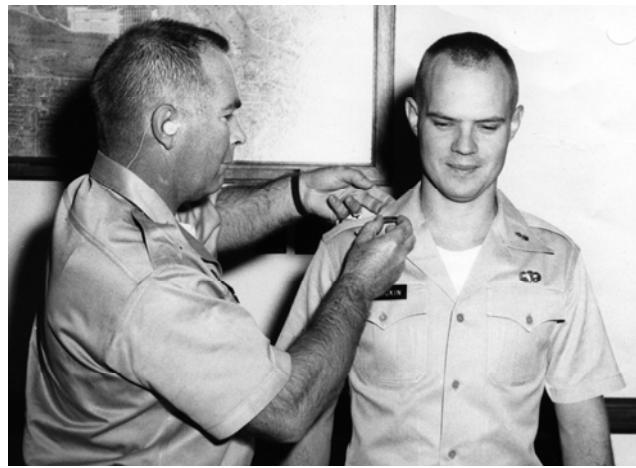
April 2003

INTRODUCTION

The telling of this incident has its origin in spring 1962 when two new army lieutenants, Robert McGuckin and Ronald Hultgren, met in the Ordnance Officers Orientation Course at the Aberdeen Proving Ground in Maryland. The association was initiated by their common assignment to Rock Island, Illinois for their active duty assignments following completion of their training program in June 1962. Bob, a Philadelphia native who had graduated from Lehigh University, traded a third year of active duty to be assigned to the Rock Island Arsenal while Ron, a Milwaukee native who had just received his master's degree from the University of Illinois, received the benefit of the Army's policy to assign its new Ordnance Corps officers with advanced degrees to their research and production posts – in this case with the U.S. Army Weapons Command based within the Rock Island Arsenal.



Lt. Robert D. McGuckin - Rock Island Arsenal (1962-65)



Major Charles B. Zumwalt promotes Robert McGuckin to 1st Lt. – July 1963

The day by day association continued until February 1964 when Ron left Rock Island with his new wife and the co-author of this paper, Nancy, to take a job with the Atomic Energy Commission's Sandia Corporation operating contractor, in Albuquerque New Mexico. Bob left the Arsenal in 1965 to begin an MBA program at the Wharton School of Business in his native city. The close personal relationship was renewed in May 1996 when Ron and Nancy's son married in the Philadelphia area. At a later visit to Bob's home in Conshohocken, Pennsylvania in April 1999, Bob over a dark Guinness began relating the story of his greatest military adventure: his association with the replication of George Washington's battle sword by the craftsmen of the Rock Island Arsenal for President John F. Kennedy. As a necessary enhancement for the accuracy of this story, he wrote it in his inimitable scrawl a short time later.

The time for exposing this tale to a wider audience has now arrived after 40 years of nascence. Bob's continued urging; the accumulation of an adequate base of related material and the availability of the authors' time have all converged.

Part 1: THE REQUIREMENT

It is customary for visiting international dignitaries to present to the people of the United States through its president, a gift originating within their country. Examples of these gifts received by past Presidents are displayed in their libraries as exemplified by Presidents Johnson, Kennedy and Carter or, in the case of President Eisenhower, in the living room of his home now managed by the Park Service at the edge of the Gettysburg Battlefield. They are an eclectic collection of the best of native craftsmanship.

The American president, to complete the diplomatic show of friendship responds with a suitable gift. The selection of this gift is not a trivial exercise since in many ways, to many people it expresses the character of the United States and the chief executive who bestows the gift. Of the many options available, President John F. Kennedy selected the battle sword of America's first national leader, George Washington, to be copied and given as a token of United States friendship. The source of the concept to replicate George Washington's battle sword for the use as gifts to foreign dignitaries has no credible documentation. The authors have found no reference to this sidelight of history in any of the published documentation of the Kennedy presidency. The John Fitzgerald Kennedy Library at Columbia Point in Boston retained one of the replicas but professed no knowledge of its origin. Thomas Slattery, the primary source of historical information from the Rock Island Arsenal, was quite familiar with the replication since one is exhibited prominently in the conference room of the Arsenal Commanding Officer. He also professed by note and conversation that he was able to find no documentation concerning the Arsenal project to make them.

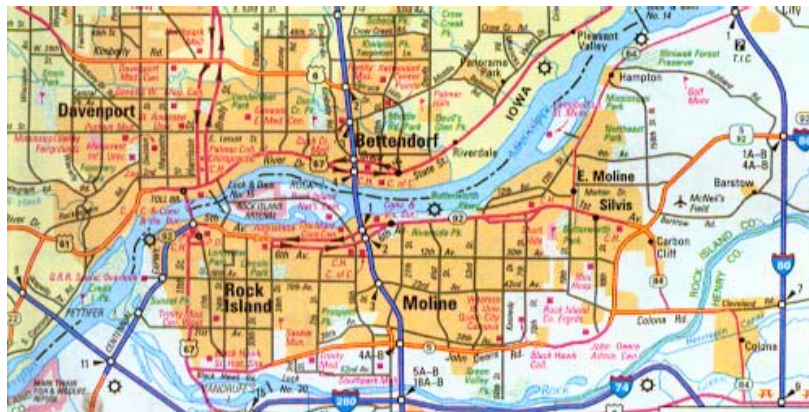
Part 2: ROCK ISLAND – A BRIEF HISTORY

The history of the Rock Island Arsenal, the island upon which it is constructed and the general area in which it resides has been well documented by Thomas J. Slattery of the Historical Office of the U.S. Army Armament, Munitions and Chemical Command. A very minimal summary has been extracted here from his publications (see Bibliography) to make this article more complete and to provide a setting for the skills that were available to craft the replicas of George Washington's battle sword.

Rock Island is a 946-acre island in the Mississippi River approximately due west of Chicago. The communities of East Moline, Moline and Rock Island lie on the Illinois (south) side of the river while Davenport and Bettendorf lie on the Iowa (north) side of the river. An unusual characteristic of the Mississippi River in this area is that it flows from the east to the west and the Rock Island's principle axis thus lies along a latitude rather than a longitude.



The Rock Island area lies almost directly west of Chicago.



The island where the Rock Island Arsenal is located lies in the center of the metropolitan Davenport, Bettendorf, Rock Island, Moline and East Moline communities. Here the Mississippi River flows from east to west. (Maps taken from 1998 Rand McNally Road Atlas)

The island was first reserved for Federal control by a June 1809 Congressional action based upon a report by Zebulon Pike who had passed through this area in 1806. The land had been taken from the Sauk Indians by a treaty negotiated by William Henry Harrison,

a future United States president, in 1804. The first permanent military presence on the island was established in 1816-1817 with the construction of Fort Armstrong. This was one of a group of forts in the upper Midwest built to provide safety for American fur traders and to keep the British and French traders out. This fort had about 600 soldiers during the construction period, about 200 shortly thereafter and by 1824, the garrison was less than 100. The fort persisted until 1836 and is represented today by a reconstruction and supplemental marker on the west end of the island.

George Davenport was the first white civilian to live on Rock Island. He served as the supply agent for the soldiers of the fort. His elegant home, built after his financial success with trading and property sales was built in 1833 and the central portion of the house has been reconstructed and is open to the public today as a historical site. Davenport figured heavily in the development of the area and his life was tragically ended during a robbery attempt of his home on Independence Day, 1845.



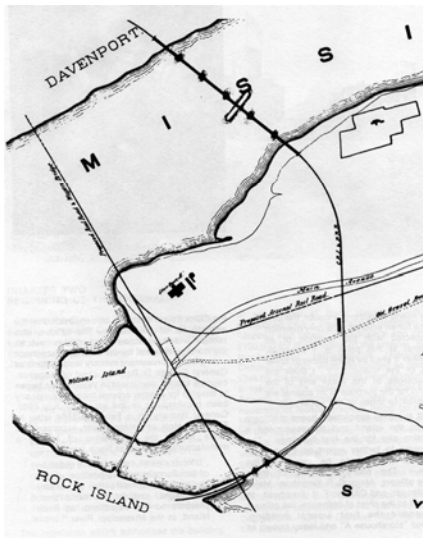
Davenport House built in 1833. (Picture taken from Reference 13 – page 46)

The U.S. Government maintained a quiet stewardship of the island after Fort Armstrong was closed in 1836 and a weapons storage depot was closed in 1845. By this time the Indians had been driven off and the treaty ending the War of 1812 had firmly settled U.S. rights in the area. Civilian squatters gradually occupied various parts of the island in the absence of the appointed government custodians who did not reside there. The most prominent activities of these individuals were associated with harnessing the waterpower of the flowing river in the narrow waterway south of the island. This power attracted John Deere to move his farm implement works from Grand Detour, Illinois (located in central north Illinois on the Rock River) to the newly established community of Moline. Ultimately this area grew into a significant center of farm equipment manufacture.

Ultimately only Davenport and David Sears, the builder of the dam and the power water wheel, ever received legal title to land on the island. This came through a special act of Congress emphasizing the political power they were able to wield. They both paid \$1.25 per acre for their land and Davenport held 158 acres while Sears held 35.45 acres in 1844.

Rock Island gained special prominence with the commitment to span the nation with rails. Early development secured the crossing of the Mississippi River for the area. George Davenport had initiated a citizen's meeting in 1845 shortly before his demise to develop the political strength to bring the railroad to the area. The citizen action and the attractiveness of the investment opportunities brought a rail line from LaSalle (the community at the end of the Illinois and (Lake) Michigan Canal) to the community of Rock Island. Thus the Mississippi River trade route was connected to Lake Michigan through Chicago.

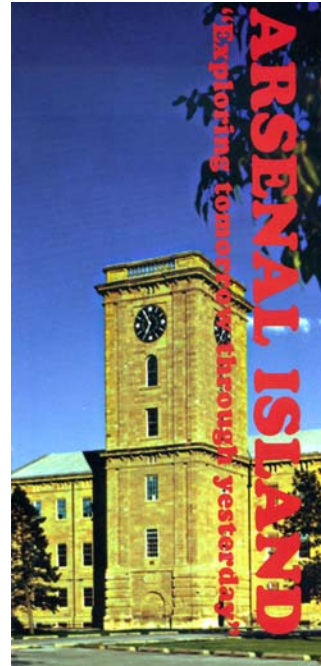
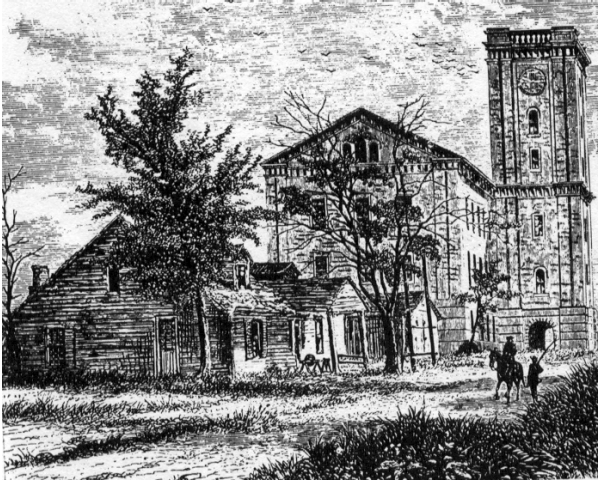
This existing rail line and the attractiveness of the Rock Island area as a crossing site (the river is relatively narrow here, the shores consist of bedrock for easier bridge support, and the island served as an intermediate stepping stone for the bridge) led to the initiation of crossing construction in 1853. The first locomotives traversed the iron truss bridge on April 22, 1856 – the first bridge to cross this river. This bridge is commemorated by a stone memorial near the site of Davenport's reconstructed home on the west end of the island. A second bridge was completed in 1872 at a site slightly west of the original site followed by a third structure at that site completed in 1896 which remains in use today for trains, automobiles and pedestrian traffic.



The west end of Rock Island showing the railroad crossings of the Mississippi River. The eastern crossing was the original location but the tracks were moved to the western crossing in 1872 and this crossing is still used for automobile and rail traffic. Fort Armstrong was located just west of the later crossing. (Map taken from reference 13 – page 18)

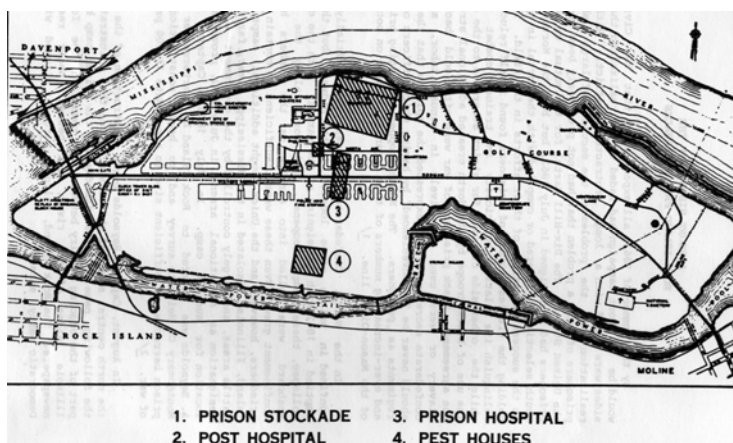
From the time of the closure of Fort Armstrong, citizen support had been constant for the Government to construct a weapons works on Rock Island. Its economic impact for the surrounding communities was obvious to all. The Civil War and the loss of the weapons facility at Harper's Ferry increased the local civic support for a protected replacement. Congressional approval arrived on June 11, 1862 for the establishment of the Arsenal.

The first permanent structure erected as part of the Arsenal was built between 1863 and 1867 and is presently used to house the offices of the Rock Island District of the Corps of Engineers. It was built of LeClaire limestone under the direction of Major Charles Kingsbury, the first commanding officer and features a clock tower nearly 120 feet tall.



The clocktower building from an early sketch and a modern tourist brochure picture. The old sketch includes General Scott's Headquarters from the 1832 Black Hawk War. (the sketch taken from reference 13 – page 20)

The clock works were purchased for \$5000 and still operate 4 clocks having 12-foot diameter dials (the minute hand is about 5 feet long and the hour hand is about 4 feet long). The lengthy construction period is due to the fact that the Civil War had begun in 1861 and lasted until 1865 and Rock Island's use as an arsenal site was preempted by the need for a prison facility for captured Confederate soldiers. Rock Island became the site of a prison camp of some ill repute from 1863 to 1865. Few Federal resources were committed to the prisoners' care yielding sickness and disease resulting in the death of 1,964 of the nearly 12,200 prisoners. The associated deaths of 171 of the guard force testify to the harshness of conditions on the island in this period. These conditions led to the sobriquet "Andersonville of the North" being applied to this prison camp. The Confederate dead were buried in a cemetery, which is still carefully maintained near the center of the island while those Federal dead unclaimed by relatives were buried in a separate cemetery at the eastern end of the island. This cemetery still receives the bodies of those entitled by their military service to be buried in a Federal cemetery. All traces of the prison camp have been obliterated in the passage of time.



The location of the Rock Island Civil War Prison Facilities is shown as shaded areas. The location of the Civil War structures is superimposed on the location of the structures built when the island became an arsenal for reference only. (This map is taken from page 2 of reference 4)

The passage of the war and the settling of all the private property claims (Sears received \$145,175 for his improved property and the Davenport family received \$40,740) in 1868 provided a setting for construction of the arsenal facilities. The primary shops and offices were built from 1866 to 1893 (as shown in the map above) and facilities were added as needed following that period. Brevet Brigadier General Thomas Rodman, the second Arsenal commanding officer, laid out ten U-shaped buildings and a set of ancillary structures in a unified design. Eight of the structures are nearly identical being 3 stories and containing nearly 3 acres of floor space. Another two are single story shops but having basically the same footprint as the other eight. All of these structures are built of a distinctive Joliet (Illinois) limestone. Iron trusses support the roofs eliminating the need for any internal columns. The fascinating story of this construction project is detailed in Slattery's history and represents an effort of quality construction intended to fulfill the requirements for a long period of time. A set of officer's homes were built during the same period of the same stone and form an imposing set of residences that now front on a golf course.



The Quarters (number 1) for the senior Arsenal officer (General Lynde in 1963) and Quarters number 3 (Col. T. I. Sawyer in 1963). (pictures taken from Historic Homes on Arsenal Island, no author or publisher shown)

The structure reserved for the senior ranking officer is believed to be the largest residence in the military system. All of these structures remain in use. Rodman died June 7, 1871 during the construction and is buried near the National Cemetery on the Island.

Power for the arsenal equipment was mechanically delivered from a turbine building located on the south side of the island. The turbines were driven from the Mississippi River, which was impounded by a dam. Delivery of rotational power by a system of belts and pulleys over the distance of about a mile is a significant accomplishment in itself.



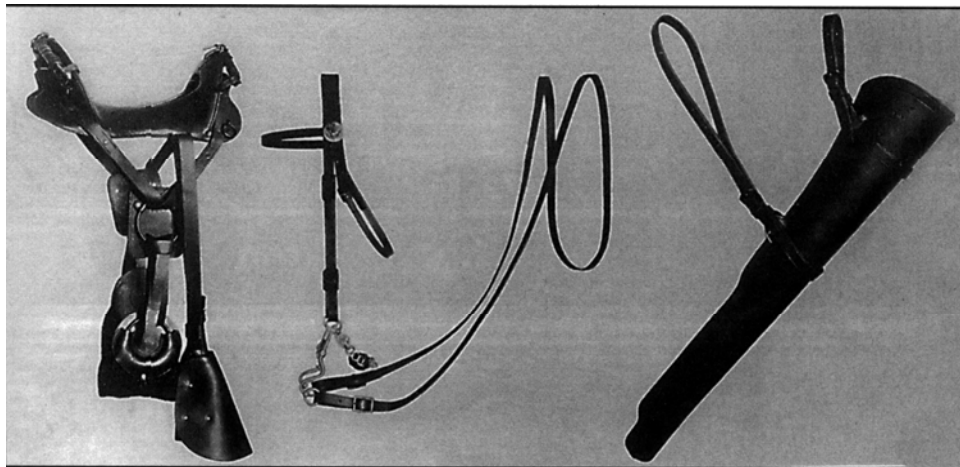
This is one of the towers holding pulleys that delivered the mechanical power from the hydropower dam to the Rock Island Arsenal shops shown in the background. (Picture taken from page 76 of reference 13)

The establishment of new large facilities for weapons development and manufacture was also spurred by the change in character of armed conflict. During the American Civil War, massed artillery were deployed at Shiloh with terrible effect and in the final days at Petersburg as the diminished confederate forces dug significant fortified positions into the earth for protection, artillery of all varieties was of primary importance. Only a few years later as Germany groped toward unification, the Krupp factories were delivering advanced artillery of increased size, accuracy and serviceability. The German generals led by Moltke deployed breach loading, rifled steel artillery developed and manufactured in huge new Krupp shops and overwhelmed the French in 1870. The French, relying on their bronze barrels, which had half the range of the German pieces, and machine guns in fortified positions, were destroyed. The German troops literally never had to face the power of the machine guns since they moved into battle to mop up the demoralized French forces after lengthy (some as short as 8 hours) massed artillery bombardments. At Wörth, Metz and Sedan German artillery were the dominant force. Krupp, Vickers and Schneider continued this development with the Germans deploying 16.8-inch (420 mm) weapons in 1914 designed specifically to reduce the fortification at Liège in Belgium. The U. S. Army had experienced observers with the Germans in 1870 and they – along with most of the world – had to realize how quickly changing weaponry of increasing capabilities could alter the balance of national armed power. The United States even in its

isolation could not shrink from a developmental effort that demanded new industrial capabilities in larger facilities for battle-tested weapons such as these.

The first test for the Arsenal arrived with the Spanish American War that began April 21, 1898. Any historical narrative of this conflict devotes considerable space to the unprepared nature of the United States military supply system as the country entered the conflict. The Rock Island Arsenal in response to the hasty buildup went from 608 employees in March 1898 to about 2900 employees in August 1898. The small standing army was rapidly expanded and the equipment to supply the incoming troops simply wasn't in the military supply system. Rock Island quickly built to 2 10-hour shifts and in June 1898 began procuring hardware from private contractors. Over 130 contractors were ultimately hired to deliver raw materials that the Arsenal and 46 of its contractors consumed to deliver finished goods.

Between April 15 and August 15, 1898 the Arsenal and these contractors were able to fabricate or repair 17,500 Springfield carbines, 19,000 cavalry saber belts, 24,000 Springfield rifles, 16,000 pistol holsters, 11,500 lariats, 480 harnesses for the lead horses of artillery pulling teams and much more. Bayonet scabbards were being produced at the rate of 7000 per day in the Arsenal shops. Over 1-1/4 million square feet of leather flowed through the Arsenal to meet the demands for horse harness gear and other uses.



The Rock Island Arsenal produced these items. Model 1892 McClellan Saddle, Bridle and Bit and Scabbard for the Springfield or Krag-Jorgenson carbines. (Picture taken from page 3 of reference 15)

This small sampling of the products and the quantities handled is extracted from a far more complete list included in Slattery's paper. All of this had to be accomplished using mechanical delivery of power from the turbines without any electrical power for the machinery. One office and one shop, however, did have electrical power for lights but there were so few lamps that they had to be supplemented with candles and lanterns. It was fortunate that this manufacturing buildup occurred during the summer months when sunlight was most available.

The Spanish American War also allowed Rock Island to develop a significant depot function in an effort to respond to the lessons of an undeveloped supply system at the outbreak of even this very limited war. Goods produced in a variety of locations were brought to Rock Island and dispensed from there in response to orders from military units. This mission became even more significant in World War II. Electricity also was brought into the shops in 1901 initially from a hydropower generating station that used the dam installed between Rock Island and Illinois on the south side of the island and later from a commercial grid.

It is instructive to leap ahead about 40 years when World War II brought the greatest changes to the Arsenal. Again the United States was poorly prepared for this conflict and the supply system had to be energized by miracles to support the flood of new people into the fighting forces. This time the equipment was larger and more complex.

Rock Island had to bring facilities to readiness that had been put into a shutdown condition after World War I as well as to add considerable new space. New depot structures, manufacturing shops and administrative buildings were put up, advanced machine tools were brought into production and a large new work force that heavily relied upon female workers was trained. Rock Island also found its expertise in high demand to bring private contractors up to production as quickly as possible. The scope of this effort is typified by the construction starting in April 1941 of a depot facility having 18 acres under roof that allowed a complete train to be unloaded and loaded within the structure. Arsenal employment grew to 18,675 in mid 1943 of which nearly 1/3rd were women.

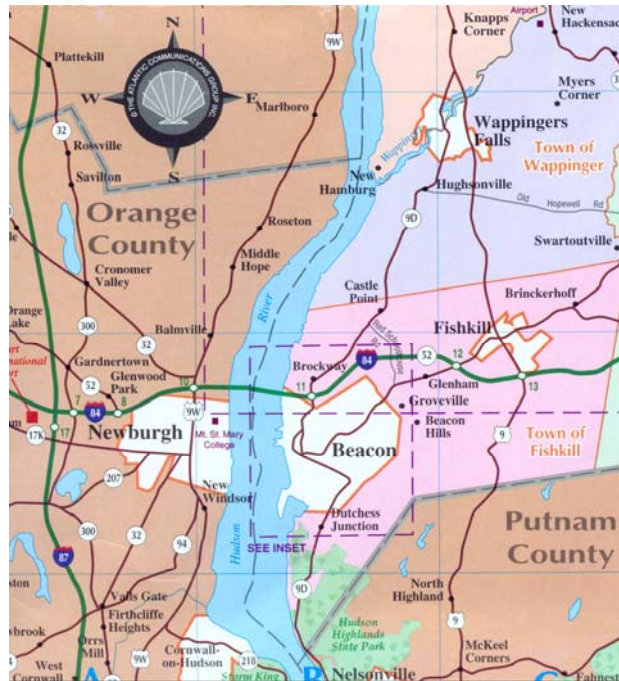
As during the Spanish American War, the diversity of products of the Arsenal is startling: 30 caliber machine guns, 105 mm howitzer recoil mechanisms (the mechanical system which absorbs the recoil of a fired weapon), tool sets for the 105 mm weapons, 155 mm gun carriages and far more. They overhauled artillery carriages, rifles, bayonets, tanks, tank engines, sighting and fire control instruments, over 60,000 miscellaneous leather items and more. It was a time of huge achievement.

The design and manufacture of large weapon recoil mechanisms and the upgrading of tanks were prime activities of the Arsenal into the 1960's although a large number of other efforts were underway. Employment decreased but the lessons of the past demanded maintenance of a skill base for the unique requirements that military hardware manufacture and design require. This was the status of the Rock Island Arsenal at the time that the request came from the White House to replicate George Washington's battle sword and scabbard.



Part 3: THE ORIGINAL SWORD

General George Washington had a variety of different swords. Paintings of the Father of Our Country depict a variety of weapons that he carried at his side. His battle sword, however, is prominent and a very skilled couple, while they lived in the small New York town of Fishkill, fabricated it. John Bailey was a skilled blade maker and his wife, Ann, was a very capable leather worker who stitched the scabbard.



Location of Fishkill, New York – about 9 miles south of Poughkeepsie
- about 90 miles north of Manhattan, New York City.

The story of their lives is described in two definitive articles by Gary Trudgen and Andrew Lustyik that are listed in the Bibliography. Their articles stem primarily from Bailey's skills as a coin maker (Trudgen) and as a maker of swords (Lustyik) used in the Revolutionary War period. The following is an extraction of the highlights of Bailey's illustrious history taken from these sources. It is universal that everyone interested in this individual laments the fact that no picture of him is available and hence we all miss that glimpse of him. A surprising volume of information concerning his life is available however.

Bailey was born in Yorkshire, England about 1736 and began his commercial life at an early age when he was apprenticed to learn the cutler's trade. He immigrated to America about 1775 with his older brother, William, and settled in New York City. Bailey joined James Youle and operated a cutlery shop at the southeast corner of Wall and Water Streets in lower New York. He married Ann Brickstock who Lustyik reports as being

Bailey's second wife, on May 7, 1772 at the Trinity Church. Bailey began operating his own shop about the time of his marriage from the Wall and Water Street location.

Life changed drastically when the British sent the 64-gun "Asia" to New York harbor on May 26, 1775. On February 4, 1776 General Clinton arrived in a 24-gun frigate with a troop transport. The occupation by a strong military force motivated Bailey and his family to leave New York City for the Peekskill area to live near his brother, William. Lustyik states that during this short period Bailey lived at Verplanck's Point along the Hudson River. One of Bailey's surviving swords bears this address. Unfortunately William remained loyal to the British while John supported the revolutionary forces and they were estranged for the rest of their lives. It is likely that this caused John Bailey to move to Fredericksburgh, now called Patterson, in eastern Dutchess County, New York where he continued manufacturing cutlery supplies for the Continental Army. A sword made in Fredericksburgh now resides with the Ohio Historical Society and has a distinguished handle design bearing a lion's head and the green-tinted ivory handle grip present also in George Washington's battle sword.

In 1777 an armory was established in Fishkill New York. This made Fishkill a far more advantageous location to pursue his business so by May 1778, Bailey had moved there. On May 14 he advertised in the *New York Packet and American Advertiser* for workman to join his shop. Fishkill had an artillery field, barracks, a blacksmith's shop, brass foundry, parade ground and storehouse. Lustyik reports other facilities there that "make this a major depot of the American Army." In addition the Dutch Church in Fishkill was a meeting place for the Convention of Representatives of the State of New York. Bailey is believed to have purchased a 200 acre farm in 1768 in Fishkill and according to notes left by his daughter, Charlotte, he farmed it as well as operated his cutlery business. Also according to Charlotte's notes, Bailey, his wife and associates could fabricate about two-dozen swords per week.

In the fall, 1778 John Bailey manufactured the silver mounted hunting sword that George Washington reportedly wore throughout the remainder of the Revolutionary War. Trudgen (page 1158) provides an excellent description of this weapon as follows:

"...this sword has a slightly curved 30-inch blade. The grips of the hilt are green stained ivory and increases in diameter from quillions to pommel and are wound with a strip of silver. The pommel is carved in a shell design and topped with a sill capstan rivet. The quillions, like all the exposed metal parts of the hilt, are silver mounted. They are formed into an elongated "S" with the ends shaped into serpent heads. On one side of the juncture of the quillions is engraved a trophy of arms. On the opposite side is a similar panoply of arms surmounted by a bear's head. Both designs are flanked by engraved oak leaves.

A silver ferrule projects downward between the quillions and blade. It is made such that it fits tightly over the throat of the scabbard. The scabbard is blackish-russet leather, encircled with silver bands at the throat and middle. In addition, there is a silver tip at the end of the scabbard. The middle band has a carrying ring

and the throat is etched 'J. Bailey/Fish Kill'. Bailey's name appears in script while 'Fish Kill' is in print."

Bailey's correspondence with George Washington's staff concerning later transactions has been preserved and indicates that Bailey had more work than his shop could deal with and had a reputation for being late with his deliveries. This correspondence and information again from his daughter, Charlotte, indicates that Bailey and Washington were on knowledgeable terms. Charlotte reports that Washington and Lafayette visited the Bailey's house. With the patriots' victory in 1783, Bailey returned to New York City, which the British had left in November 25, 1784.

He advertised his farm on March 31, 1784 in the *New York Gazette and Country Journal* and sold it on May 14, 1784. Through 2 more sales, Benjamin Rogers acquired the property in 1794. "According to the September 8, 1864 *Fishkill Journal*, Bailey's shop was standing as late as 1850 and was used as a stable." The present (1998) location is on New York State Route 52 at its intersection with I-84. The Rogers home no longer stands (reference: Willa Skinner). Trudgen states that the Bailey house was demolished in 1849.

He moved his residence and shop to No. 22 Little Dock Street in New York City in an area devastated by a major fire on August 3, 1778. This street merged into Wall Street in 1794 and his address became No. 60 Wall Street. Bailey conducted a successful business in New York until the end of his life. Besides cutlery, he fabricated bells; worked in brass, iron, copper and silver and manufactured coins - primarily copper coins for the State of New Jersey. State coinage terminated in 1787 with the ratification of the Federal Constitution by the various states and with it Bailey's trade as a coin maker.

Ann Bailey died March 8, 1800 and no information survives concerning her burial. She and John had two sons, Augustus and James S., and five daughters: Ann, Maria, Harriott, Jane and Charlotte.

In October 1804 Bailey left No. 60 Wall Street and continued his trade at No. 27 Maiden Lane further north. His son, James joined him in 1807. By 1809 they retired from the foundry business but continued as merchants, selling hardware, cutlery, silverware and related items.

John Bailey died January 22, 1815 and is interred at St. Paul's Chapel at Broadway and Fulton Street in New York City. Trudgen states, "his original gravestone is still standing but the inscription is worn beyond recognition." John's daughter, Jane, and an infant grandson, James, are buried along side his grave. A bronze marker was placed at this grave on February 23, 1957 by Alice Clyde Stafford, one of Bailey's great great great granddaughters.

A historical marker commemorating John Bailey is located along route 52 in Fishkill. It reads:

**Washington's Sword
Now in Smithsonian Institution
Washington D.C. was made
Near here by John Bailey, A
Cutler from New York and Fishkill**

Willa Skinner wrote in 1998 that the John Bailey Road “sign (a 1978 picture is included with Lustyik’s article) is no longer there and John Bailey Road sort of passed from the scene a few years ago. It sort of merged with another town road, but the WASHINGTON’S SWORD state marker is still there. I pass it every day.”

George Washington, of course, went from leader of the army of the revolution to the presidency of the states united under the Federal Constitution. In this role he had to don his battle sword once again in a major test of the new government. A rebellion by farmers in Pennsylvania who thought it was convenient to convert their grain to whiskey and not pay the federal tax on the product had to be suppressed. By threat of a federal armed force and the power of his personality in leadership, this was successfully accomplished. The Smithsonian Institution in a special spring 2002 exhibit in the American History Museum entitled “The American Presidency – A Glorious Burden” highlighted this incident in its display of memorabilia of Washington’s presidential terms including the sword and its scabbard.



Brochure cover and portion highlighting the Washington sword and scabbard

It is of interest to see how the sword and scabbard passed to this exhibit from its position at Washington's side. When Washington died, his will provided that each of his five nephews should receive one of his swords or cutteaux and the order of the nephews in the selection process was also defined. The will, which was quoted by Mr. G. W. Summers in an 1843 address to the House of Representatives as follows:

“To each of my nephews, William Augustine Washington, George Lewis, George Steptoe Washington, Burshrod Washington and Samuel Washington, I give one of the swords or cutteaux of which I may die possessed; and they are to choose in the order they are named.”

Samuel Washington, the last of the nephews in the selection order, thus became the owner of the battle sword. Samuel had served with his uncle in the rank of Captain when Washington reviewed the troops of Virginia and Maryland at Cumberland, Maryland before they joined the troops of Pennsylvania and New Jersey assembled in Bedford to suppress the Whiskey Rebellion. He thus had a great interest in the weapon and fully appreciated its history. This influenced his fellow nephews as they reportedly allowed him first choice of this weapon.

With Samuel Washington's death, the sword and scabbard passed to his son, Samuel T. Washington of Kanawha County, Virginia. On January 9, 1843, Samuel T. Washington presented the sword to the United States government through his Congressional representative, George W. Summers. Summers formally presented the sword to the United States in a February 8, 1843 speech to the House of Representatives. Lustyik writes that the occasion prompted the attendance of senators and representatives of foreign governments in the House. The Smithsonian Institution United States National Museum Bulletin 163 contains the proceedings of the Congress for this event and states for the occasion in the House of Representatives:

“The galleries were densely filled with an anxious and attentive auditory which had collected in anticipation of the interesting proceedings which were about to be witnessed. Many senators occupied seats amongst the members of the House, and some of the representatives of foreign powers, accredited to this Government in diplomatic relations, were arranged below the bar; and all listened with profound stillness, while the honorable gentleman from Virginia spoke....”

John Quincy Adams who had served as president of the United States from 1825 to 1829 and was serving in the House as the representative of a district in Massachusetts (he served from 1831 to 1848) made the speech of acceptance completed with “great applause” and provided the formal resolution by which the sword was unanimously accepted. William Archer, Senator from Virginia made the speech presenting the sword and provided the resolution of its acceptance in the Senate on the following day.

The sword and scabbard were first displayed by the State Department in the rooms of the National Institution for the Promotion of Science in the great hall of the U. S. Patent Office. It was transferred to the United States National Museum (the Smithsonian Institution) by a joint resolution of Congress approved on February 28, 1922.

A June 24, 1962 article and picture in the *Poughkeepsie Journal* shows the display of the sword and scabbard with Washington's uniform and army mess kit in the Smithsonian. Mrs. Alice Clyde Stafford noted above as one of John Bailey's great great great granddaughters, who lived in New York City provided the picture. Thus at the time of its replication by the Rock Island Arsenal, the sword and scabbard were on display to the public.

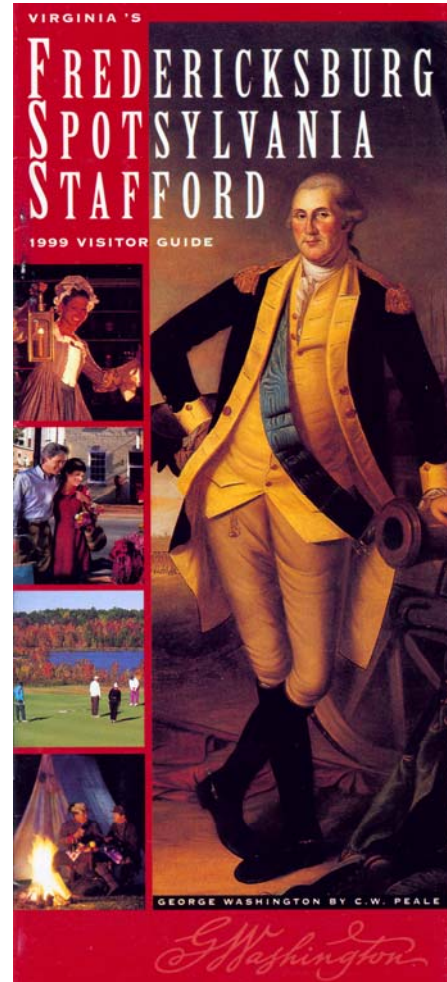
They were removed from exhibit for a rather long duration as the Smithsonian prepared a new setting for them. In the spring 2002 an exhibit entitled "The American Presidency – A Glorious Burden" was opened in the National Museum of American History on the Washington Mall. The sword and scabbard were pictured in the brochure of the exhibit and one of the authors (ROH) took two pictures of them. One shows the handle and upper portion of the blade of the sword and the upper portion of the scabbard while the second shows the exhibition setting of these pieces. The authors later (August 2002) visited a traveling exhibit of "The American Presidency" in the Chicago (Illinois) Historical Museum but Washington's battle sword and scabbard were not included with it.



The Smithsonian Exhibit setting and the detail of the original sword and scabbard

The sword and scabbard live on in another mode of exhibition. Two paintings in particular display the sword rather prominently. The first is by Charles Willson Peale and is a portrait of George Washington after the battle of Monmouth on June 28, 1778. The sketches for this painting were made shortly after the actual battle and it was finished

later in Princeton, New Jersey. A picture of the famous building of Princeton University, Nassau Hall, graces the background of this portrait. The painting is one of 14 done by Peale of Washington and rather clearly displays the sword. A portion of this picture was also used in a 1999 Visitor's Guide for the Fredericksburg/Spotsylvania/Stafford area of Virginia.



Charles Willson Peale's picture includes the Washington Battle Sword and Scabbard

A second classic picture, "Washington Crossing the Delaware" by Emmanuel Gottlieb Leutze, was painted in the middle 1800s and displays the sword in its entirety. The picture overemphasizes the curve of the blade but the design is well represented. Unfortunately for historical accuracy, in truth Washington crossed the Delaware to attack the Hessian soldiers in December 24, 1776 about 1-1/2 years before John Bailey crafted the battle sword that Washington is seen to be carrying. The artist likely saw the sword and scabbard on display and used his artistic license to complete his picture. This huge (12 ft. by 21 ft.) painting is in the Metropolitan Museum of Art in New York City. Leutze incidentally is also famous for his rendition of the classic "Spirit of '76". One of his less famous paintings "Washington Rallying the Troops at Monmouth" shows Washington on a horse with a sword in his upraised right hand. There is no detail of the sword apparent

in this large (13 ft. by 23 ft.) painting except the blade has a distinct curve. Since this painting was done about a year after the “Crossing the Delaware” painting, it is likely Leutze relied upon the same sword design for both.



Part 4: MAKING THE REPLICATE SWORDS

The Rock Island Arsenal in June 1962 was one of three operating units in the United States Army Weapons Command that, in turn, was one of a small group of similar elements in the United States Army Materiel Command (AMC). General Frank Besson led the AMC, Major General Nelson Lynde led the Weapons Command and Colonel Werngren led the Arsenal. The Springfield Armory in Springfield Massachusetts and the Watervliet Arsenal in Troy New York were the other two manufacturing units also under the direction of the Weapons Command. The Rock Island Arsenal had approximately 7000 employees in 1962 and the Weapons Command consisted of about 450 employees who were located in offices on Rock Island.

The AMC was established May 8, 1962 and did not assume operational status until August 1962, the date commemorated in the literature of the AMC as its birth date. The authors were working in the Weapons Command in the summer 1962 and the daily journal of Ron Hultgren records no special celebration or event during August to note this occasion. Thus the birth date celebrated by the Command occurred quietly in Rock Island. It had been formed as a result of a reorganization study conducted under the direction of Mr. Leonard W. Hoelscher, Deputy Comptroller of the Army, in 1961. The functions of five of the Army's seven Technical Services (Chemical, Ordnance, Quartermaster, Signal and Transportation) were reapportioned. The Engineers and Surgeon General continued with slightly modified missions.

The basic functions of these five services were reassigned to the U. S. Continental Army Command, to a new Office of Personnel, to a new Army Combat Development Command and to the new Army Materiel Command. The mission of the latter organization included the following:

- *Research and development, product engineering, test and evaluation, procurement and production, inventory management, storage and distribution and maintenance of assigned Army materiel systems.*
- *Managerial and service support to customers*
- *Technical and professional service support to customers*

At its inception about 189,000 people located at over 250 depots, arsenals, laboratories, schools, test ranges, procurement offices and other facilities were contained within the AMC. By 1970, the AMC had been reduced to 165,000 (14,000 military) people located at 205 installations. This reduction of both facilities and people continued as the AMC matured. General Besson served as AMC Commander from its beginning until February 1969 when he was succeeded by General F. J. Chesarek who served until his retirement in October 1970. General Henry A. Miley, Jr. followed.

When one considers the activities underway at the Rock Island Arsenal in the early 1960s, one quickly realizes that Rock Island was participating in all of these AMC

mission elements. This led to a general feeling by the management (military and civilian) and the staff that the Rock Island Arsenal was a place that could do it all.

The military presence at Rock Island was very limited in June 1962. Of the approximately 60 officers in the Arsenal and Weapons Command, only about a dozen had no gold leaf on the brim of their hats. Approximately 40 enlisted personnel – primarily senior sergeants – completed the military contingent. In short, civilians of the civil service dominated the population and junior (lieutenants) officers were a rare species. As such, however, the young officers had work opportunities, communication potential with senior civil service and military personnel and the capability to view a span of activities far greater than what could be expected by an entering civil service employee. A personable, interested, inquisitive, intelligent young officer could learn a great deal about the Arsenal, the projects underway, their management and the people involved with them. To both Ron Hultgren (one of the author's) and Bob McGuckin in recollection, there also seemed to be reciprocal feelings by the senior military officers and civilian managers for young officers who were willing to learn and could thus be taught and influenced. They took the time to explain what to them was obvious and to point out facets of "life" that otherwise might escape the minds of the young. It was in this spirit that the project of replicating the sword attracted Bob McGuckin to its primary movers in the Arsenal.

The lack of an apparent "paper trail" for this otherwise highly visible project strongly suggests that the assignment to produce these swords was passed verbally through the highest levels of the command structure with no particular source of funds provided. The "old hands" knew how to deal with this with a minimal amount of the documentation normal for Arsenal activities. These "old hands" at the top management oversight level in this case were obviously Colonel Martin S. Werngren and his successor, Colonel Paul A. Nilsson, in the Arsenal and Major General Lynde and his successor, Brigadier General Roland Anderson, in the Weapons Command.



Major General Nelson Lynde (June 1963)



Colonel Paul Nilsson (December 1964)

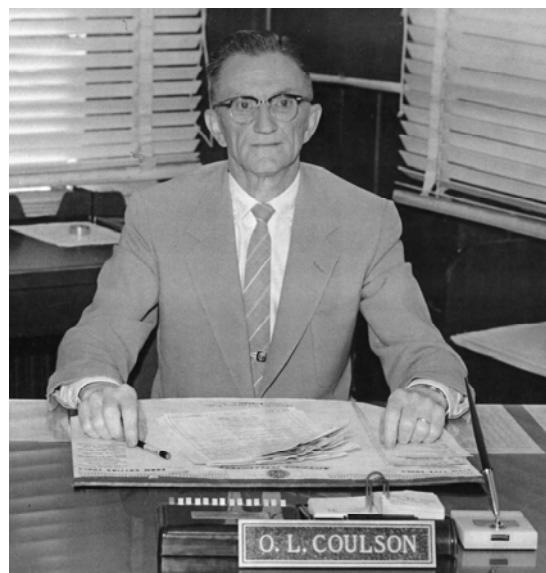
To get the job done, however, required the senior civil servants and here we meet Orville Coulson and Carl Dall – the key players in the production task. They and Richard Barnett

who had the planning and financial oversight of Arsenal operations had the skills to obscure this project financially and physically through the system while getting the job accomplished as quickly as possible. Obviously no one worked for free to produce these swords so funding was likely tapped – a little from this larger project and a little from that one – or obscured in overhead functions like employee training or apprentice program activities. It is a great principle in government that when there is a request for a favor from the White House, the system will find the people and the means to accomplish it.

This effort had little resemblance to a normal Arsenal project. Arsenal lore says that Jacqueline Kennedy was the original source of the request. Arsenal lore says that a variety of private industrial concerns had been given the opportunity to make these swords and no one had professed or demonstrated the skills necessary. Even beyond originating the idea, Mrs. Kennedy then maintained the drive to carry out the task. Her persistence moved the White House staff to uncommon lengths to secure a source for the sword replicas. Regardless, President Kennedy certainly would have been asked about it and would have given his specific approval. Thus the job came as a significant challenge to artisans who had great confidence in their skills. The White House contact for the project was Major General C. V. Clifton who served as Military Aid to the President. One can only imagine that when the decision in the White House was finally made, Clifton relayed the message to General Besson and in a quick telephone call or some sort of side conversation, General Lynde received the request. His likely response was probably to the effect that remaking a 1760's sword would be "no problem" for the skills within his call. He was physically located on Rock Island and immersed in the often-expressed attitude that "we can do it all". The response would be natural for him. Thus the request arrived finally to Messer's Orville Coulson and Carl Dall who were the ones who ultimately had to answer that most terrible question that is the heart of all projects sooner or later, "*How ARE we going to do this?*"



Carl Dall



Orville Coulson

The assignment to Coulson and Dall signified the importance of the task and the prospective difficulty in its accomplishment. They were the best that the Arsenal had to offer. It is unfortunate and typical that they, like most civil servants, lived a life of quiet obscurity beyond the authority they exercised at their jobs and did not make the splash into the pond of public publicity. Thus we know relatively little about them and the totality of their contributions. They were great friends, respectful of each other and occupied the same office space.

Orville Coulson was born January 2, 1902 and began his work career at the Arsenal in 1928. He retired in December 1965 and moved to Boca Raton, Florida. He died in 1986. Orville was the shorter of the two men and was slender of structure. He was the person who always seemed to be swiftly walking or even running at times of urgency while Carl seemed to be lumbering along – both moving at the same velocity. Carl was rather heavy of structure and projected a “bull of the shop” exterior while having a soft interior and a subtle wit. A classic anecdote involves Carl calling Bob McGuckin into his office and asking him to pronounce “water” which he had written on a piece of paper. Bob responded in the cut-off version provided by his Philadelphia area background and Carl patiently pronounced it in the tones of a pure midwesterner giving full emphasis to the “r” at the end. Once the lesson was given, Bob left to wonder how Carl had set aside 5 minutes of his day specifically for that purpose.

The minimal data concerning Orville were provided by Robert (Bob) Coulson who was born in 1932 in Detroit. Bob’s mother died in that childbirth and he was taken to Rock Island to live with his uncle Orville and Aunt Madge Coulson. They later adopted him and the Coulsons had no children of their own. Bob who was living in Sun City Arizona in 1999 also provided a few memoranda concerning the project and the pictures of both Orville and Carl that are included here. He had few personal memories of the project but the fact that Carl’s picture was retained among Orville’s papers is a mark of the affinity of these two men. The willingness to “step in” to raise an infant nephew as his own child in the midst of an economic depression is also a mark of this gentleman.

The data available concerning Carl Dall was obtained from his daughter-in-law, Erma, who was living in a retirement home in Davenport Iowa in late 1998. Erma’s husband, Rudolph, died about 1989. Carl and his wife also had a daughter but she had moved from the Davenport area to Milwaukee and had died by 1998. Erma recalled that Carl was born about 1900 and she recalled going to the simultaneous celebration of Carl and Orville’s retirement from the Arsenal. As is the case with so many people, Erma greatly condensed her possessions as she moved into a retirement home and had nothing to share of Carl’s papers. Carl died in 1983.

Organizationally from a chart of the Arsenal structure during World War II dated August 6, 1942 we find O. L. Coulson as a deputy to N. W. Johnson who led the Planning Division, one of 4 divisions reporting to the Arsenal Superintendent of Production. The Planning Division had 9 subordinate units covering the various elements of the production capabilities of the Arsenal at that time. C. J. Dall headed the Machine Section

of one floor of one building (denoted as building H). He was one of 10 section heads reporting to the Machine Gun Division that, in turn, reported to the Production Division. The Production Division reported to the Arsenal Superintendent of Production. At this time, William Brumback was the Arsenal Superintendent of Production and had about 10,200 employees of the approximately 18,000 people employed at the Arsenal. This gentleman served in this position until 1948 when he retired after 44 years of service of which 22 years were as the Arsenal's highest civilian executive. By the 1963 period, Orville Coulson had become Chief of Arsenal Operations and Carl Dall had become Head of the Factory Branch, the two top positions for Arsenal manufacturing activities.

As Bob McGuckin relates, these two gentlemen “tackled the challenge (of replicating Bailey's sword and scabbard) with the enthusiasm of teenagers”. They had to develop a plan to replicate each component of the sword all of which had to be approved by the White House contact in compliance with the restrictions of the Smithsonian Institution. The primary element of the sword is obviously the blade. John Bailey had forged the blade of the original sword but the Arsenal had no similar equipment to draw a sword blade. They could forge parts but like all the other possible shops within the United States, the Arsenal did not have the tools or the personal skills to draw the forged blade that would perfectly match the original. Fortunately the replica did not have to perform the functional operations of the original so the solution was to cut the blades from raw untreated bar stock. A latest-generation, computer-controlled cutting-machine that could duplicate and generate compound surfaces had recently been installed at the Arsenal to fabricate components of B-52 aircraft bomb racks and this was the tool of choice.

This machine tool required a model to copy and so the Arsenal sent its best (Coulson and Dall) to the Smithsonian with the hopes of using the original sword for this purpose. Predictably the Smithsonian Institution refused to release the sword to the Arsenal fearing damage to this most unique artifact. The greatest fear was not damage to the blade but rather to the ivory handle and other associated parts. After a long search, a suitable latex molding material was discovered. Its essential properties were the ability to cure reasonably quickly at room temperature without harming steel, leather, ivory or silver. This latex was demonstrated to the curators of the Smithsonian to be totally unobtrusive to the crucial materials by demonstrations on samples of these materials. Thus detailed molds were made of the sword's parts at the Museum and from them, models were cast to serve as images for the machine tool. This process yielded a blade that was geometrically identical to the blade that Bailey had produced but it had little of the metallurgical character of the Bailey blade. The resulting Arsenal blades were ultimately chrome plated which yielded an elegantly smooth reflective surface that is also quite distinctive from rough, raw forged steel surface of the blade John Bailey had produced almost 200 years earlier. The ivory handles could only be fabricated by hand to match the original. In a close inspection, these replicated ivory parts thus bear slight differences from the original and from each other.

Another problem of distinction in the sword production was achieving the proper green tint of the ivory handle. The inlay of the silver in the handle was a rather standard process but getting the color of the handle correct required research and experimentation. Bob

McGuckin and Bob Coulson both recalled that Carl Dall took this challenge personally. He tried a variety of dyes and processes and in the experiments ruined all of the family's aluminum pots and pans. It was only after a long trying search that he finally settled upon a common green ink made for writing purposes and available in most supply stores that he diluted and applied to the ivory.

The scabbard was made with a specially sewn "French seam" requiring handwork since no machine was developed to replicate this stitch. This turned out to be less of a problem than might be expected for here the long experience of the Arsenal was brought to bear. The Arsenal used this stitch to make .45 caliber pistol holsters during World War II and this craft was still available. This pistol was the common side arm for Army officers for a long time beginning well before World War II and extending beyond it. The Arsenal made the holsters for this weapon almost continuously.

Thus the swords and the scabbards were ultimately rendered as modern shiny replications of the Bailey original down to the Bailey signature on the middle band of the scabbard. These items were mounted in velvet lined walnut wood cases, items of exquisite craftsmanship in themselves. Bob McGuckin recalls that, "As the swords were completed we treated them with great reverence! The swords were like a relic! They not only represented a piece of Americana, they were the artistic achievement of dozens of craftsmen at the Arsenal. When we gathered around the swords, in their magnificent walnut cases with velvet lining, no one even dared to touch them. The Commanding Officer of the Arsenal finally picked up a sword because it was respectfully handed to him by Mr. Coulson for the Colonel's inspection."

We believe nine swords in their cases were delivered to the White House. Four are shown in the October 15, 1963 photograph of President Kennedy. Three more were delivered in the early spring 1964 after he had died. This shipment was no ordinary delivery for these swords received the special attention of Lt. Robert McGuckin. The final two swords were shipped in June 1964.

Bob carried three swords in the Beach Queen Air plane used by the Weapons Command to Quantico Virginia where a special car was waiting to take him to the office of General Frank Besson, the AMC Commanding Officer.



General Frank S. Besson Jr.

The General wanted to see first hand what one element of his organization could produce. Robert was ushered into this elegantly appointed office, which was located in Arlington Virginia near the Pentagon and what was then National Airport. One of the walnut cases was opened and to Bob's amazement, General Besson reached in, took the sword by the handle and proceeded to do his best Douglas Fairbanks imitation – a swash-buckling musketeer with four stars of rank. Bob recalls that he had a moment of complete consternation as he contemplated the tender handling these swords had received in Rock Island and how a simple slip here in General Besson's office could mar one of these swords indelibly. Fortunately, the General was sure of hand and the sword was safely returned to its case.

Bob then went on to the east wing of the White House where he was received by a military aide who inspected and took possession of the swords. Bob recounted that the aide was very gracious and asked if he wished to call anyone from the White House. Bob responded that he had a sister-in-law in Maple Glen, Pennsylvania (a suburb of Philadelphia) and a White House Operator placed the call. He used the rare opportunity for a lieutenant to become a legend in his own family. With that completed, Bob returned to the car and was returned to Quantico for the flight back to Rock Island.

Two pieces of Rock Island Arsenal correspondence pick up the story after these first 7 swords were delivered to the White House. The first is a June 1, 1964 *Memorandum for the Record* written by Colonel Paul Nilsson, the Arsenal Commanding Office and a copy is included here due to its singular importance. A copy was noted as sent to "Mr. Dall" and Orville Coulson's initial is present in the lower left corner indicating he also saw it. Robert Coulson provided this document to the authors from his father's remaining papers. By this date, of course, President Kennedy was dead for over 6 months so the Administration was still clearing the details of that presidency. The memo records a telephone conversation between the Arsenal Commander and Colonel McGovern of the Office of Chief of Staff. Mrs. Kennedy had decided that no more of the swords would be presented to foreign dignitaries in deference to President Lyndon Johnson's preferences. This certainly lends credence to the story that Mrs. Kennedy had indeed been a major force in the selection artifact as a gift.

The Memorandum further notes that Emperor Haile Salassie of Ethiopia and President deValera of Ireland each had received a sword from President Kennedy. Of the remaining swords, three were to be given to Mrs. Kennedy for display in the Kennedy library, to President Johnson and to John Kennedy's small son, John. It goes on to highlight "the problem in funding, etc." that the Arsenal obviously had encountered. No disposition of this difficulty is discussed and it likely was left to the Arsenal magicians of paper to hide the rabbit in the hat rather than draw it into view.

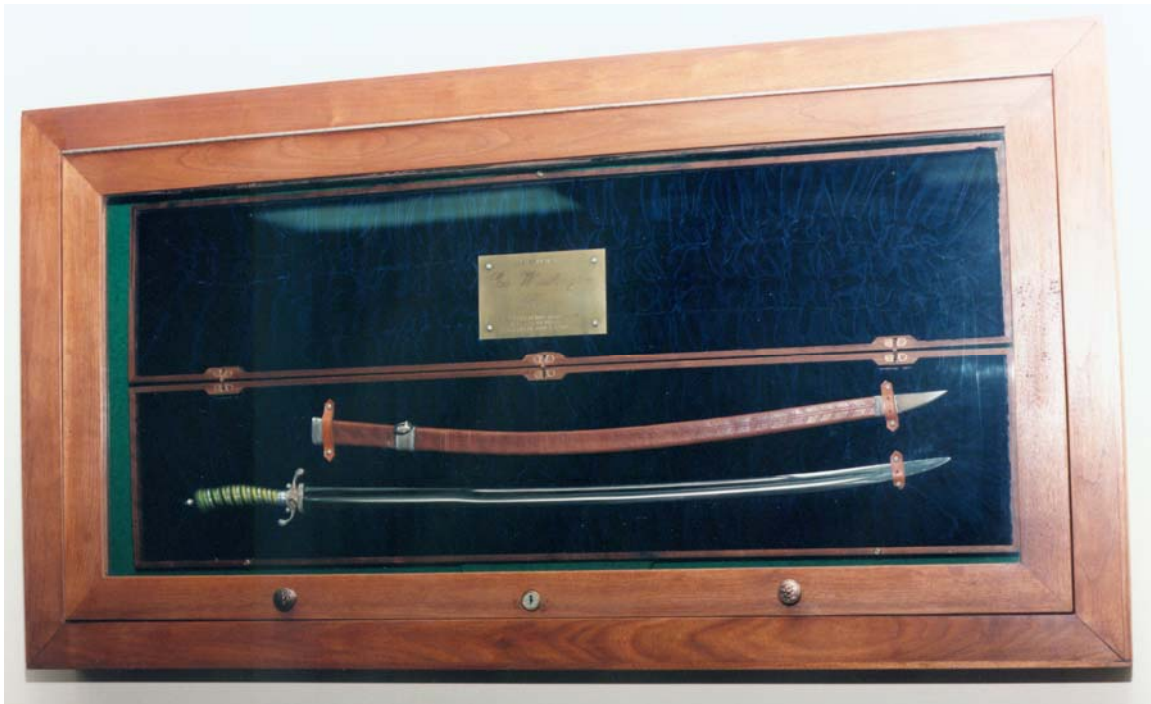
Five swords were left in Rock Island and they were to be disposed by shipping two more to Washington to Major General Clifton and the remaining parts of the final three were to be retained by the Arsenal along with the molds from which they were made. Final

disposition of all of the hardware was to be decided in about a year (June 1965). An inventory of the material remaining at the Arsenal was made and included the following:

- “1 – Sword complete in lined walnut case
- 3 – Walnut cases complete (no swords)
- 1 – Sword complete (not in walnut case)
- 1 – Blade (questionable, but can be used)
- 4 – Scabbards (Leather only, no silver trim)
- 3 – Ivory handles (all carved, not hand fitted)
- 2 – Silver quillions (not drilled and fitted)
- 12 feet silver wire”

On June 17, 1964 Orville Coulson noted in a *Memorandum to Record* that he had checked with Colonel DeBow, the Transportation Officer, regarding the shipment of the two swords. Unlike the escorted shipment, which Bob McGuckin carried out, these were simply shipped by Air Express that same day via United Airlines Flight 722 with the shipping papers merely referring to “Exhibits” further covering the project. These were addressed to Major General C. V. Clifton (who now was serving President Lyndon Johnson).

This ends the documented involvement of the Rock Island Arsenal with the replication of George Washington’s battle sword with one small exception. One sword and scabbard in their presentation case is mounted on the wall of the Arsenal Commanding Officer’s conference room. Its quality is admired by everyone who has business to do in that room.



Replicate Sword and scabbard in special frame with its presentation box



Enlarged Nameplate from Replicate Sword in the Conference Room
Of the Rock Island Commanding Officer

McGovern

MEMORANDUM FOR RECORD

1 June 1964

Col. McGovern, Office of Chief of Staff (Oxford 71512) called Col. Nilsson at 1000 hours regarding disposition of swords.

Col. McGovern discussed the swords with General Clifton, Military Aide to the President. General Clifton reviewed the background briefly, i.e., President Kennedy intended to present swords to visiting Chiefs of State. After the President's death, it was not known if President Johnson desired to continue this practice. Recently, in a conversation with Mrs. Kennedy, General Clifton said that Mrs. Kennedy felt this should not be continued; that President Johnson probably would come up with something else to present to visiting Chiefs of State. Of the five swords completed to date, one was presented to Emperor Haile Selassie of Ethiopia, one to President deValera of Ireland, one will be presented to Mrs. Kennedy for the Kennedy Memorial Library, one will be presented to President Johnson, and one will be held for young John Kennedy.

General Clifton suggested that disposition of the remaining five be as follows: two will be shipped this week as previously instructed by Colonel Lane. The other three, regardless of the state they are in, should be held at Rock Island Arsenal, with the molds, in safekeeping. If and when they are needed, they can be fabricated; and perhaps they will be disposed of later. But at this time they will be held for at least one year or until further instructions are received.

Col. Nilsson informed Col. McGovern he was hoping to follow this procedure, since he was fearful that there would be a requirement for the swords after they had been destroyed, and the boxes had already been completed.

Col. McGovern said that Memo for Record is being made in his office of his conversation with General Clifton, with the above stated instructions as to disposition of the 3 remaining swords. Brief discussion followed as to General Clifton's initial contact with RIA on fabricating the swords, and the problems of funding, etc. Col. McGovern said this would be the final order. The three incomplete swords will be held here, with the molds. If no instructions are received in one year, RIA will check back with Col. McGovern's office for further instruction. If anything breaks before then, we will hear from them.

l
cys: PP, CPL, CFF

PAUL A. NILSSON
Colonel, OrdCorps
Commanding

Inventory of Swords

- 1 - Sword complete in lined walnut case.
- 3 - Walnut cases complete (No swords).
- 1 - Sword complete (Not in walnut case).
- 1 - Blade (Questionable, but can be used).
- 4 - Scabbards (Leather only, no silver trim).
- 3 - Ivory handles (All carved, not hand fitted).
- 2 - Silver quillons (Not drilled and fitted).
- 12 feet silver wire

Reils

17 June 1964

MEMORANDUM FOR RECORD

Instructions were received this A.M. from Col. Nilsson, through his Secretary, to ship two (2) swords that are now completed to the following:

Major General C. V. Clifton
Military Aid to the President
The White House
Washington, D.C.

Check was made with Transportation Officer, Col. DeBow, regard to method of shipment. The following information was furnished by Col. DeBow: Ship by Air Express; List the Material on the Shipping Papers as "Exhibits".

O. L. COULSON *e*
Chief, Arsenal Operations Division

Copies furnished:-

~~SWERI-PPF~~
SWERI-PPF (Mr. Dall)
SWERI-PPE (Mr. Schmidt)
SWERI-PP (File)

P6796
BK-C1803208 Shipped 6-17-64
United Air Lines Flight 722 at 19.10 PM

Part 5: THE REPLICATE SWORDS

The swords delivered to the nation's capital were available to President Kennedy late in his foreshortened presidency. An October 15, 1963 photograph provided by the John F. Kennedy Library shows President Kennedy and his Secretary of Defense, Casper Weinberger, looking at a sword and scabbard in the blue velvet lined wood presentation case. Secretary Weinberger has his hands behind his back while President Kennedy is only touching the box. The aura of the craftsmanship represented in these items obviously has affected them. Three other swords are seen lying on the table.



(Supplied by the John F. Kennedy Library as Photo No. ST-C 338-7-63)

We know that President Kennedy gave two of the swords to visiting foreign dignitaries: Haile Salassie, the distinguished long-time leader of Ethiopia received one of them. Salassie is probably best remembered by history for his impassioned plea to the League of Nations when the Italians attacked his country as a prelude to World War II. The League failed to respond to this situation, which contributed a large part to the dissolution of this organization. President de Valera of Ireland, a country dear to the Kennedy family, also received a sword.

Another sword has become the property of the John F. Kennedy Library in Boston and was displayed among the memorabilia of President Kennedy's life and presidency. In May 2002 when the authors visited this library, the replica was not on display.

A fourth sword went to President Kennedy's son and could be the one reported to be aboard the U. S. Navy aircraft carrier, John F. Kennedy, where its display would carry George Washington's bequest message included in his will,

"These swords are accompanied with an injunction, not to unsheath them for the purpose of shedding blood, except it be for self-defense, or in defence of their country and its rights; and, in the latter case, to keep them unsheathed, and prefer falling with them in their hands, to the relinquishment thereof."

This message is obviously amplified but equally applicable to this modern instrument of national power.

A fifth sword apparently passed to Lyndon Johnson, the succeeding president, and the authors have been unable to gain any information concerning its present location.

The last sword whose residence is well known is the one that remained in Rock Island and was proudly displayed in the conference room of the Arsenal Commanding Officer as shown in the photographs included with Part 4. It is now a part of the exhibits of the Rock Island Arsenal Museum.

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