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APOSTLE ISLANDS
HOKENSON FISHING DOCK

NATIONAL LAKESHORE / WISCONSIN

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HISTORIC FURNISHING STUDY
PKG. NO. 150

HOKENSON FISHING DOCK
APOSTLE ISLANDS NATIONAL LAKESHORE
Wisconsin

HOKENSON DOCK AND FISH HOUSE:	HS-01-138A
HOKENSON ICE HOUSE:	HS-01-138B
HOKENSON RAILS:	HS-01-138D
HOKENSON TWINE SHED:	HS-01-138F
HOKENSON BOAT "TWILITE":	HS-01-138G
HOKENSON POUND NET BOAT:	HS-01-138H
HOKENSON DRYING REEL:	HS-01-138J

by
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PREFACE

This report is intended to fulfill the requirements for a historic furnishing study of the Hokenson Brothers Fishery at Little Sand Bay, Lake Superior, Apostle Islands National Lakeshore, Wisconsin. The study applies to the Fish House and Docks (HS-01-138A), the Ice House (HS-01-138B), and the Twine Shed (HS-01-138F).

Because of the physical decrepitude, as well as the space, lighting, and locational limitations of HS-01-138B, the Ice House may not lend itself well to the purpose of serving as an exhibit site unless rehabilitation occurs. Additionally, when in use, three-fourths of the Ice House capacity housed blocks of ice, scarcely a fit subject for museum exhibit. Its most noteworthy furnishings, an ice-crusher and a cook stove, could be better displayed in HS-01-138F, the Twine Shed.

Park maintenance personnel have completed the embryonic repair work for HS-01-138B that will eventually culminate in the building's complete stabilization. At that time the Ice House will better serve for the display of its exterior, rather than for a manifestation of its internal contents. If the Ice House interior is exempted from public exposition, as recommended, it can provide storage space for various items temporarily withheld from exhibition.

Because of the considerable space available in the Twine Shed, it is readily adaptable for exhibition purposes along lines resembling a museum, rather than attempting to "freeze" its appearance at any selected moment of the past. In this way the fishery exhibit will include items whose temporal origins may span the entire 35 year period of the fishery from 1927 to 1962. The nature of the commercial fishery as exercised by the Hokenson brothers was such that the internal appearance of the Twin Shed was constantly in flux, as the brothers plied their trade and did their chores. Indeed, the Twine Shed functioned as a mechanic's repair shop, a net-repair shop, a storage space, and as a universal activity center for their fishery.

The explanation for such a mode of preparation for the Twine Shed is reinforced by the fact that the two surviving Hokenson brothers, Eskel and Roy, and their wives, Florence and Irene, are seldom able to precisely date when various structures were built, or when assorted objects were acquired or manufactured. The Hokenson families were people so deeply absorbed in their livelihood as to find no time to keep diaries; and they preserved only a few documentary evidences of their business transactions. When queried in several different interviews about dating various items, Roy Hokenson invariably replied to the effect: "I don't know exactly when we got those things, but whenever we needed them, we either made them or bought them."[1]

This report will provide descriptions and illustrations of machines, tools, boats, motors, nets, ropes, supplies, and miscellaneous gear associated with the Hokenson Brothers Fishery. There are a considerable number of unclassified metal odds and ends in the Twine Shed, some of which are parts of various machines or motors or other tools and devices. It is expected that many of these artifacts have no direct association with fishing, but ended up in the Twine Shed because of the brothers' mastery and use of various manual skills that applied to other fields such as automobile repair, house-building, or lumber manufacture.

Roy Hokenson, whose homestead stands less than a hundred yards to the east of the Twine Shed, provides park personnel with continuing information on the uses and identity of the artifacts inside the Twine Shed. However, since he has reached his eightieth birthday and is afflicted with rheumatism, he cannot give such assistance during a considerable portion of the year, since the winter temperatures in the Twine Shed aggravate his condition. Additionally, because of Roy Hokenson's years, it is not reasonable to impose unduly on his time, despite his unwavering courtesy to park personnel. Even though many of the metal and other pieces may not be identified, they can be kept for visual display and sorted by type, some of them to be stowed in the wooden parts-file cabinet in the southeast corner of the building.

Since the second story of the Twine Shed potentially offers again as much display space as the ground floor, it is suggested that the feasability of such a purpose be looked into. An external stair would detract from the natural appearance of the Twine Shed, but using the present ladder stairs would be generally unsafe for most visitors. Furthermore, the north end of the loft offers the additional hazard of an open bay whence visitors might fall. If no simple method can be devised for using the second story for exhibits, it can continue to be used for storage.

Suggestions are made in this report for the location of the furnishings as well as a suggested floor plan (See appendices A & B). These recommendations are offered only as a helpful guide and need not be followed.

I wish to thank the many people who aided research on this project. Superintendent Pat Miller of Apostle Islands National Lakeshore and his staff, especially his Chief Naturalist, Phil Hastings, gave me access to various records and the park library, and helped me in various other ways. Other members of the staff provided me with necessary background information, including Lee Anderson, Chief Ranger, Robert Brander, Park Biologist, Dave Kangas, Facility Manager, Phyllis De Foe and Lui Young, secretaries.

INTRODUCTION

The Hokenson Brothers Fishery, located on Little Sand Bay, Lake Superior, Bayfield County, Wisconsin, contains three major structures, a combined Fish House and Dock, an Ice House, and a Twine Shed. The brothers completed much of the complex between the years 1927 and 1931, but over the years added incrementally to them.[1] The Fish House, on the dock for example, had two major additions to the original structure. In the beginning the brothers built a single-room shed, added a second room sometime during the 1930's, and completed the third room by 1940. Presently, early 1979, the Ice House is in crucial need of basic stabilization, while the Twine Shed and dock structures have already received preventive maintenance.[2] The outer portion of the L-shaped dock is also in need of early repair attention.

The basic outlook of the Hokenson Brothers when they decided to become fishermen was that they would concentrate on "money" fish such as lake trout and whitefish. But they discovered very early that they could not afford to ignore the brief but hectic three week herring season that usually occurred in November. Participation in the herring bonanza did not require as great a capital outlay, but was far more hazardous than the rest of the year's operations because of storms and cold. A fisherman with a small supply of gill nets and a boat as small as a skiff could join in and earn a goodly sum of money even though salted herring sold for as little as one to three cents a pound. Many Minnesota fishermen on the North Shore, for example, went out for years in eighteen foot skiffs and would bring in between one and two tons of herring for a night's work. Thus, even operating on a small scale, a herring fisherman could earn upwards from forty dollars a day during an era when the dollar had five times today's purchasing power.[3]

Smaller family enterprises would have less overhead in the processing of herring, since wives and children pitched in to do the cleaning and salting of the small fish. The Hokenson Brothers soon got into the herring harvest in a larger way than the average family operation. Even

though there were three brothers in the business, Eskel, Leo, and Roy, they sometimes hired neighbor men, occasionally Chippewa Indians, to go out on the lake with them. The in-port operation following the catch not only required the men's efforts, but it also called for their wives, and neighborhood children to join in with the cleaning and salting process.

The expansion of the scale of herring operations explains the incremental development of the Fish House on the dock, as well as the construction of a large fishing tug, the Twilite (HS-01-138G). Every phase of the Hokenson herring operation was designed to minimize the spoilage or decomposition of the fish. Hence the brothers sought to move the herring from the pellucid depths of lake Superior to the briny casks of Little Sand Bay as rapidly as possible. First of all, they fished at night, so that the sun's rays would not intrude to hasten oxidation of the herring.

There were several things about gill-net fishing that militated against preserving the freshness of the product. Since the herring would be gilled and immobilized in the netting, they would soon die. The Hokenson brothers, and most other herring fishermen solved this dilemma by leaving nets in the water only for a few nighttime hours. They therefore stayed out on the lake and waited for the gill-nets to fill. If it were not for the congregation of the herring for spawning purposes, such a procedure would ordinarily not have been remunerative. As it transpired, however, the swarming fish were usually so close together as to create an additional preservational problem. The herring would be pulled aboard the fishing boats, still wriggling, and in such abundance as to make it well nigh impossible to pick the nets clean on board.[4] A few Bayfield County fishermen had crews large enough to accomplish this picking while out on the lake, but the majority had neither manpower nor sufficient room to accomplish it. Rapid processing in port became the only remedy for this stumbling block. The Hokensons effected swiftness by having their herring shed directly on the docks, within only a few feet of the boat. There, in the shelter, men, women and children quickly arrested the natural course of dehydration and oxidation by rapidly decapitating, gutting, halving, cleaning and salting the herring.

This work went on through the night until the last of the catch was safely capped in half-barrel containers. The finished product was driven to the Ehlers' Market at Cornucopia in an improvised Ford Model A Pickup truck during daylight hours.[5]

Activities centering around the Ice House were most intense during the winter months. It was then that the Hokenson brothers harvested ice from the waters of the adjacent bay. The brothers would go some distance out on the lake to insure the cleanest, clearest ice for their purposes. In the early years their ice-cutting tools were quite primitive: a simple hand-powered ice augur, a handsaw, and a horsedrawn line cutter. Eventually, during the 1940's they built a special framework sled holding a low horsepowered gasoline motor that propelled a circular saw blade (Figures 1 and 2).[6] Other fishermen developed variations of this powered ice saw (Figure 3).

This device enabled them to cut through ice as thick as a foot or so. Thicker ice might compel them to saw through the last several inches by hand saw. Thus the depth of an ice block was controlled by the extent of the winter's coldness, but the ice harvesters could regulate the thickness of the ice blocks somewhat by selecting a region farther out into the channel where the ice might not be too thick for their machinery. Usually the end of an ice block would be a square 18 to 24 inches on a side, and be four feet long.

The brothers experimented with various sleds to transport the ice, but the speediest one was an airplane-like sled developed in the 1940's that would carry a single large block of ice. The cockpit and hull resembled an airplane of the period, and had an old automobile engine attached to a pusher propeller in the rear. It was on three large skis and had a steering wheel which turned the forward ski (Figure 4 and 5). The Hokensons had at least one near-disaster with this sled. One spring day it went through the surface of Lake Superior momentarily trapping the trio. All three brothers exited safely through the roof of the craft as it slowly settled into the water. On the following day they were able to rescue the sled as well, since it did not sink entirely from view.[7]

Making numerous trips with such a conveyance, the Hokensons first filled the lower level of the Ice House until the ground level north-side window was blocked. Thereafter, they had to maneuver up the embankment toward a southerly lower hatch. As the house filled with ice, they reached a third level of loading that required the use of a chute leading from the embankment into the south side loft. The stored ice was protected somewhat against rapid summer melting by coating the ice blocks with layers of sawdust. When needed for use, the ice could be cleaned with water from an artesian spring a few feet to the west of the Ice House.

The airplane-like sled did not serve the Hokensons for many years, however. Despite its speed, the carrying capacity of the pusher was too limited. The brothers therefore teamed up with neighbors by the 1950's in using several trucks to haul ice. Out on the lake, one truck would pull the ice blocks up a ramp onto the flatbed of a second truck.[8] Generally though, the brothers kept ice-handling procedures to the barest minimum, since any transfer of ice from vehicle to vehicle usually required some sort of embankment which utilized gravity to chute the blocks downward. In this way they tried to haul the ice directly from the cutting site to the chute into the Ice House without transfering it from vehicle to vehicle.

The western half of the Ice House was also used for temporary storage of fishery equipment, as it was relatively close to the dock, but some space was always reserved for either an ice chipper or the subsequently acquired ice crusher. The latter machine was a major labor-saving device, since manual methods of chipping ice were extremely time consuming (Figure 6). The chipped ice, of course, was used to keep the summer catches of fish fresh from the moment they left the water. A layer of ice was shovelled atop every layer of fish.

During the 1930's, before the completion of the Roy and Irene Hokenson residence on the embankment to the east, the northeast corner of the Ice House contained a cook stove to provide warm noontime meals for the brothers during the summer months. Even though June, July and August

are the most pleasant months of the year on Lake Superior, the brothers found that frequent immersion of hands in icy waters, or stiff breezes across the open lake, made a hot midday meal a near necessity. The wives, Florence, Jeannette, and Irene, took turns with the cooking, or shared facets of the kitchen work among themselves. The summer fishery, which centered around the care and servicing of pound-nets, ideally fitted the noontime break. Mornings could be spent tending the pounds to the east, while the afternoons could be devoted to those on the west.

The range of their boats to east and west grew over the years as they expanded from a single oar-powered skiff to a large outboard motor pound-net boat, and finally, in 1937, to their large diesel propelled Twilite, a 38 foot fishing tug.[9] As the Brothers acquired improved technology to set up their pound-nets, they were eventually able to enlarge the number of nets from three to fifteen. To a layman, this might not be considered much of an achievement, but professional studies concerning the Great Lakes fisheries, usually treat pound net fishermen as lesser capitalists. One early writer, characterizing pound net fishermen of the Great Lakes during the 1880's, stated: "The owners are generally men having considerable capital and possessed of the ability to carry on a large business."[10] The Hokensons were by no means capitalists, yet the statement highlights the fact that hard work and ingenuity could occasionally substitute for considerable wealth. The Hokensons too were unique in that they were three vigorous men from a single family who had a multiplicity of manual skills and considerable energy that they translated into a successful fishery. As a comparative figure, the early study mentioned above, valued a single pound-net at about $350 per net.[11] The Hokenson nets had at least double that value in 1930, but most of their cost could be attributed to labor rather than dollar expenditure.

Occasionally the uninitiated outsider is puzzled when first hearing the expression "pound-net." This writer was gently upbraided in an early meeting with Roy Hokenson, who advised him that local usage usually pronounced the word as if it were spelled "P-O-N-D." This usage

conjures up the image of a small enclosed body of water, which is an apt expression when referring to the Lake Superior net variety. Webster's dictionary also reveals the relationship between "pond" and "pound," identifying the former as another version of the latter, meaning "an enclosure." Most of the older nineteenth century texts on this type of fishing used the form "pound-net." Basically, there is a wide variety of pound-nets that consist of a combination of several devices that culminate in a space underwater enclosed by netting, from which fish cannot readily escape. Some of the components of the pound-net are "leaders," "hearts," "tunnels," and "pots."

Scientific writers have disparaged the pound-net fishermen for not needing a greater amount of skill in capturing their quarries. One author wrote: "The pound-net fishery is an important one, both in view of the greater quantities of fish taken and on account of the powerful influence it is supposed to exert in reducing the supply of shore-haunting species. Few forms of fishery apparatus are more effective in gathering in all kinds of fish, both large and small, whether swimming at the surface or along the bottom, than the great pound nets... Hook-and-line fisheries, and even the majority of seine fisheries, do not compare with the pound fisheries in the magnitude of their results. Again, while most forms of apparatus imply very considerable skill in the fisherman, the pound-net requires none. It operates by certain constant peculiarities of tides and fishes, which remain in force whether the fisherman be awake or asleep."[12]

The statement is not altogether fair, in that a certain amount of knowledge of lake trout and whitefish habits is necessary for the placement of a pound-net. Granted that one location would produce a bonanza in a single fishing season and a drought the following year, pound-net psychology is nevertheless predicated on transforming sport fishing into an economically viable commercial fishery. In other words, the fisherman's livelihood depends upon the efficiency and productivity of his apparatus, and, as a businessman, he is paid no more per pound of fish when he pulls in a small yield with great flair than if he achieves a monetary windfall through scientific nonchalance.

The pound-net fisherman counters his critics by pointing out that the objective of any fisherman, sport or commercial, is to place the freshest, tastiest fish on the table of the consumer. In this, pound-netters far surpass their rival gill-netters. The author of the quote in question doubtlessly interviewed more gill-net fishermen, as they were and are more numerous and vicariously presented their views. As for the sport fisherman, he would have a natural bias against the principal targets of any Lake Superior commercial fisher, the lake trout and the whitefish. The sportsmen fault the former fish for its lack of fight when hooked, and cannot hook the latter fish at all because of its small mouth and peculiar feeding habits.[13]

The third and largest structure of the Hokenson fishery, the Twine Shed, was a multi-purpose structure, as has been stated. Because of its capaciousness, it would be ideally suited for displaying both large and small fishery artifacts. In it the brothers had a small blacksmith forge for making small iron parts or shaping other pieces of metal to desired configurations. Later they bought a Sears Craftsman arc welding set and did repairs and modifications with it (Figure 7 & 8).

In winter the shed was used for mending both pound and gill-nets, as well as readying various machines for their busier seasons. The brothers also made their own wooden floats, from cedar on a wood lathe. This chore might be performed in any month of the year, but winter imposed more spare time than any season. The Hokensons could bring their pound-net boat into the shed for repairs or modifications as well. The Twilite was too large to bring to the Twine Shed. Hence its repairs were done on the beach. The brothers used a boat carriage, steel tracks and a winch to hoist the Twilite out of the water for hull repairs and preventive maintenance.

The winter chores in the shed were made more pleasant by the installation of a wood-burning box heater along the south wall. Presently the stove pipes are disconnected but the brick chimney remains nearby. (Figure 9)

Because of the large dimensions of pound-nets, there was sufficient space for repairing them only in the loft of the Twine Shed. A single pound-net could not be fully stretched out on the upper level, but there was sufficient room to maneuver its various components to ascertain what repairs were needed to get them done. Even a tightly wrapped pound-net constituted a bundle of some size in the loft (Figure 10). Gill-nets were physically more manageable, as they ran in a straight line, and could thus be repaired in a more restricted space by piling them up section by section, or by winding them onto a drying spindle (Figure 11).

The scene within the Twin Shed was continuously changing. At times the sled-like rotary ice saw would be brought in for adjustment, repair or storage. Again it was in use on the lake. Tools were hauled in and out endlessly for use in the boats in summer, or ice tools were shuttled back and forth for their roles in processing ice in the winter.

The brothers loved to hunt, and over the years collected at least four sets of deer antlers to decorate the walls of the Twine Shed. The scale for weighing fish was usually there, but during herring season it might be available down on the dock. Miscellaneous tools and equipment such as anchors (homemade or purchased), drag rakes, knapsacks, life vests, ice tongs, shovels, rope, nets, parts, bottles or cans of oil, preservatives, paints, cattle spray, and anything they needed was shuttled about wherever it filled a function. Heavier items, such as the boxes of fish or nets, were moved on a dolly-like flatbed wagon or in a wheelbarrow. Thus it is hard to conjure up a scene of the Twine Shed at rest. It was a very busy place.

I. POUND-NET BOATS AND THEIR FURNISHINGS

Needless to say, a wide variety of boats were developed by Lake Superior fishermen for their various types of fishing endeavor. Most of the boats were designed and constructed by the fishermen themselves from native timbers. The pound-net mode of capturing fish on Lake Superior was first tried on Whitefish Bay, Michigan, in 1864.[1] To service such a net, the fishers used boats designed for other purposes, but in time developed a specialized design. No attempt was made to imitate small boats used in the Atlantic fishery (Figure 12 & 13). The sea faring models were designed with pointed prows and bows to better withstand breakers and swells. Any boat was vulnerable when broadside to a wave, yet most Great Lake fishermen accepted such a weak point on a flat-sterned boat. When running from a storm, they could be swamped by waves slapping this beam's end-aspect. The Great Lakes men accepted this hazard with good grace, believing they could make port or land quickly. Apostle Island fishers were shielded somewhat from the full fury of Lake Superior storms by the sheltering protection of the archipelago. Minnesota North Shore fishermen similarly supposed that they could escape a northwester by quickly gaining the shelter of the bluffs. A northeaster merely helped to blow them home.[2] Yet the rapid development of Lake Superior storms always provided an element of uncertainty to fishermen's lives. The Great Lakes also had shorter, choppier waves that frequently drew surprised comment from men who had weathered the worst of the seven seas.[3]

Since nineteenth century Great Lakes fishermen were generally limited to sailpower, the earliest pound-net boats carried masts and canvas (Figures 14 & 15). Their slowness frequently dictated the number of nets a fishing crew could service per day. Some fishermen with larger resources, towed a pound-net dinghy behind their larger sailboats, the so called Mackinaw boats (Figure 16). The dinghy, of course, was usually oar powered, and would vary from 14 to 20 feet in length, and had either a two or three man crew. Unless the pot of the pound-net was especially small, the size of the pound-net dinghy lent itself very well to the more usual procedure of rowing directly inside the trap to lift the net.

The more common nineteenth century pound-boat, however, was larger than the one described above. An 1887 compilation of the U.S. Commission of Fish and Fisheries described the Great Lakes pound-net boat as large, flat-bottomed, and broad of beam. Their average length is about 28 feet, their breadth of beam 9 feet, and their depth about 42 inches. They will carry from 60 to 80 half-barrels of fish, a safe load being 70 half-barrels, or about 10,500 pounds. They are usually sloop-rigged and carry long, heavy masts. They are constructed of rough boards, and commonly built by the fishermen. On each side of the center board there is usually a covered bin.

These boats are moderately fast sailers, are very safe, and can run in 6 inches of water. When the nets are to be lifted they are taken into the bowl." [pound][4]

The report went on to describe variants from the above style. Some had no masts and were propelled entirely by oars. Others had one mast and a gaff sail. A third variety had two masts. In other places, fishermen built their pound-boats with higher quality workmanship and used them both for lifting nets and for driving stakes. Some imitated the larger Mackinaw boats in design. So there was no fixed design for the pound-boats.

A. The Hokenson's First Pound-Net Boat

The original pound-net boat owned by the Hokensons actually was a multipurpose boat that fulfilled every waterborne function for which it was needed. This rowboat, perhaps sixteen feet long, was a very dilappidated affair. Roy Hokenson could recall that, during the 1920's while he was rowing, an Indian partner named Sammy Newago held the gunwales motionless to prevent them from flopping as the boat moved through the water.[5]

At the end of World War I, when Roy and Eskel Hokenson returned from France, the three brothers used this boat for occasional hook and line fishing, or for setting a few gill-nets for trout or whitefish. As they turned more and more to fishing, they added a

primitive two horsepower c. 1922 Evinrude outboard motor to the decrepit craft.[6] This motor is still kept by Robert Hokenson, nephew of Roy and Eskel, and son of the deceased Leo. This outboard engine was so simple in design, that it could be and frequently was dismantled while out on the lake, in order to repair it. This primitive boat was retired in the 1930's when a sturdier pound-net boat was built to accompany the larger Twilite. This boat was eventually equipped with a more powerful outboard motor, no longer extant.

B. The Second Pound-Net Boat (HS-01-138H)

Pound-net fishermen invariably tow such a smaller boat behind the larger tugs, at least when they are making the rounds to service their series of pound-nets. The second Hokenson pound-net boat still survives, is about 18 feet long, 5 feet wide, and 30 inches deep. It is flat-bottomed with pointed bow, and a flat stern for mounting an outboard motor. Gasoline power was not always used, as is evidenced by the still visible oarlock holes in the gunwales. Presently it has a seat mounted forward and one aft for the pilot (Figures 17 & 18). In earlier times it had a seat amidships (Figure 19). The brothers built this pound-net boat from native timber on their land in consultation and collaboration with their cousin, Halvor Reiten, a boatyard owner, and still a Bayfield resident. As with everything they built, the brothers improved the pound-boat in time by covering over the spacing between the upper gunwale and the adjacent bracing.

The boat can be displayed either with an old set of oars lying in the bottom, together with oar-locks, or with a vintage Evinrude motor mounted on the stern, or with both oars and motor.

C. Equipment for the pound net boat

The earliest outboard motor used with the pound-boat, a c. 1922 Evinrude, is still owned by the Hokenson family. The 1922 models developed between two and 3.5 horsepower (Figures 20 & 21). Robert Hokenson, nephew to Eskel and Roy, is the present custodian of this old outboard, and might be amenable to selling it to the park. If obtainable, such a motor need not be restored to working condition, but can at least

be made to appear workable when it is mounted for static display in the pound-net boat.

D. Homemade Wooden Fish Boxes

There are at least four of the brothers' selfmade containers remaining today. The dimensions of these fish boxes are approximately 36" x 18" x 15" deep (Figures 22 and 23). During the heyday of the fishery, the Hokensons had a considerable quantity of these boxes. In 1979, fishermen use plastic boxes for the same purposes. In the course of the herring season, several such boxes might hold gill-nets prior to their setting in the deep; while on the return trip they were usually laden with the small fish. The latter use was not invariable, since, as has been mentioned, the herring catch was often so abundant as to render picking the nets on the lake impossible.

During the summer season, at least one, and usually more, of the fish boxes was filled with chipped ice, so that the catch could be kept fresh.[7] When trout and whitefish were more plentiful in the pound-nets, it would take several such boxes of chipped ice for preservative purposes. There were times, as well, when the catch was so numerous that they were lifted by dip net directly into the pound-net boat, and transfered again by the same means to the hold of the Twilite (Figure 24).

E. Shovel, Scoop, and Dip-Net

The brothers frequently had along an old shovel in the pound-boat for removing rough fish from the bottom of the rowboat after they had been dipped from the pound-net (Figure 25). The flat and wide-mouthed shovel would slide smoothly over the level boards in the bottom of the rowboat and cleanly pick up any undesirable rough fish for return to the lake. Roy Hokenson narrated one incident when a single pound-net was filled with more than a ton of suckers, a rough and relatively valueless fish. Rather than scoop them back into the lake, they made inquiry of one of the commercial dealers in Bayfield whether the latter would take the fish off their hands for a nominal price. Even though the dealer was willing to pay something for the rough fish, the

brothers' return to the once overburdened net revealed that the suckers had escaped through the tunnel of the net.[8] On similar occasions the Hokensons usually shovelled or scooped such fish over the side, much to the delight of the perpetually hovering seagulls.

Over the years the Hokensons used various types of scoops in the pound-boat. Some of them were wood and others metal. The latter variety was not habitually used to move fish, as it would damage them. Instead, metal scoops could be used for bailing or general cleaning of the bottom of the boat (Figure 26).

The dip-net was the most essential piece of equipment on the pound-boat. The two inch, or sometime smaller mesh was attached to a metal hoop or square frame about 18 inches across. The handle of the net was made of wood and had a length of four to five feet (Figures 27 & 28). Roy Hokenson could recall times when he scooped for more than an hour from a single pound-net on days when the catch was heavy.[9]

F. Measuring Board

During the entire career of the Hokenson Brothers as fishermen, Wisconsin state law restricted the minimum size of lake trout and whitefish to 17 inches.[10] For the purpose of checking sizes, most commercial fishermen devised a wooden frame to place the fish in, for the purpose of checking the length (Figure 29). Roy Hokenson stated that usually he and his brothers erred on the side of safety by returning fish of doubtful size to the lake; but occasionally they would compare "seaman's eye" against the measuring board.[11]

G. Cleaning Board and Knives

The fish cleaning board resembled the measuring board quite closely in shape, but it was somewhat larger, perhaps two feet long and 18 inches wide (Figures 30 & 31). This board can be placed for display either on the seat of the pound-boat or aboard the Twilite, the former being preferable as it is more apt to be seen. This board was a homemade frame that could be positioned on a boat seat or in various places aboard the larger tug. Only occasionally would the Hokensons

clean their catch aboard the pound-boat. Then it would be when the catch was small and there was sufficient time to do it out on the lake.[12] Otherwise the fish were iced whole and even marketed in that condition. But a cleaned and gutted fish always brought a higher price, so that the brothers would process them if time permitted. Frequently, when the catch of one pound-net was not numerous, one or the other of the Hokensons could clean fish as the Twilite moved between nets.

During the 1930's, the brothers often threw the offal into the lake. Then conservationists agitated to have this practice outlawed. The Hokensons point out that wild eagles fed off these discarded entrails before the latter sank; and when conservationists succeded in proscribing such dumping, the eagles gradually disappeared. Thereafter slop buckets were used (Figure 32) for offal, and the refuse went to feed cats or to be used as fertilizer, or bait for sport fishing.[13]

H. Spare Twine, Mending Needles, and Miscellaneous Tools

At times while servicing a pound-net, the Hokensons might discover breaks in the netting. Thus they always kept on hand a quantity of mending twine and several needles in a container on the pound boat. A variety of other items were also kept handy in the boat; a hammer, spare floats, a few nails, different kinds of line, a gasoline can for the outboard, and whatever else needed to correct problems as they came up.

II. APOSTLE ISLANDS FISHING TUGS, THE TWILITE, (HS-01-138G), AND ITS FURNISHINGS

A. Early Vessels

Although there never was a surcease in the exploitation of fishing resources on Lake Superior during the nineteenth century, the fishery triumphed as a commercial enterprise only when various branches of the railroad reached ports around the perimeter of the lake during the 1870's.[14] Various companies were formed at Duluth, Bayfield and Marquette to give the individual fisherman easy access to markets via these railheads.[15] Companies such as Boutin and Mahan, Rich and Atwood, and Frank Boutin at Bayfield, were well equipped with large steam-powered tugs (Figures 33, 34 and 35). These entrepreneurs usually did very little fishing themselves. Instead, they functioned as collectors of the product and distributors of fishing gear and provisions, at a price. Frequently the individual fisherman was given his start in the enterprise with equipment he would pay for with fish.[16]

As for the early fishermen themselves, their boats were invariably sail-driven during the nineteenth century. Each locale had its favorite design. One of the Great Lakes had the Huron Boat (Figure 36). Along the North Shore of Lake Superior many Scandinavian immigrants built their imitation of the Norwegian Nordlandsbaade, or Northland boat. The most succesful and frequently seen sail-powered fishing vessel on all of the Great Lakes was the Mackinaw Boat which was nearly thirty feet long (Figure 37). The Mackinaw boat survived the turn of the century and gave way only when the internal combustion engine was adapted for marine purposes. One of the variants of the latter, the diesel, came within cost reach of more Wisconsin fishermen in the 1920's and 1930's.

James W. Milner, deputy commisioner of the Fish and Fisheries Commission, and a curator for the Smithsonian Institution, gave a splendid description of the Mackinaw boat in his portion of the 1872/3 Fisheries report:

"The Mackinaw of the lakes has bow and stern sharp, a great deal of sheer, the greatest beam forward of amidships and tapers with little curve to the stern. She is either schooner-rig, or with a lug-sail forward, is fairly fast, the greatest surf-boat known, and with an experienced boatman will ride out any storm, or, if necessary, beach with greater safety than any other boat. She is comparatively dry, and her sharp stern prevents the shipment of water aft, when running with the sea. They have been longer and more extensively used on the upper lakes than any other boats, and with less loss of life or accident. The objection to the more general use of the Mackinaw is that her narrowness affords too little room for stowage. They are employed entirely with the light-rig gill-net stocks, and are usually from twenty-two to twenty-six feet in length. Lake Superior, the northern half of Lake Michigan, and a large portion of Lake Huron, are the regions where they are in general use."[17]

B. The Hokensons' Twilite (HS-01-138G)

The Twilite is the thirty-eight foot diesel powered fishing boat the Hokenson brothers had built for the start of the 1937 season. Eskel, Leo and Roy collaborated with their cousin Halvor Reiten of Bayfield in the design and construction of the tug. Reiten thought that he still had the complete construction diagrams of the Twilite, but when he looked for them in January, 1979, he could find only a preliminary drawing that was badly damaged with age (Figure 38).[18] The Twilite is about ten feet wide, and the hull measures about six feet from keel to gunwale. Its displacement is eleven tons.[19]

The Twilite was sold in 1965 to Mr. Gilbert Tanner of Eau Claire, Wisconsin. Mr. Tanner modified the lines of the Twilite somewhat, since he used it as a sport-fishing and pleasure boat. In 1977 Mr. Tanner donated the boat to the Park. He still retains the wheel. Other parts, like the ship's compass, have been sold or donated to the park.

The Twilite got its name from the Hokenson brothers' practice of launching out onto the lake for the herring season runs during the twilight hours. Neighbors and competitors on the lake shouted at them: "There go the twilight fishermen." Soon the brothers painted "Twilite" on the sides of their vessel.[20]

From extant photographs of the Twilite, an approximation of the lines of the original deckhouse can be achieved (Figure 39 & 40). As far as possible the former external configuration of the Twilite should be restored. As long as the vessel remains seaworthy, the Twilite could be shown to the public as it rides in the water tied to the dock (HS-01-138A). Periodically, of course, the boat will need hull maintenance and will be pulled from the water on the steel rails at the foot of the dock.

While thus in drydock, it is problematical whether an easy public access method could be devised. But it should be done if the boat cannot be preserved in a watertight condition. Eventually the plight of the hull may require perpetual beaching; hence it would be advisable to evaluate the alternative of onshore display of the Twilite from the beginning.

Admittedly the use of two sets of stairs, fore and aft, would detract from the pristine nautical appearance of the boat; but it would provide an efficient way of speedily moving guests through the length of the vessel. If the static display method is decided upon, a clear walkway could be established running down either the port or starboard side of the boat. The Twilite is not exceedingly roomy, so that whatever exhibition method is settled upon, the interior is not a likely place to show the usual fishing gear onboard, such as nets, fish boxes, and the like. These latter would have more space in the Twine Shed (HS-01-138F).

Whatever mode of display for the Twilite that is settled upon, it should be borne in mind that John Erickson of Bayfield still practices the art of pound-net fishing from the Hokenson dock, and that visitors can

arrive at some conception of the process from viewing Erickson's boat at its moorings. That is, the visitor will see the pound-net boat tied at the stern of the tug, the general lines of the fishing boat, and so on. The fact that Erickson has added neither sonar nor radar to his vessel, demonstrates the continuity of fishing methods over a long span of years. John Erickson does have an autopilot for his boat, however, but the device is visible only if one views the interior of his craft. Needless to say, it would not be advisable to impose on Mr. Erickson's time for providing tours; but the presence of his fishing enterprise at the Hokenson dock gives a useful backdrop for the exhibit, and his continual presence and activity should be encouraged and promoted.

C. The Twilite's First Engine, an International Diesel

The first engine installed in the Twilite in 1937 was an International diesel. Though powerful, it had a decided liability with its lack of an automatic starter. Roy and Eskel Hokenson still shake their heads when telling about the tedious and often back-straining labors of getting this engine started by hand in any kind of weather. Superfluous to say, the colder the outside temperature, the more resistance this engine gave. Finally, in the 1940's the brothers bought a more modern engine with an electrical starting motor. Currently, in January 1979, the Twilite does not have a power plant, but Roy and Eskel have recently sold the original International engine to the park.

Since the original International diesel engine has been obtained, the decision must be taken to either install it in the Twilite or display it separately. The former method would have the advantage of displaying the fishing tug in a fully functional condition, provided the engine can be restored to working order. Because of the difficulty of starting this engine under any conditions the latter exhibit method seems the most practicable.

D. Wheel, Rudder Controls, and Propeller

Since Mr. Tanner, the interim owner of the Twilite, retained the original Hokenson pilothouse wheel as a souvenir, an analogous period steering device can probably be obtained in Bayfield County. There are

numerous retired derelict fishing vessels resting ashore along the perimeter of the Bayfield Peninsula, themselves evidences of the passage of the heyday of the commercial fishery on Lake Superior. Halvor Reiten, cousin to the Hokensons, has a number of old vessels in his Bayfield boatyard. Equally, at Cornucopia and Port Wing to the west of Little Sand Bay, are a number of old abandoned fishing vessels. Admittedly, a boat's wheel is a popular item for decorative or display purposes, and therefore frequently missing, but one vintage wheel should be obtainable.

The connecting mechanisms that link wheel to rudder should all be duplicated with period type parts and put in usable condition. The propeller and drive shaft should also be put in place and made serviceable.

E. A Mechanical Net Lifter

Since the Twilite was modified by Mr. Tanner for pleasure boating, there is no gill-net lifting mechanism on board at present. In almost all of the Wisconsin based fishing tugs, the net lifter is mounted well forward in the hull on the port side (Figure 41). The lifter is nothing more than a powered winch that has fenders for smoothly taking in the fishnet on the port side and discharging the netting on the starboard side or through the stern hatch. It was invented around 1900. It is usually powered by a gasoline motor independent of the boat's main propulsion system. The top of the winch has grooves that readily accommodate and grip both the floats and the suspension line along the top edge of the gill-net (Figure 42).

Once the nets have been lowered, and have stood in the water for an interval, the fisherman afterwards finds the location of his gang of gill-nets in the lake, by means of his own distinctive marker-buoy, and feeds the first part of the net up toward the portside hatch through the lifter drum, and either leads the netting onto the lower deck of the vessel or out the starboard hatch back into the lake. When nets are first set, the stern hatch is frequently used.

Gill-net fishermen who pursue lake trout and whitefish, pick the fish from the nets as the lifter pulls the netting through the boat. The continuously running lifter immediately returns the gill net to the lake. If a given fishing location produced poor results, the fishermen would momentarily stow the nets in fish boxes or on the boat deck until the tug arrived at an anticipatively better location.

Since the Hokensons did not pursue lake trout and whitefish by means of gill-nets, they only needed the net lifter during the brief but hectic herring season. During those few weeks the nets would not be returned immediately to the water, mainly because the webbing would be so filled with fish as to render immediate picking of the nets impossible. Secondly, had the nets been reset in the deep at once, there would be need to service them again in a few hours. One Minnesota fisherman, falling prey to the temptation of putting down an excessive length of gill nets, lamented the loss of a day's profits when a large catch imposed excessive port time on his crew, besides extending the fishcleaning interval and spoiling some of the harvest.[21]

F. The Twilite's External Accoutrements

The Twilite should be equipped, in so far as possible, with all of the period (1937 - 1962) equipment which was externally visible, such as anchor and cable, mooring lines and cleats, port and starboard running lights, exhaust stacks for main engine and any auxiliaries (such as sump pump), any masts and braces, and other protuberances or rails of the top deck. The Hokenson brothers did not have any of the recent innovations such as radar, sonar or autopilot, so such modernisms need not be sought after.

G. The Twilite's Internal Equipment

The pilot house should contain the boat's compass, which Roy Hokenson recently donated to the Park, and any other engine instruments used for monitoring engine performance or r.p.m. The throttle quadrant should be mounted there as well. Most Lake Superior fishing vessels have some sort of stationary cushioned seat for the pilot. Frequently it is attached directly to the deck, framework, or bulkheads of the vessel.

A few fishermen, even in the early days, built jury-rigged auxiliary steering devices by connecting a series of bicycle-chains, sprockets, and pulleys to the main wheel. Several chains and sprockets of this type hang from the walls of the Twine Shed (HS-01-138F). John Erickson, who bases his operation at the Hokenson dock, has such ancillary wheels near the forward hatches of his boat, so that he can maneuver carefully up to a pound-net or dock while his partner topside mans the mooring line.

Most commercial fishing vessels among the Apostle Islands carry some sort of long bench where one or the other of the men can clean fish with a knife as the boat proceeds between pound-nets. Some use the bench itself as a fish cleaning board, others have a homemade wooden frame for the purpose. For cleaning the interior of the boat after a day's fishing, a few fishermen have an auxilary pump that runs off the main power plant. This pump uses fresh lake water, and a hose attached to it can be directed at any portion of the deck for cleansing purposes. The refuse water drains into the bilges and the regular sump pump removes it from the hold.[22]

All commercial fishermen who participated in the November herring run, at least those who owned a larger tug, kept a small wood-burning stove onboard to keep off the chill. None of these stoves was so large as to produce a detrimental effect regarding the dehydration or oxidation of the herring. If such a stove is to be installed in the exhibit, a small supply of cut wood should be stacked near it. The stove itself should be mounted on a thin metal plate, as was the practice, for minimizing the danger from boat-destroying fires.[23]

The three cloth and cork life jackets found in the Twine Shed (HS-01-138F) can be displayed hanging from a nail or nails on the bulkhead of the Twilite, if the decision is taken to equip the fishing vessel in a fully operational mode. Similarly, an empty fuel can and the four gallon oil jug lately sold by the Hokensons to the Park, can be stationed somewhere aft in the hold of the Twilite.[24]

A vintage tool box, complete with a few of the usual period tools required by the Hokensons, can be placed aboard the fishing tug. This would include a hammer, pliers, screw drivers, wrenches, punches, awls, and a variety of small spare parts as found on the work bench in the Twine Shed (Figures 43 and 44). Other items such as a handmade net-grapple to be acquired from Roy and Irene Hokenson, could also be displayed onboard the Twilite.

H. Boat Carriage and Steel Tracks (HS-01-138D)

The Twilite is currently beached inside the Hokenson breakwater, just below the Ice House (Figure 45). A set of steel tracks leading from the water rendered the beaching operation feasible (Figure 46). The Twilite is supported in drydock by a boat carriage and timber braces or "shores" (Figure 47).

III. PILE DRIVER RAFT

One of the major physical obstacles that the Hokensons faced in the prosecution of the pound-net fishery was the quandary concerning a means to drive pound stakes into the bottom of the lake. Every aspirant to the trade used a raft like platform for the purpose of setting up his poles. The method first used by the Hokensons in 1927 was not much advanced beyond the techniques of the nineteenth century (Figures 48 and 49).

Their pile driver was little more than an upright frame in which a 250 pound weight was lifted by a simple pulley to a height of several feet above the end of the pole, and then released time after time until the stake was driven a few feet into the expectantly soft bottom. This backstraining method resulted in a decided limitation on the number of pound nets the brothers could set up during any given spring. In the early years they were able to set up only two or three pound nets. When they acquired the use of a raft with a mechanized pile driver (Figure 50), they were able to expand the number of pound nets to twelve or fifteen. Although the Hokenson's raft is no longer extant, there is one old sample of this device beached at the port of Cornucopia. If it is not obtainable, there should be other instances of abandoned pile drivers along the Wisconsin shore that could be purchased for display.

By comparison with nineteenth century methods, it is readily seen that the first Hokenson pile driver was not a technological advancement beyond the old days. Professor Ludwig Kumlien, who contributed a section on the fisheries of the Great Lakes to the 1884 compilation by the Fish and Fisheries Commission, described the apparatus in this way: "In setting the pound-net stakes, pile drivers, worked by steam or by hand, are employed in all the larger fisheries. The driver commonly used consists of a strongly built raft carrying two uprights, from 10 to 25 feet in height, at one end, between which a block of wood, faced with iron and weighing about 150 pounds works upward and downward. This weight or hammer is attached to a rope and suspended by means of a patent double block. When in operation the pile driver is anchored at the four corners.

Driving stakes is considered the hardest work connected with the pound fishery. Under the most favorable circumstances, the weather being calm and the bottom clayey, four men can drive about twenty stakes in a single day. The stakes are driven into the bottom from 3 to 10 feet, according to their length and the character of the bottom."[25]

IV. THE ICE HOUSE, ICE PROCESSING EQUIPMENT, AND OTHER WINTER DEVICES

Since the Hokensons always sought to deliver their lake trout and whitefish to the public in the freshest possible condition, the capability of freezing the newly caught product became a paramount necessity. After the construction of the dock, the erection of the Ice House (HS-01-138B) took the next highest priority, and it went up during the same period of time (1927-1931).[26]

A. Ice Augur and Hand Saws

The size of the Ice House was the only thing that limited the amount of ice the Hokensons could harvest from Lake Superior in any given year. With the exception of a very few winters, the channels among the Apostle Island freeze up solid, season after season. The average date for navigation to close among the islands is early January. Superfluous to say, most fishermen harvested their supply of ice when the lake freezes to a thickness of from eighteen inches to two feet. Late February or early March is the customary time for cutting ice.

In the early years of their fishery, the Hokensons had only hand tools for cutting blocks of ice. An early ice augur still survives in the Twine Shed (Figure 51). This was used to make the first several holes in the ice to enable a hand saw to begin (Figures 52 and 53). Cutting by this method was a slow and painstaking process. Its snail's pace inevitably led to the acquisition or construction of faster working tools.

B. Ice Plow

One advance used by the Hokensons was an ice plow that was hitched to a horse, in the same fashion as a dirt plow (Figure 54). A combination of leverage, provided by the plowman tilting the rear end of the device downward, and the horse's weight providing the muscle-power, produced a cut in the ice whose depth varied from six inches to one foot. Thus the ice plow gave a good start for other sawing devices. The advantage of it was that it quickly advanced over a considerable extent of ice. Once a beginning cut was made in the ice, the plowman

would reverse directions and make a parallel cut. Hand saws were used to break off the blocks of ice. Commonly the blocks were cut to a dimension of 2' x 2' x 4'.[27]

C. Rotary Ice Saw

The ultimate refinement in ice cutting, at least for the Hokensons, was a motorized rotary ice saw, which still stands in the Twine Shed (Figure 55). This was added to their equipment about 1940. The brothers continued to use this saw as long as they fished. When the Wisconsin REA News did an article on the Hokenson fishery in October 1953, the rotary saw was shown in one of the illustrations (Figure 1). The article credited Leo Hokenson as the designer of the machine, and stressed the cooperative nature of the ice harvesting operation. Since the Hokenson cutter was the only one in the area, neighboring fishermen pitched in to get mutual benefit from it.

The rotary saw has a 32 inch blade attached to a movable boom for raising and lowering the cutting edge. The power plant is one cylindered and developed only a few horsepower. A chain drive transfers power from the motor to the blade axle. Other inventive Wisconsinites in the area evolved similar rotary saws (Figure 3).

D. The Ice Sled

Necessity was ever the mother of invention in this semiisolated region. The Bayfield County Press told of one resident utilizing a prototype of the modern snowmobile in 1942. The owner called the device a "motor toboggan," a machine using a 25 horsepower motorcyle engine, and described as being propelled by a caterpillar track. He used it on the surface of Lake Superior to carry his fishing supplies and the fish he caught through the ice. He claimed it would go forty miles per hour and climb hills at a fair rate of speed.[28]

The Hokensons came up with a similar winter vehicle at about the same time. It was not their own invention. The brothers bought a snowsled in a neighboring town (Figure 4 and 5). It used an old airplane engine attached to a pusher propeller with a fixed-pitch blade.

The Hokensons naturally modified the body of the sled to fit their own requirements. The sled rode on three large skis. The anterior ski was connected to a steering wheel in the forward end of the sled cockpit. This guiding mechanism and the throttle control gave the snow sled its maneuverability. The body of the airplane-like sled was covered with fabric, and the interior accomodated the three brothers and one large cake of ice. Since the sled was thus limited in the amount of ice it could carry, it was finally abandoned for more capacious vehicles by 1950. Figure 4 demonstrates this lack of carrying capacity of the sled, in that it shows a fish box balanced on a horizontal strut outside the cabin.

E. Ice Trucks

The Wisconsin REA News article referred to above[29] reveals that by 1953 the Hokensons and their neighbors were using two trucks instead of the ice sled to transport the ice blocks from the lake surface to the Ice House (Figure 56). One truck pulled the ice blocks up a chute onto the flat bed of a second truck. Gravity made the unloading of the truck an easier task, since the truck driver proceeded up the embankment overlooking the Ice House for delivery of the blocks. The fishermen again pushed the blocks along the chute, restraining the blocks downhill velocity with ice hooks (Figure 57). Men working inside the Ice House insulated the individual blocks from one another with layers of sawdust.

F. Ice Tongs and Ice Crusher

When the stored ice was needed to keep the summer catch of whitefish and lake trout fresh, the Hokensons cut the large blocks of ice into smaller chunks with saws. At first, in 1927, they had no efficient means to chip the ice down quickly to useable size. They had to use ice picks and various types of chippers to produce flaked ice (Figure 58). The technology of the times was sufficient to make available a mechanical ice crusher.

Hand cranked ice grinding machines were being used fifty years previously (Figure 6). In the 1940's the brothers acquired an automatic ice crusher powered by a three horsepower electrical motor. This

machine is still stored in the building in which it was used, the Ice House (HS-01-138B). The Hokensons would grind up a sufficient supply of ice each day on which they went out to tend the pound-nets.

The chore of processing ice for various uses, required quite a few sets of ice tongs for moving the smaller blocks around. The preliminary inventory of the contents of the Twine Shed (HS-01-138F), lists four pairs of ice tongs, two large and two small (Figures 59 and 60). In early 1979 Roy and Irene Hokenson sold four more sets of ice tongs to the Park, and all of these are of different sizes. One of the four has a wood handle.[30]

G. Cross-Country Skis

Eskel Hokenson, during one interview, spoke proudly of the homemade skis he fashioned as a youth to enable himself to get around during the winter season. The Little Sand Bay area is today somewhat remote even during the summer months, but in earlier days the Hokenson homestead in winter was occasionally wholly cut off from the nearby towns by heavy snowfall. Eskel states that, as a boy, he made his own skis, and found them far more celeritous than snowshoes for getting around.[31] The pair of handcrafted cross-country skis sold by the Hokensons to the Park in early 1979 are not Eskel's original boyhood skis, but they are from the early fishery period, and were essential contrivances for getting things done when much of Bayfield County was snowed in.

V. FURNISHINGS FOR THE DOCK AND FISH HOUSE (HS-01-138A)

A. Fish Cleaning Tables

There seems to be no practicable means to visually demonstrate with an exhibit how the Hokensons picked the herring out of their thousands of feet of gill nets. The interior of the Twilite was the usual location for this activity as it lay in dock; and, during a good season the hold of the vessel was filled with a chaotic mass or pile of herring enmeshed in fish netting (Figure 61). Members of the family and a small number of hired helpers collaborated in every phase of the processing, and all hands bent to the chore of pulling the small fish from the webbing and placing it in fish boxes or other containers. Then the operation moved to the several rooms of the Fish House on the dock.

Sometime during the 1940's the Fish House was expanded to its present length of 58' 3". The southern two-thirds of the space was used for the processing of herring, while the remainder provided storage for miscellaneous fishing equipment. The latter items would be boxes of gill-nets, homemade anchors, and tools that were needed from day to day in the type of fishing operation then in progress. These things would not be permanently stowed in the Fish House, but would be removed to the Twine Shed (HS-01-138F) when a given phase of fishing was over for the year.

Since the working space in the southern portion of the building is less than twelve feet wide, it should not be stocked exhaustively with every conceivable item used for herring processing. But some form of a cleaning table should be built along the southwest wall where a table originally stood, with a length of about twenty feet, or long enough to accommodate three or four fish cleaners. A few knives of the 1940 period should be spaced along the table.

A variety of knife configurations were used to decapitate, split, and gut the herring, but the preferred piece of cutlery was one that had a rounded point. Such a knife could accomplish all of the functions mentioned, and, in addition, its rounded blade tip would not readily damage the rest of the fish with punctures. One of these blunt ended

knives remains among the artifacts on the workbench in the *Twine Shed* (Figure 62).

Any commercially purchased knife of that era was readily modified by grinding off the point with an emery wheel. Other forms of the fishery in the nineteenth century had analogous knife varieties that suited the peculiar demands of their business (Figures 63 and 26).

B. Fish Boxes and Refuse Barrels

A number of empty fish boxes or half-barrels should be stationed beneath or near the cleaning table, adjacent to the working surface, as a mock-up to convey the notion of what type of a process had been carried on in this place. One type of container would receive the gutted and beheaded fish, while the other caught the refuse (Figures 64 and 65). The Hokenson operation more nearly resembled an individualized mode of preparing the fish (Figures 66 and 67), but it too had analogies to assembly-line methods. Each worker had a more or less fixed position, and passed the fish on to the next station.

It is, of course, impossible to illustrate such a theme precisely, since it is impracticable to make an exhibit that utilizes decomposing herring in various stages of dismemberment. The closest approximation would be to show plastic or imitative representations of the herring, but such an approach might prove more ludicrous than illustrative. It therefore seems best that only the tools of the process be displayed. Then the visitor can at least see the receptacles that caught the waste and the containers for moving and packing the fish.

C. Water Tanks and Salting Table

After the decapitation and gutting of the herring, one or several of the Hokensons transported the split herring from the west to the east side of the Fish House for the purpose of washing and salting. Water tanks for rinsing the fish were against the wall in the middle portion of the one long room. The immersion process was brief, to minimize the loss of tasteful herring flavor, but long enough to remove unsightly blood and remnants of the entrails. Periodically the water in the tanks was removed and replenished with a fresh, clean supply.

Next, the herring were salted by sliding the split fish flesh-side downwards across a portion of the counter that had been liberally sprinkled with salt. After this the fish were placed in layers in the half-barrel containers. The workers also regularly sprinkled additional salt over the separate layers of fish lying in the half-barrels. This container was supposed to hold at least 100 pounds of fish, but the Hokensons invariably gave extra measure. Once the half-barrel was filled with fish, it was topped off with strong brine and covered (Figure 68).[32]

Salting of fish is one of the oldest preservative practices known to man. The ancient Greeks and Romans used salt, and even a wide variety of precious spices and oils, for pickling their fish.[33] Thus the methods varied over the centuries only in so far as fishermen selected particular parts of various fish for salting, or were limited by the amount of time available for salting. For example, some fishermen, far out at sea without sufficient containers, salted their catch in bulk, or with the heads on and the entrails untouched, producing the so-called "round herring", an inferior product.[34]

Professor R. Edward Earll of the Fishery Commission decribed a common method of salting along the Atlantic seaboard in the 1880's. This method has close analogies to the Hokensons' process:

> "Another brand known as "split" or "gibbed" herring is frequently put up. The split fish differ from the round herring in that the gills and entrails have been removed. The gibbing is usually done by the fishermen before the herring are salted. A rough method of gibbing which is occasionally employed, is to tear the gills from the fish by means of the thumb and fore-finger, and to remove the entrails through the opening thus made. The more common practice, however, is to split the fish down the belly with a knife, in order that the viscera and gills may be more easily removed. The blood is also scraped from the backbone, and the fish are thrown into a tub of water to be soaked before salting. When the blood has been sufficiently removed to give the herring a light color,

they are carefully packed in barrels with enough salt to preserve them The roe-bags of spawning herring are usually left in the fish, as these are considered a great luxury by the Irish. Most of the gibbed herring are among the best quality of fat fish taken on the coast, and fish of inferior quality are generally salted without splitting. The market price of split herring is usually from one to two dollars more than that of fish prepared in the ordinary way."[35]

D. Half-Barrels

There were few leftover half-barrels among the artifacts preserved in the Twine Shed, these being kept to store spare parts. The brothers usually had a contractual arrangement with their wholesaler, Herman Ehlers of Cornucopia, to provide them with cooperage supplies. Since most of the half-barrels were returned to the supplier filled with fish, few of the containers were retained at Little Sand Bay. There is good probability that Bodin or Booth Fisheries in Bayfield would still have several of the old half-barrels available and would be willing to sell them to the Park.

Conrad Lorntsen, a Minnesota fisherman out of Beaver Bay, described a similar arrangement that he had with Duluth wholesalers for kegs and fish boxes. Lorntsen was somewhat exercised over the box compact, since the dealer always seemed to be taking his (Lorntsen's) relatively new boxes, and in return providing him with empty boxes that often fell to pieces shortly thereafter. As new boxes cost fifty cents each, Lorntsen frequently replaced his losses with homemade containers.[36] The Hokensons followed the same course regarding boxes, by making their own from native wood.

E. Weighing Scale, Wheelbarrow, Dolly, and Fish Boxes

Among the artifacts in the Twine Shed (HS-01-138F) is an old weighing scale (Figure 59), a flat bed wheelbarrow (Figure 69), and a flat bed dolly (Figure 70). It would be logical to display these three items in the Fish House (HS-01-138A) in the northern storage area, but space limitations or a low volume of visitor traffic might make it appropriate to present them to the public in the Twine Shed.

It is obvious that these devices were most frequently used in the vicinity of the dock, or in the Fish House. The brothers would check the half-barrels of herring for full measure, or determine the total weight of their whitefish or lake trout catch soon after removing the fish from the Twilite. Additionally, the working vehicles were needed either for moving heavy loads of fish about, or transporting heavy equipment or machinery to a place for repairs. But their radius of action was somewhat restricted, since the small iron wheels would readily sink into soft ground without the solid fundament of the dock or the Twine Shed. Since the fish boxes were regular cargo aboard the barrow or dolly, one or the other box can be displayed with them.

VI. FURNISHING FOR THE TWINE SHED (HS-01-138F)

A. Net Drying Reel

There is one surviving net drying reel positioned within fifty feet of the Twine Shed near the southeast corner (Figure 71). Its purpose was for drying and inspecting the condition of gill-nets used by the Hokensons for the brief herring season. Since this aspect of the fishery was a relatively minor portion of their business, they did not have as many reels as competitors who went after whitefish and lake trout with gill nets.[37]

For exhibition purposes during the summer months, one or two reels could be set up, together with a small length of herring gill-net. There seems to be more open space among the trees on the east side of the Twine Shed to display the reels there to best advantage (Figure 72). It is problematical whether there is any merit to even making an attempt to display any reels during the other seasons of the year. The only alternative location that comes to mind is the loft of the Twine Shed, and this site is subject to the objection that it is not readily accessible to any considerable numbers of people for want of a safe stairway. The best solution would be to display the drying reels together with netting, outside during the peak tourist season, and remove the nets to boxes and the loft for the off-season.

B. Herring Gill-Nets

Herring gill-nets were generally deeper than the same type net used for pursuing other kinds of fish, usually being twelve feet in depth. The Hokensons used mostly a six foot deep net (Figure 73). The rationale for those who used the deeper gill-net was that the herring was a small fish, averaging about a pound in weight; and it took a large sweep to trap enough of them to make a profit.

The Hokensons used a herring gill-net with a mesh of 2 3/8 inches through most of their fishing career. Wisconsin law settled on this size mesh to prevent capture of the smaller herring which could pass through the 2 3/8" mesh. None of the states abutting on Lake Superior made any restriction on the height of the gill-net, as they thought that

any advantage gained from a broad-swathed sweep would be offset by the unwieldiness of its handling.[38] Some fishermen in the nineteenth century used gill-nets that were 150 meshes, or 28 feet deep. Mesh dimensions were measured knot to knot in the stretched position.[39]

The material from which gill-nets were made had undergone a gradual evolution over the years. The basic strategy of the gill-netter was to make his apparatus as invisible as possible to the fish. Thus, around 1870, both cotton, linen and hemp netting was used,[40] but the latter two materials were coarser than the former, and hence more readily seen by the intended victims. Linen and hemp were usually imported, and therefore lost out in the American markets where protective tariffs favored domestic cotton. These foreign-made gill-nets were also of such rough texture that the net picker had to wrestle unduly with the mesh for removal of the fish, both to the detriment of the skin on his hands and the wholeness of the fish. All of these early materials, of course, required a coating of preservative, most commonly tar. A few fishermen tampered with dyeing agents to come up with a color that they thought would prove less visible to the fish. Gill nets that were used against the larger fish, such as sturgeon or lake trout, generally required not only a larger mesh, but a coarse strong twine to take the strain. Needless to say, this militated against the fishermen's quest for invisible netting.

Technology came to the fisherman's rescue in the twentieth century. The Hokensons began their fishing career still using the old tarred cotton netting (Figures 74, 75, 76 and 77). They kept this material somewhat longer than their neighbors, since Hokenson gill-netting was in storage for eleven months of the year. But eventually the passing of time rotted their cotton nets, and they also purchased the new nylon material (Figures 78 and 79). Nylon was not only stronger, but it needed no preservatives, was finer and therefore less visible to the fish, and lasted practically for an indefinite period. It first became available for fishnets in the late 1930's, but a few fishermen did not convert to it until the 1960's.[41]

For exhibit purposes, only the length of a single net needs to be shown drying on the reel. The standard lengths of a single net varied from 225 to 300 feet. Practically all gill-nets in the present century have been factory made, packed in boxes, and twisted tightly into a spiral that was no thicker than a man's little finger.[42] The technological advance that brought cheap, strong, ready-made netting to the commercial fisherman around the turn of the century, freed the fisher to expand the scope of his operation, by giving him the time to prepare a greater volume of gill-netting for descent into the deep. Instead of taking a store-bought twine and weaving a net from scratch, the fishermen now could take the ready-made gill-net, and need only fasten sinkers, floats, anchors, mooring lines, and buoys to it (Figure 80).[43]

This latter process constituted the preparatory aspect for the Hokensons' involvement with the herring fishery. The brothers had to fasten floats and sinkers every six or seven feet along the top and bottom edges of the gill-net. Their gear was a considerable advance over nineteenth century equivalents (Figure 81). For economy sake they made their own cedar floats (Figure 82) on a wood lathe (Figure 83).

Invariably gill-nets were used in gangs, that is, a series of nets were joined end-to-end to form a continuous chain, sometimes more than a mile in extent (Figure 84). The number of nets to a gang hinged upon the fisherman's equipment capacity. For example, Minnesota fishermen working the North Shore in skiffs, raising and lowering their nets by hand, might have only five to ten nets in a gang. Another unit of measure, this one used by the Hokensons, was to tally their nets by the box. They could get about six hundred feet of netting into a fish box; but because of the generous size of the Twilite, could string out twenty boxes of nets in a straight line. Thus, during the heyday of the herring fishery, the Hokensons put more than two miles of gill-nets into the water.[44]

The final attachments to the herring gill-net were the anchors, buoy lines, and buoys (Figure 85). Like most fishermen, even those of the nineteenth century, the Hokensons made use of mainly homemade

anchors (Figure 86). By counterbalancing the relative weights of the anchors against the floats, the gill-nets could be set on the bottom, on the surface, or any intermediate position. Figure 84 illustrates a search-and-find method that experimented with variable depths. Apostle Island herring fishermen most frequently set their nets on the bottom in a variety of ways (Figure 87, 88 and 89). But if they discovered the herring running off the bottom, they could set mooring lines to permit the nets to float closer to the surface.

C. Pound-Net Components

Before discussing the various components of pound-nets, a few words of comparison and contrast between them and gill-nets are in order. One similarity between the two types of nets is that the size of the mesh determines the size of the fish caught. Smaller fish can pass through the netting. The most fundamental difference between pounds and gill-nets is that the former is fixed and immobile for a full season in the place selected; whereas the latter can be moved repeatedly from place to place in quest of the fish. Another basic dissimilarity is the fact that pound-nets catch the fish alive and fresh; and gill-nets most frequently take their victims and kill them. The reason for the latter phenomenon is that the fish passes partway through the meshing and gets hung up with meshing behind its gills. If the fish is not removed shortly after becoming immobilized in the gill-net, it asphyxiates.

The two types of nets also differ in shape, depth utilized, and equipment needed. The pound-net has a very limited extension in that it encloses, at most, an area of not more than fifty feet squared of lake surface. It is also limited to a depth of not much more than fifty feet; and is usually set along the shore. The pound-net is also very cumbersome because of its fixed position and the unwieldy poles that hold its components in place. The pound-net, unlike the gill-net, requires a rowboat to enter the net, and utilizes a scoop net for removing the live fish from the pound.

The gill-net, on the contrary, is always set in a straight line, and its length can be infinitely variable from a few hundred feet to

several miles. The gill-net can be set on the bottom of the lake or at any intermediate depth from bottom to surface. It can even be set at variable depths, with one end being extremely deep in the water, and the other end near the surface. At times it is set at great depths, as deep as seventy fathoms. All of these depth settings are controlled by varying the relative weight of the sinkers against the buoyancy of the floats. The gill-net usually calls for special equipment for retrieving the captured fish from the lake, such as the mechanical net lifter. An exception to this rule is the group of North Shore fishermen of Minnesota, and other small-scale fishermen, whose small boats limit them to a relatively short length of gill-netting. These men lift their nets by hand.

Since a pound-net has such immense dimensions, there is no feasible method of making a life-size exhibit of one of them on land. There is an entire pound-net wrapped in a bundle and stored in the Twine Shed loft that can be left in that condition to give the visitor some notion of the pound-net's size (Figure 10). For illustrative purposes, it might be possible to construct a scale model of a pound-net for display in the Twine Shed on the ground floor.

1. Pound-Net Leaders

Several labeling tags for pound net components found in the Twine Shed, indicate that there were very many variables, principally contours of the bottom of Lake Superior, that made each pound-net distinctive and individual. Two tags for leaders, for example, show a difference in length where one is almost twice as long as the other.[45] One tag, for a leader used in Squaw Bay, indicated a length of 550 feet (Figure 90). Another, for an unspecified location, was only 300 feet long (Figure 91). Similarly, these leaders were designed for two different depths, 26 and 49 feet respectively. It is worthwhile to note, as well, that these leaders used large mesh (ten and eight inches) and used highly visible twines (no. 15 and no. 12). These noteworthy facts tell that the leader was intended to be seen by the fish, to scare them into a turn, and not intended to capture the fish by its gills.

2. Pound-Net Hearts

The dimensions of the heart were as disparate as those of the leaders. A representative labeling tag revealed that a Hokenson pound-net heart was 110 feet long and 49 feet deep (Figure 92). The latter dimension varied more than the length of the heart; the reason being that water depth was as diverse as the locations. The six inch mesh of the heart should be noted too as it is smaller than the leaders. There was some danger of large fish getting gilled in such mesh, but the coarseness of the twine was designed to scare them away. At the end of a season, one or the other rotted large fish might be found caught in the mesh of the heart.

3. Pound-Net Tunnels

Here again heterogeneity of dimension was the rule. Two sample labeling tags show pound net tunnels 15 and 18 feet long (Figures 93 and 94). Equally, the samples show depths of 26 and 40 feet. The meshes are again smaller than the previous components of the pound net, 4 1/2 and 5 inches respectively; and the purpose of the smaller mesh is, of course, to prevent fish escape at the last moment.

4. Pound-Net Pot

As with all of the other components of the pound-net, the pot or bowl was not exempt from the general dimensional irregularity. Depth was the more usual inconstant among the Hokenson pound nets. One sample tag shows one of their pots to have been fifty feet deep (Figure 95). This is about the furthest down the brothers would go, as greater depth caused difficulties both in the mooring of the poles and in the acquisition of good hardwood timber that was tall enough. As the years passed, the scarcity of such type poles on their land increased[46]

The sample pot indicated in Figure 95, points to an average sized pound, about 36 feet square. While the size of the pot may have varied a few feet from that norm, the square shape of the usual Hokenson pound-net was the one constant. Observations taken among the Apostle Islands and diagrams made by Bayfield County fishermen indicate that the square shaped pot was very nearly a tradition in the area.

Illustrations of Atlantic coast pound-nets used in the nineteenth century show that these salt water fishermen experimented a great deal more with the shape of the pot or bowl of the net (Figures 96, 97, 98 and 99). But the Great Lakes fishermen adopted the square pot and stayed with it (Figures 100, 101 and 102).

The Hokensons generally used 4 1/2 inch to 4 5/8 inch mesh over the years for the bowl of the pound-net. Narratives from early Minnesota fishermen reveal that in former times pound-nets for lake trout and whitefish used larger meshes, sometimes 5 1/2, 6 or 6 1/2 inches.[47] This is part of the commentary on the decline of the fishery, as these figures manifest the reduction in abundance of larger trout and whitefish. Restriction in mesh size was not a significant method in controlling overfishing in the pound-net fishery. In other words, state controlling agencies have not usually banned small-mesh pound-nets because such nets are adjusted selectively to pursue certain sizes of fish.[48] For example, in 1978, a few South Shore pound-netters pursue smelt with one inch mesh. The current philosophy on smelt in Lake Superior is that the smelt are superabundant, and no control need be levied at this time against the volume harvested.[49]

The reduction of the mesh size for whitefish and lake trout came about by fishermen's decision, not by state laws. The states abutting on Lake Superior did, however, regulate the size of whitefish and lake trout that could be retained by the pound-netters. The laws banned the taking of such fish smaller than two pounds in weight or 17 inches in length.[50] A pound-net could be controlled by law in this way, because small fish could be freed from the pot unharmed, while a similar practice would be unworkable with a gill-net, since the gilled fish were frequently dead or dying when lifted.

The modes of mooring the net and stakes of the pound-net vary a great deal from fisherman to fisherman. Seven poles is a common configuration for the pot in the Apostle Islands, four poles shore-ward and three seaward. Roy Hokenson said the family policy was to set as many poles as was necessary to do the job. Most pound-netters do not

rely merely on the stakes to hold the net in place. Such fishermen usually have at least two anchors lashed to the corner poles of the net and set at least 90° from each other outside the pot. Frequently a horizontal pole is bound to the uprights with rope, to lend greater stability. The edge of the net can then be tied to the horizontal at regular intervals.[51]

The pound-netters also use a series of lines tied to the bottom corners of the bowl to hold them in place. These lines pass through metal rings or pulleys at the bases of the corner poles, and lead up to the surface where the ends and a quantity of surplus line are fastened to the tops of the poles. This surplus line provides the necessary slack to permit the emptying of the pot of fish. The first thing the fishermen do in servicing a pound-net is to approach these corner lines, release the slack, but tie the end of the line to the pole, so that the net can later be pulled back into its squared position on the bottom. Thus the length of the slack line is equal to twice the depth of the water at each individual pound-net.[52]

5. Storage and Care of the Pound-Net

The Hokensons put metal tags on the various parts of the pound-net while these components were in storage for the winter. This provided them with a systematic identification of the parts, for the time when they put them back into the water. Thus one tag read "Eagle Bay, Outside Pot"; or another "Neurauter Point, Lead Inside" (Figure 103). When the Hokenson fishery was at its most successful period, the fifteen pound-nets the brothers owned took up most of the space in the Twine Shed loft (Figures 104 and 105).

Despite the advancement from cotton, hemp, or linen to nylon twine over the years, the Hokensons took such exceptional care of their original nets, that they never wholly changed over to the newer material. The surviving pound-net components are still preserved in the old way, the netting conserved with tar. In this they continued Great Lakes custom from the nineteenth century. An illustration from that era shows an example of a typical seine-shed and tarring box (Figure 106).

D. Floats and Float Lathe (Figures 82 and 83)

The float lathe can be restored to a semblance of working order by putting its pulley belts back into place and replacing those parts which are most glaringly missing, such as the electrical drive motor. The lathe need not be electrified and made to function. The cedar float clamped in position on the lathe may be retained there for illustrative purposes. The present location of the machine near the center of the west wall may be maintained.

E. Ice Crusher, Other Ice Processing Equipment, and Winter Paraphernalia

Because of the display limitations of the Ice House (HS-01-138B), the Ice Crusher machine could be removed to a corner of the Twine Shed (HS-01-138F) and form the nucleus of an ice-processing exhibit. The Ice Crusher may be restored to working order. Similarly the powered rotary ice saw should be rejuvenated to a close resemblance of running order. Minimally, its glaring incompletenesses should be remedied.

An entire quadrant of the Twine Shed, such as the northeast section, should be dedicated to the display of the two major motorized ice processing machines. The correlative hand tools should be gathered in the same general area; most of them can be hung on the walls. The list should include: ice picks, ice tongs, ice hook, ice chipper, ice augur, hand ice saws, ice plow, and cross-country skis.

In this same vicinity a display case with photographic illustrations could be utilized to good purpose, inasmuch as certain artifacts associated with winter operations are no longer extant, as for example, the airplane-like power sled and other sleds, skis, and snowshoes. This photo display centered on ice-processing could illustrate every phase of the operation, and, in addition to the relevant illustrations (Figures 1-6, 51-60) could utilize analogous pictures from other Bayfield County or South Shore residents, which depict scenes from the cutting process out on the surface of Lake Superior, and every other aspect of transporting the ice blocks from the harvest location to the Ice House.[53]

In addition, any other artifacts related to the winter season in northern Wisconsin may be included in this exhibit, even though they may not be tools directly used in the ice processing operation.

F. Arc Welding Equipment and Blacksmith Forge

The arc welding set once used by the Hokenson brothers is no longer extant (Figures 7 and 8). Roy Hokenson relates that some of the apparatus from an early blacksmith forge still survives, and that the family may be willing to sell it. Whatever trappings of this metal repairing equipage that can be obtained, would make a worthwhile display in the Twine Shed.

G. Clothing Exhibit

It is a debatable point whether a separate display of Hokenson fishing clothing should be attempted, especially since the anticipated visitor volume is not seen to be great. If a clothing exhibit is decided upon, there are several alternative methods of presenting an idea of how the Hokenson Brothers dressed while going about their fishing chores:

a. static display of certain articles of clothing alone, laid out in a case or hanging up.

b. display of these same articles on mannequins.

c. having tour guides dressed as fishermen of the 1930's.

d. having a pictorial display of the Hokensons in action, the photos giving a notion of various seasonal variations in clothing.

e. a combination method, using photos and a few articles of clothing on display.

The first three modes of display do not seem to be justified on the basis of present prognosis of visitor traffic, nor on the number of articles of clothing presently available. At the moment, only one denim

jacket remains among the artifacts in the Twine Shed (Figure 107). A pair of foul weather trousers or slacks have been purchased from Roy and Irene Hokenson (See Appendix F). Other items would have to be purchased, if the actual items of clothing are desired. The recommended method of display is the last one on the list, since it combines minimal acquisition endeavor with a realistic prospect of inconsiderable visitor turnout.

1. Bib Overalls, Flannel Shirts, and Cloth Caps

A number of photographs of the Hokenson brothers at work show them wearing denim bib overalls (Figures 108, 109 and 110). These same photos show that headgear of one sort or another was an habitual accompaniment to the overalls. Roy and Eskel favored a flat bag-like cap whose visor disappeared beneath the overlapping surplus material. For several generations such caps have been associated with the game of golf; but the workingman's version of it was usually made of wool or a heavy material that provided warmth rather than mere eye protection from the rays of the sun. Leo Hokenson, in the photographs, seemed to favor a billed cap whose usual association was with a locomotive engineer. Caps of other shapes appeared on Hokenson photos as well, some resembling billed baseball caps with earflaps, others like an upturned flower pot. The overall impression of such a collection of caps was that some headcovering was essential, even on summer days, to protect the wearer from chilling winds.

The same notion of brisk climate is conveyed by Leo's flannel shirt on one picture (Figure 108). Though the other brothers wore less protective long-sleeved cotton shirts, the full length sleeves gave them the discretion of adjusting to changes in temperature, as the photo shows them with rolled up sleeves. More severe autumnal weather is depicted by a photo with the brothers in the pound-boat wearing heavy jackets (Figure 111).

The shoes appearing in these photos seem to be high-topped working shoes, with at least rubber heels, if not rubber soles, for sure footing on wet decks and planking.

2. Oilskins, Sou'westers, Mittens, Gloves and Other Foulweather Gear

The Hokenson brothers had special foul weather clothing used mainly in conjunction with the herring season in November. The three major components of such oilskin garments were the trousers, jacket and cap (Figure 112). A sou'wester cap resembled a fireman's hat somewhat, having a brim that extended backward to provide neck protection. Frequently, such caps had ear coverings and a chin strap to hold them down in a high wind. So far, only a single pair of oilskin trousers have been acquired by the Park for display. Roy Hokenson stated that even though the oilskins were unwieldy to move around in, both at sea and ashore, he nevertheless wore the trousers frequently during the fish cleaning phase of the herring operation, since the juices and stains of fish handling were most effectively warded off by this type of material.[54]

The usage of oilskins on Lake Superior had a somewhat different rationale from the saltwater fisherman's need for them. Atlantic fishermen expected and were resigned to be caught occasionally in a storm at sea. Lake Superior fishermen, on the contrary, strove to be off the surface of the lake if there was any means to know of storms or to return quickly to port when one arose. But the severity of Lake Superior weather was bad enough without storms to make a set of oilskins a necessity of life. A steady blow with low temperatures raised a fine spray that was bone chilling to fisherman who had inadequate protection.[55]

Mittens and/or gloves were normal fisherman requirements in the late part of the year. Many types of these hand coverings were so cumbersome in the early days, that certain shipboard chores could not be dexterously performed with them on. Roy Hokenson found them in the way while dipping whitefish or laketrout from a pound-net. As a result his hands were frequently immersed in cold water, afflicting him with rheumatism.[56] Certain Minnesota fishermen tried to remedy this problem by carrying a number of sets of mittens out on the lake. As the day progressed, such a man would ration his mittens to cover the hours. He

always saved one dry pair for the row homeward. Eventually technology provided rubber gloves that would last a fisherman up to a week at a stretch.[57] There is one pair of heavy black rubber gloves on the Twine Shed preliminary inventory. (See Appendix E).

If a clothing display were striving for completeness, consideration would have to be given such items as peacoats, scarves, sweaters, types of underwear (union suits), a variety of trousers, socks, and shoes. Most of these items have not varied extremely in style from the early years of the Hokenson fishery, with the possible exception of long underwear. As for materials, the trend has obviously been away from wool toward synthetics. But consideration of such things will hinge upon whatever alternative mode of display is taken regarding clothing.

3. Knapsacks, and Other Canvas Items

Several relics of the Hokensons' hunting avocation are a canvas backpack or knapsack, two canvas bags and a canvas carry-all (Figures 113, 17, 27, 28 and 60). They too may be displayed with the clothing exhibit.

H. Weighing Scale, Wheelbarrow, Dolly, and Fish Boxes

Since it is problematical whether these items should be displayed in the Twine Shed (HS-01-138F) or in the Fish House (HS-01-138A), consult the commentary in Section V-E.

I. Medium Sized Tools

1. Drag-Rake Dredge

Because of storms and high wind conditions, Lake Superior fishermen found frequent need to recover gill-nets whose buoy had blown astray, or portions of a pound-net that had come loose. The drag-rake dredge, suspended from a line, enabled them to drag the lake-bottom for their lost gear (Figure 27). Items the size of such a dredge, as are subsumed in this section, can be displayed in much the same way as they were stowed when not in use, by suspension from a nail or nails on the walls of the Twine Shed.

2. Homemade Anchors

One product of the Hokensons' blacksmith forge (Section VI-F), was a series of homemade anchors most commonly used to moor the ends of a gill-net (Figure 114). These too could be hung from the Twine Shed walls.

3. Dip-Nets

Two dip-nets, one with a circular, the other with a squared hoop, hang on the west wall of the Twine Shed (Figure 27). This location can be their permanent abode. They were used for emptying the pound-nets into the pound-boat.

4. Scythe and Plow Parts

The presence of a scythe on the wall of the shed brings up the point that there are a whole collection of artifacts found in the Twine Shed that were not directly connected with the fishery, but were complementary to it. Thus the scythe, for example was used to control the wild grasses among the buildings, to permit operations to flow more smoothly (Figure 57).

A better exemplification of such seemingly irrelevant apparatus would be the sawmill located at the Hokenson homestead about 2 3/4 miles away. The original sawmill, parts of which are still extant at Eskel Hokenson's residence, not only produced the rough lumber from which the Fish House, Dock, Ice House and Twine Shed were built, it also produced some of the boards for Roy and Irene Hokenson's homestead on Little Sand Bay, improvements to Eskel and Florence Hokenson's home and other farm buildings and sheds, and similar construction and improvements on Leo and Jeanette Hokenson's property. In addition, the sawmill produced lumber for many other purposes, such as fish boxes, wagons, and so on.

This facet of the Hokenson brothers' ingenuity brings to mind that there was a third category of Twine Shed artifact, wholly irrevelant to the functions of the fishery, yet illustrative of an important aspect of almost every Lake Superior fisherman's life. On the floor of

the Twine Shed lie remnants of an old plow (Figure 115). The point to be made here is that practically every fisherman was also something else, such as a dirt farmer, a dairy farmer, a fruit grower, a lumberman, or a part time laborer in one of a hundred occupations.[58]

The Hokensons entered the fishing vocation in this way, as less than half-time fishers. The death of several farm animals in the 1920's compelled them to abandon dairy farming for fishing. Even during years when they were considered full-time fishermen, the brothers had to be ready for disadvantageous fluctuations in the abundance of fish, so that they could tide their families through lean times. The fishery could be a feast or a famine, and any successful fisherman was practically compelled to cultivate multiple talents.

Interviews of Minnesota fishermen from the North Shore of Lake Superior reveal the same phenomenon. There too, the soil was poor and the growing season short. Some of these men jokingly referred to themselves as "stump-ranchers"[59] because they tried to raise crops among the ruins of a once great pine forest. Others worked as lumbermen during poor fishing years, or drove trucks as deliverymen, or worked in shipyards or other industries in the port of Duluth.

5. Devil's Claw

There are a considerable number of minor artifacts (Figures 116, 117, 118) in the Twine Shed which have not been identified as to function because of the severe winter and the impracticability of asking Roy Hokenson to risk his health poring over these items in a frigid building. Beyond the small items, there is one large metallic object whose shape quite closely resembles an old devil's claw (Figures 199 and 6). As shown in Figure 6, the devil's claw was used to provide leverage for closing a packing crate while a second workman nailed down the edges. The large metallic hook device can continue to be suspended from the Twine Shed west wall, but its function should be accurately determined.

6. Shovels, Axes and Crowbar

Shovels and axes were tools integral to the routine of a Wisconsin commercial fisherman. Shovels were handy on shipboard or ashore, for cleaning the bottom of a pound-boat or scooping small fish over the side. Axes were equally essential to men who made so many things from native timber on their own land. Figure 57 shows a shovel and axe blade hanging from the Twine Shed wall. Figure 59 shows another worn shovel without a handle. Figure 69 shows a bundle of axe handles on the bed of the wheelbarrow. Figure 54 shows a crowbar in the background, resting on a wooden box.

7. Early Coleman Lantern

Figure 120 shows an early model of the Coleman lantern with some of the upper components missing.

J. Heating Stove and Cooking Stove

The heating stove for the Twine Shed stands near its working location near the center of the south wall with its chimney pipes disconnected (Figure 9). Several other pieces of stove pipe are scattered elsewhere on the ground floor (Figure 121 and 122). There remain also two butterfly dampers for the stove pipes (See Appendix E).

The cooking stove presently stands in the southwest corner of the shed (Figure 123), and was originally used both for cooking and space heating in the Ice House (HS-01-138B). Since the Ice House does not seem to be a worthy nominee for exhibit placement, the best alternative spot would be together with the ice processing and winter exhibit in the northeast quadrant of the Twine Shed.

K. Workbenches

There are two workbenches made from homemade lumber that are directly built onto the frame of the Twine Shed along the east and west walls. The bench in the southwest sector commences directly in the corner, has an average width of about two feet, is thirty inches high, and extends northward about fifteen feet (Figure 124, 125 and 120). Both before and after the preliminary inventory of the Twine Shed made

in November of 1978 by Sheree Fisher, this workbench was more of a storage space than an activity center. The main reason for this was that the west wall had no window opening for the first half of its extent, (Figure 126), and received little natural light from the sun.

The eastern workbench, on the contrary, had five windows directly above it (Figure 72), and received considerable natural light in the mornings. Four more windows on the south side (Figure 127), tended to benefit this bench more than the other, as the afternoon light flooded the southeastern corner and left the western workbench in shadow.

The natural advantages of each workbench therefore favor the idea of using the western bench for continuing the practice of storing paints, preservatives and other chemicals in that area. Similarly, the light conditions for the eastern workbench favor either a static display of miscellaneous spare parts, or the laying out of an imaginary repair job in which the parts of a motor or machine are placed in logical juxtaposition to each other.

Presently the eastern workbench is neatly laid out with a collection of parts, mainly small, that have more affinity to one another by reason of shape and size rather than function (Figures 43 and 44). Although these items are all tagged, the tags are not as yet labeled and inventoried by name. It is therefore problematical whether any or many of them will be of sufficient interest to the public to justify their permanent monopolization of the display space on the workbench.

A better mode of preserving them would be to sort the smaller pieces by category and store them in the parts file in the southeast corner of the Twine Shed. There will certainly be a sufficient surplus of medium sized parts to require more storage space elsewhere. One means of storage would be to pack such parts in half-barrels, as several are available in the Twine Shed (Figure 128), thus displaying a type of container frequently used with the fishery, and simultaneously showing how busy workers saved useful parts against the day of need. The larger metal parts, pipes and metal bars (Figures 54 and 118), may continue to reside in the lower levels of the eastern workbench.

The identifiable parts among these jumbled remnants include spark plugs, spikes, hinges, tail-lights, light fixtures, a glass insulator, switch-boxes, horseshoes, a dog collar; and several cans of nails, screws, nuts and bolts.

1. Paints, Stains, Paintbrushes, Oils, Oil Cans, Anti-Freeze, Cattle Spray, and Various Preservatives for Wood and Nets

As has been shown in Figures 120, 124 and 125, the western workbench supports a goodly number of miscellaneous containers, some of whose labels no longer indicate accurately the nature of their contents. There are various types of paints, stains, wood-preservatives, cattle fly-spray, several types of lubricating oils, anti-freezes, and several other unidentified chemicals. Doubtlessly, since these liquids have stood for many years without any mishap, there is probably no danger of spontaneous combustion; but it would nevertheless be appropriate for a knowledgeable person to give assurance that such is indeed the case. Otherwise the chemicals may remain where they are on the bench, with fitting information provided by Roy Hokenson concerning their uses.

The paints, stains, and paintbrushes were indubitably used both in conjunction with fishery objects as well as the Hokenson homes. The exteriors of the three major fishery structures were all painted white at one time, but much of this coloring has weathered off over the years. These leftover paints are the surplus of a variety of projects.

The lubricating oils on the bench are also multi-purpose agents, some being motor oils for marine or auto engines, others being lubricants for every other conceivable machine used by the brothers. At least one oil-can survives in the Twine Shed for squirting oil in the necessary places (Figure 32). The large glass jar among the many metal cans is labelled as containing anti-freeze. One or the other metal containers near it also claims to hold anti-freeze. This fluid was for either marine or auto engines.

The presence of some cans of cattle fly-spray reminds the visitor to the Twine Shed that the Hokensons were, in part, dairy farmers during many of their predominantly fishing years.

There are some wood-preservative chemicals on the shelf as well, but more of the protective solvents were intended for conserving the various types of fishing nets. No tar for protecting pound-nets survives, but some of the other chemicals used on nets are kept in several containers. Minnesota fishermen during the same era used blue vitriol, "logwood," or tanning liquid on nets, and linseed oil on cedar floats, to preserve them. The logwood or tanning compound was made from juice derived from the bark of a hemlock tree. Its beneficial results were due more to the coloring effect of the liquid, rather than true preservative properties. By darkening the color of the netting twine, fishermen believed their nets to be less visible to the fish.[60]

Together with the various chemicals and their containers are a few other empty receptacles such as old soft drink bottles and cartons, a crock, a tin cup, several liquor bottles, a tea kettle, several buckets, a can marked "Auto Vita" a can marked "Penetrating Oil", several "Prince Albert" cans and tins, and several snuff tins.

2. Workbench Tools

The assortment of tools now remaining in the Twine Shed is not altogether representative of the total versatility of the workmen who performed there. When Roy and Eskel Hokenson retired from fishing in the early 1960's, they did not wholly retire as handymen for the upkeep of their homes and other properties. They therefore removed from the fishery premises those tools which they continue to use. What remains in the Twine Shed was retired for various reasons. Some tools are worn out, others are obsolete; a few have been superceded by more modern automatic tools. The preliminary inventory of 1978 lists such hand tools as a wood-plane, hand-drill and drill-bits, grinding wheels, files, awls, a compass/protractor, a tooth brush, saw blades, ice clamps, a scrub brush, a chalk marker, can openers, a pump handle, dipsticks, a humidity indicator, yard sticks, net-mending needles and shuttles and net

mending twine. A cursory glance at such a list makes it apparent that some of the common items from a well stocked toolbox are absent: hammers, screwdrivers (Phillips and blade), pliers, punches, wrenches (Crescent, socket, and monkey), chisels, and shears. A few samples of older tools of these types would render the exhibit more nearly complete.

L. Chairs

There are no chairs presently in the Twine Shed. Even though most chores connected with the fishery were performed while standing, the Hokensons had use for chairs while repairing nets (Figure 129). There are a variety of period chairs that could be obtained to illustrate this useful piece of furniture (Figure 130).

M. Wooden File Cabinet

As has been stated in Section K, supra, the wooden file cabinet stationed in the southeast corner of the Twine Shed can be used for the storage of small parts that can be classified according to function. The file cabinet stands nearly five feet tall, in three sections: a base about eighteen inches high, and two horizontal sections holding ten drawers each in two rows (Figure 131). The sections were designed to be interlocking one atop the other so that a continuous cabinet of even greater height could be fitted together. But this particular case is topped with a horizontal frame that forms a lid for the cabinet. The width of the file case is about four and one-half feet and the individual drawers are about two feet deep. The drawers have label holders of such a type that the cabinet could just as easily have been used as a card file rather than a parts file.

N. Miscellaneous Nets, Ropes and Lines

There are a number of samples of discarded herring gill-nets hanging from nails in various places in the Twine Shed (Figures 132, 133). These nets were saved from jettisoning by the potential usefulness of any of their component parts: The cedar floats and lead sinkers could most readily be put back to use on newer nets. The edge lines from the top or bottom of a gill-net could also be pressed into other service, but the net itself, once found wanting from tears or rot, could seldom be

used again. Since the presence of such retired gill-nets on the bulkhead lends an aura of nautical atmosphere to the Twine Shed, their retention as part of the exhibit is encouraged. If sufficient quantity of gill-net is available, several samples should be hung in the Fish House (HS-01-138A) as well. Visitors should be made aware that such a mode of abandonment is not the usual treatment for idle gill-nets, but rather that usable nets are first dryed on reels and afterwards stowed in orderly folds either in a fish box or in some other container, and not hung on nails.

The Twine Shed also shelters one fish box filled with old line that had originally functioned as top or bottom edge line for gill-nets (Figure 134). Some of the line in the box bears unmistakable signs of having undergone the tarring process for preservation. The box and line can continue to be displayed together.

The preliminary inventory of the Twine Shed contents lists four coils of rope, each fifty feet in length (Figures 2, 70, 121, 122, 124 and 125). These can be used either as mooring lines for the refurbished Twilite, or continue as wall hangings in the Twine Shed.

O. Docking Cleat

The docking cleat preserved on the eastern workbench (Figures 32 and 117), need not be returned to a functional role on the dock, since John Erickson, who still operates his fishing boat from the dock, has no further need for it. The cleat should continue on the bench, or with a collection of medium size artifacts.

P. Decorative Items

1. Deer Antlers

The absence of any considerable number of aesthetic pieces in the Twine Shed gives a clue to the intensity with which the Hokenson brothers pursued their occupations, as it shows that the shed was "all business" and little play. Eskel Hokenson tells the story of one herring season when the brothers interrupted the lucrative fishing to go hunting. Neighbors, who saw them forsake the fishery for a day at the height of the herring season, would teasingly call out to them as they passed with

hunting weapons in their hands, that they were trading a sure hundred dollars worth of herring for a missed shot at a fleeing deer.[61] But the brothers did not always fail in their quest for deer, as is evidenced by four sets of antlers hanging on the Twine Shed wall (Figures 135, 136, 27, 83 and 132).

The brothers did some trapping as well, and the remnant of one trap still remains in the Twine Shed (Figure 132). Twice during 1930 Roy Hokenson was modestly publicized in the Bayfield County Press for capturing wild animals on which a bounty was set. In February he caught a bobcat, and in September he shot a coyote "while making the rounds of his trap line". Interestingly enough, the local people still referred to Roy Hokenson as a "farmer" that year, even though the brothers had already commenced construction of their fishery buildings.[62]

2. Portion of Chair Back

The only other artifact approaching aesthetic significance in the Twine Shed is a portion of the back of a chair (Figure 137). It came to the shed for repairs and never achieved its rightful place of reunion with the chair. This wayward piece testifies to the pragmatic functions of the fishery buildings, and the fact that the Hokensons concentrated their aesthetic endeavors in their homes.

Q. Extraneous, Unidentified and Miscellaneous Artifacts

1. Wagon and Barrow Wheels

Near the center of the south wall of the Twine Shed lean several old wooden wagon wheels which have no association with the Hokenson fishery (Figure 69 and 138). This wheel was recovered on one of the Apostle Islands and has connections with other cultural resources in the National Lakeshore. If the Twine Shed loft is selected as storage space, the wheel will be stowed there until a determination is made concerning the other cultural resources.

There is a wooden frame device to the left of the wagon wheel which Roy Hokenson has not as yet identified (Figure 138). Similarly another wooden frame that comes to a peak and rotates on a

central axis (Figure 139), has no identification to date. It resembles a short mast on a fishing boat, but does not seem to have properties that would associate it with navigation lights, radars or radio aerials. A speculative guess might classify it as a reel for gathering line or twine.

There are other metal wheels in the Twine Shed that appear to be spares for wheelbarrows or dollies (Figure 58). The same figure nearly conceals another wheel with wooden spokes whose original function is unknown.

2. Wooden Stakes, Homemade Buoys, Wooden Crates, and Miscellaneous Wooden Pieces

A collection of wooden stakes that would have functioned equally well in a garden for plant support, or out in the lake as gill-net buoys, rested in the bottom of the pound-net boat in September of 1978 (Figure 18). Since the Hokenson brothers preferred buoys that floated lower in the water, they used a variety of homemade floats that did not easily waterlog (Figures 121 and 124). These were used mostly to mark the ends of gill-nets. Occasionally the brothers jury-rigged some of the regular small cedar floats into a bundle to support a tall vertical buoy (Figure 82). The wooden stakes need not be put on display, as there remain a considerable quantity of lathe-turned cedar floats, as well as more compact multi-shaped wooden floats for exhibition purposes.

There are a nondescript group of wooden crates, old boxes, discarded wood drawers, that are scattered about the Twine Shed in various storage roles (Figures 54, 60, 82, 113, 114, 117 and 118), which they may continue to fulfill.

The after-section of the pound-boat holds a pile of shaped and rounded wooden artifacts (Figure 18) whose function is unknown. Comparison with gill-net buoys hanging in the southwest corner of the Twine Shed lends credence to the possibility that these also may be buoys. A second alternative is their resemblance to docking fenders which prevent chafing between fishing boats and piers. More frequently in the Bayfied County region, old rubber tires serve in this capacity.

3. Miscellaneous Gear Wheels and Chain-Drive Devices

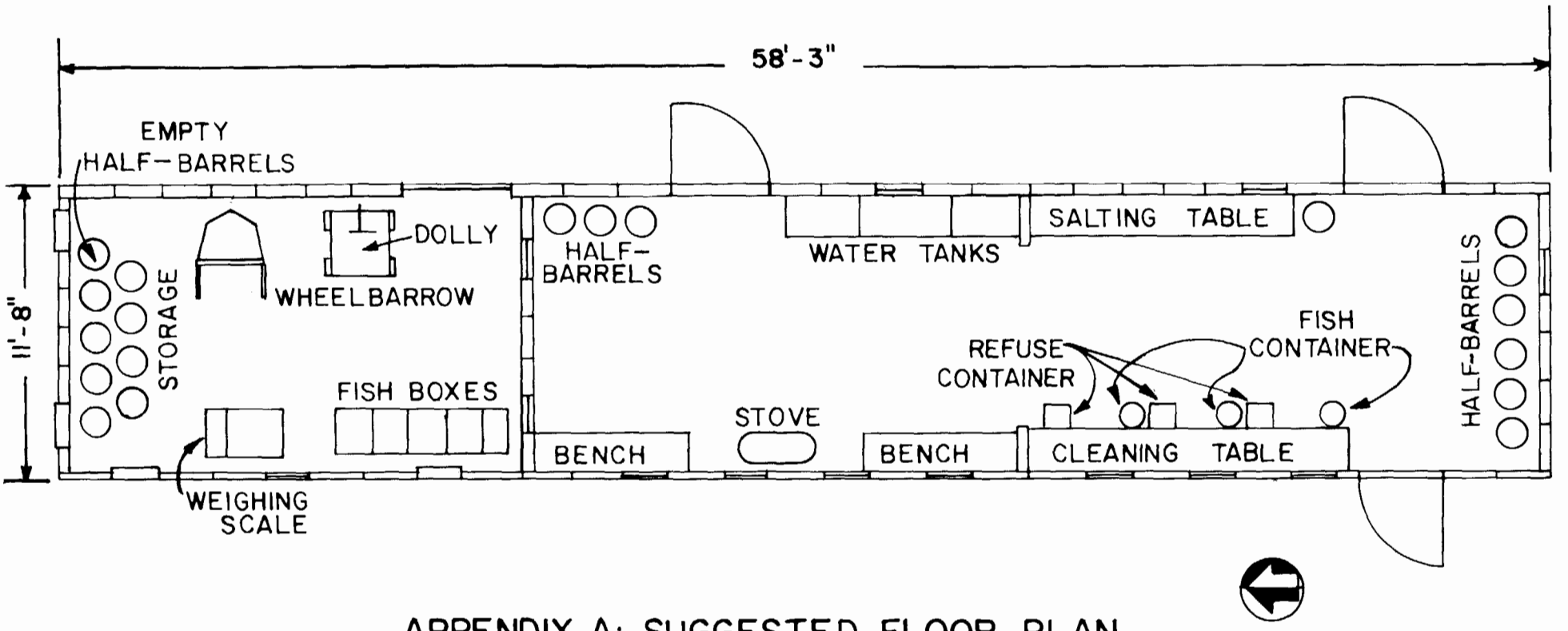
The eastern workbench holds a few of the leftover gear wheels and sprockets intended for use with a variety of makeshift machines (Figure 116). The motorized rotary ice saw used such bicycle like chains and sprockets to transfer power from engine to task. Several spare bicycle chains and sprockets hang on the west wall (Figure 140 and 141). Another type of drive chain, commonly used on farm machinery, lies on the eastern workbench counter (Figure 43). These items may remain in their present locations.

4. Chippewa Indian Canoes

The two recently constructed Chippewa birch bark canoes stored in the Twine Shed (Figures 104, 105, 133 and 136) are associated with another aspect of the cultural resources of the Apostle Islands National Lakeshore, and may continue to rest in storage in the loft, if that alternative for the upper story of the Twine Shed is adopted.

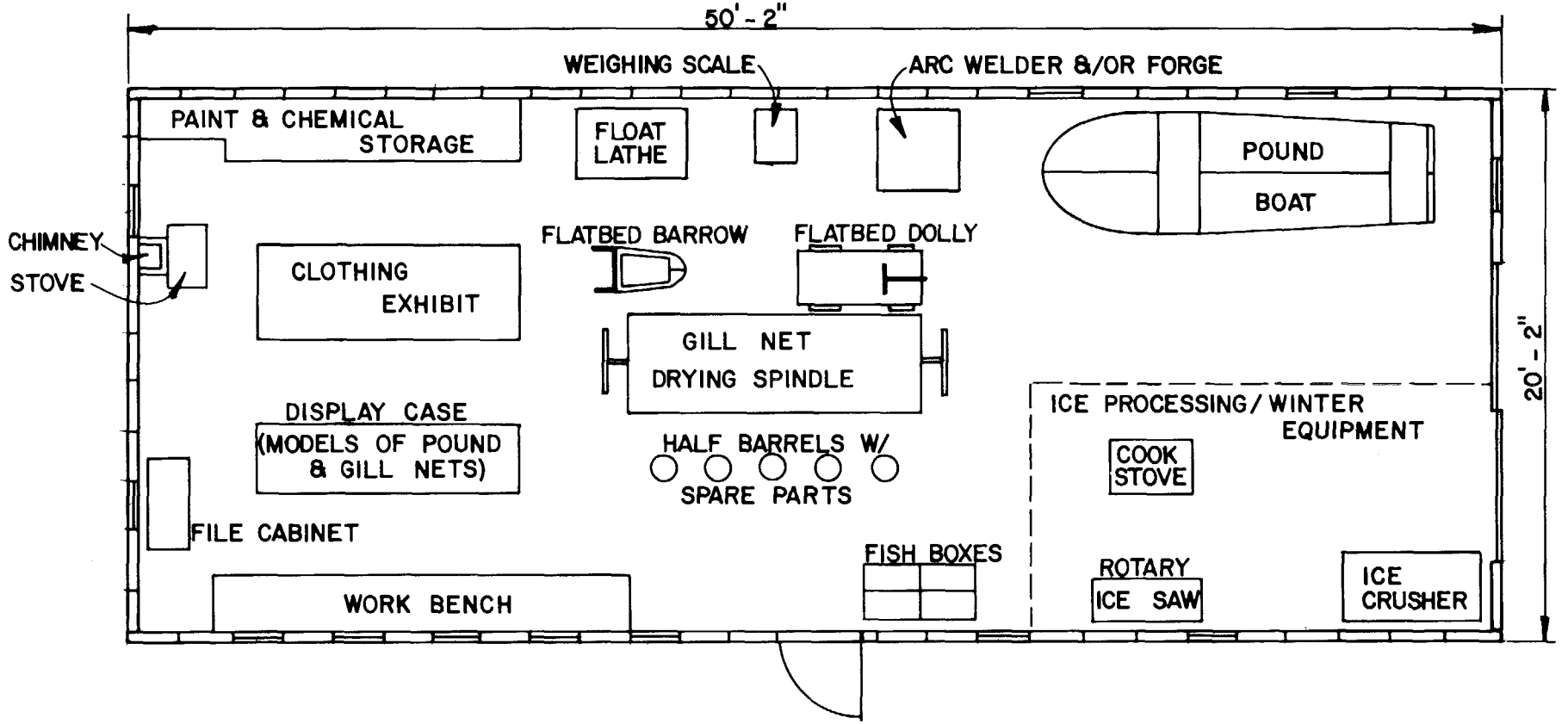
APPENDICES

Appendix A



APPENDIX A: SUGGESTED FLOOR PLAN FOR FISH HOUSE (HS-01-138A)

Appendix B



APPENDIX B: SUGGESTED FLOOR PLAN FOR TWINE SHED - GROUND LEVEL (HS-01-138F)

Appendix C

Guide - Listing of early Evinrude Motors, 1909-1929, Identified by Name, Serial Number, Model Number, Year(s) and Horsepower. Provided by Courtesy of James Layton, Public Relations Department, Evinrude Motors, Milwaukee.

- FORWARD -

This guide was compiled primarily for Evinrude dealers - to enable them to identify the year and horsepower of earlier models - thereby making it simpler for them to locate other reference material they may have pertaining to the particular model.

All available records were researched for this compilation to keep multiple-year listings at a minimum. In some instances this could not be avoided. Should the indicated years be given as: "1927 - 31", no closer identification can be provided.

Keep this Guide handy. You will find it a valuable, time-saving piece of reference literature.

MODEL NO.	MODEL NAME	YEAR	H.P.
----	Single, #1 to 9,999	1909-12	1.5
----	Single, #10,000 to 19,000	1913	2.0
----	Single, #20,000 to 49,999	1914	2.0
----	Twin, Elto, #1,000 to 1,920	1921	3.0
----	Twin, Elto, #1,921 to A6,519	1922	3.0
A	Single, #3,000 to 3,999	1915	3.5
A	Single, #4,014 to 4,660	1916	3.5
A	Single, #4,661 to 4,950	1917	3.5
A	Single, #4,951 to 5,480	1918	3.5
A	Single, #5,481 to 6,050	1919	3.5
A	Single, #6,051 to 6,700	1920	3.5
A	Single, #6,701 to 6,908	1921	3.5
A	Single, #7,000 to 7,200	1922	3.5
A	Single, #50,000 to 54,999	1915	2.0
A	Single, #90,000 to 92,499	1916	2.0
A	Single, #95,000 to 96,998	1917	2.0
A	Single, #97,000 to 101,899	1918	2.0
A	Single, #101,900 to 103,799	1919	2.0
A	Single, #103,800 to 111,199	1920	2.0
A	Single, #111,200to 116,980	1921	2.0
A	Single, #117,000 to 121,999	1922	2.0
A	Single, #122,000 to 123,999	1923	2.0
A	Single, #124,000 to 124,999	1924	2.0
A	Single, #125,000 to 126,349	1925	2.0
A	Single, #126,350 to 127,299	1926	2.0
A	Single, #127,300 to 127,959	1927	2.0
A	Single, #127,960 and up	1928	2.0
A	Twin, Elto, #6,520 to 12,000	1923	3.0
AA	Twin, (4-cycle) #53,420 to 54,415	1916	4.0
AA	Twin, (4-cycle) #54,416 to 54,819	1917	4.0
B	Single, #5,000 to 5,199	1915	3.5
B	Single, #5,200 to 5,374	1916	3.5
B	Single, #5,375 to 5,430	1917	3.5
B	Single, #5,431 to 5,580	1918	3.5
B	Single, #5,581 to 5,749	1919	3.5
B	Single, #5,750 to 5,850	1920	3.5
B	Single, #6,701 to 6,908	1921	3.5
B	Single, #7,000 to 7,200	1922	3.5
B	Single, #55,000 to 55,999	1915	2.0
B	Single, #56,000 to 56,644	1916	2.0
B	Single, #56,645 to 57,299	1917	2.0
B	Single, #57,300 to 57,799	1918	2.0
B	Single, #57,800 to 58,699	1919	2.0
B	Single, #58,700 to 59,249	1920	2.0
B	Single, #59,250 to 59,499	1921	2.0
B	Single, #59,500 to 59,649	1922	2.0
B	Single, #59,650 to 65,000	1923	2.0
B	Single, #124,000 to 124,999	1924	2.0
B	Single, #125,000 to 126,349	1925	2.0
B	Single, #126,350 to 127,299	1926	2.0
B	Single, #127,300 to 127,959	1927	2.0
B	Single, #127,960 and up	1928	2.0
B	Twin, Elto, #6,520 to 12,000	1923	3.0
C	Single, #61,000 to 61,465	1916	2.0

MODEL NO.	MODEL NAME	YEAR	H.P.
C	Twin, Elto, #12,001 to 20,000	1924	3.0
C	Twin, Elto, #20,001 to 20,999	1925	3.0
CC	Single Cyl. Inboard	1916-24	2.0
CCV	Single Cyl. Pressure Pump	1923-26	2.0
D	Single, #66,000 to 66,799	1916	2.0
D	Twin, Elto, #12,001 to 20,000	1924	3.0
D	Twin, Elto, #20,001 to 20,999	1925	3.0
DD	Twin Cyl. Inboard	1916-27	4.5
DDR	Twin Cyl. Inboard (reverse)	1916-27	4.5
DDV	Twin Cyl. Pump	1923-29	4.5
E	Single-Canoe, #10,000 to 10,128	1915	3.5
EE	Twin (4 cycle), #59,000 to 59,056	1916	4.0
F	Fleetwin, #F1001 to F4000	1928	6.0
F	Fleetwin, #1F001 to 4F300	1929	7.0
FV	Twin Cyl. Pump	1928	6.0
G	Twin, Elto, #30,000 to 44,900	1926	4.0
H	Fastwin, #H1001 to H2500	1928	12.0
H	Fastwin, #1H001 to 13H250	1929	14.0
H	Single (bat) #1 to 299	1913	3.5
H	Single (mag) #300 to 2,999	1914	3.5
H	Twin, Elto, #30,000 to 44,900	1926	4.0
J	Twin, Elto, #45,000 to 54,799	1927	4.0
J	Twin, Elto, #54,800 to 56,859	1928	4.0
J	Twin, Elto, #56,860 to 59,999	1929	4.0
K	Twin, Elto, #45,000 to 54,799	1927	4.0
K	Twin, Elto, #54,800 to 56,859	1928	4.0
K	Twin, Elto, #56,860 to 59,999	1929	4.0
L	Big Twin	1923-26	4.0
LA	Big Twin	1923-26	4.0
LAT	Big Twin	1923-26	4.0
N	Sportwin, #N1,500 to N3,499	1923	2.5
N	Sportwin, #N3,500 to N8,499	1924	2.5
N	Sportwin, #N8,500 to N10,499	1925	2.5
N	Sportwin, #N10,500 to N13,499	1926	2.5
N	Sportwin, #N13,500 to N14,499	1927	2.5
N	Sportwin, #N14,500 to N14,750	1928	2.5
NF	Sportwin-Folding, #1N001 to 2N001	1929	2.5
NS	Sportwin, #NS1,500 to NS3,499	1923	2.5
NS	Sportwin, #NS3,500 to NS8,499	1924	2.5
NS	Sportwin, #NS8,500 to NS9,999	1925	2.5
NS	Sportwin, #NS10,000 to NS10,999	1926	2.5
NS	Sportwin, NS11,000 to NS11,999	1927	2.5
P	Centrifugal Pump	1919-29	2.0
R	Fastwin	1927	4.0
RS	Fastwin	1927	4.0
RV	Twin Cylinder Pump	1927	4.0
T	Speeditwin	1927	8.0
TS	Speeditwin	1927	8.0
U	Speeditwin, #U1001 to U5200	1928	16.0
U	Speeditwin, #1U001 to 15U000	1929	20.0
52T	Lockwood Twin	1925	7.0
62T	Lockwood Twin	1926	7.0
72T	Lockwood Twin	1927	7.0
82A	Lockwood Ace	1928	7.0

Appendix D

Acquisition of Commercial Fishing Equipment by the Apostle Islands National Lakeshore from the Hokenson Brothers, August 27, 1977.

Hokenson Brothers
Route, 1, Box 148
Bayfield, Wisconsin 54814

Eastern National Park & Monument Association
Apostle Islands National Lakeshore
Route 1, Box 152
Bayfield, Wisconsin 54814

Invoice for commercial fishing equipment:

1.	Float lathe.	$200.00
2.	Power Ice Saw.	$350.00
3.	Ice Crusher	$500.00
4.	Pound-Net, complete.	$400.00
5.	Gill-Nets- 4@ $50	$200.00
6.	Pound-Net Boat	$100.00
7.	Hand Ice Saw	$ 50.00
8.	Ice Splitter	$ 50.00
9.	Ice Tongs, large	$ 25.00
10.	Ice Tongs, small	$ 10.00
11.	Cast Iron Wood Stove	$ 10.00
12.	Scale	$ 10.00
13.	Boat Carriage & Steel Tracks	$ 95.00
14.	5 Boxes of Floats & Misc. Scrap Iron & Equipment	$100.00
	Total. . .	$2100.00

(handwritten: "Received 8/27/77")

(signed: Hokenson Bros.) (signed: Roy Hokenson)

Appendix E

General (Preliminary) Inventory of the Hokenson Fishery, dated December 12, 1978.

GENERAL INVENTORY
HOKENSON FISHERY

1 float lathe
1 power ice saw
1 pound-net, complete
4 gill-nets
1 pound-net boat
1 hand ice saw
1 cast iron wood stove
1 scale
boat carriage and steel tracks
1 wooden file cabinet, 20 drawers
1 Lee's denim jacket, worn
4 sets deer antlers
2 canvas bags, 7" x 12"
1 canvas knapsack
1 canvas carry-all
1 net spindle, wooden
various sections old stove pipe
2 butterfly dampers
dozen gaskets, various sizes
4 coils rope, approx. 50' each
8 old soda pop bottles
1 cardboard pop bottle carton
10 assorted glass bottles and jars
1 can 'Auto Vita'
1 can 'Penetrating Oil'
1 5 gal. jar with handle---antifreeze
1 metal bucket
1 metal bucket strainer
20 cans various paints, stains
7 cans cattle spray and various preservatives
4 tins Prince Albert Tobacco
dozen lengths of rope (approx. 20' each) tied to home-made wood floats
2 glass light globes
1 crock
6 assorted paintbrushes and stirring sticks
1 glass insulator
2 metal can openers
2 tins snuff
5 home-made anchors, iron
4 pair ice tongs
1 axe
2 shovels
1 long-handled fish hook

GENERAL INVENTORY (cont'd)

1 pump handle
1 heavy metal, 2-pronged pitchfork
1 tin cup
2 liquor bottles
6 home-made sandstone and cement anchors
4 iron wheels
4 large crates, assorted metal pipes, bolts, fittings
7 lengths heavy chain, approx. 10' each
1 pr. heavy black rubber gloves
6 large gears, approx. 6" diameter
1 dock cleat
1 hand wood plane
1 hand drill
1 dozen assorted files
1 dozen assorted drill bits
1 5" drill bit
1 dozen assorted wooden crates, barrels
1 low, flat-bed wagon, metal wheels and handle
1/2 dozen spark plugs
approx. 50 assorted spikes
8 tin cans full of assorted nails, screws, nuts, and bolts
6 axe handles
3 horse shoes
approx. 50 iron hooks, rings, pins, pulleys
dozen various hinges
2 grinding wheels, 5" diameter
2 awls
2 tail lights
1/2 dozen electrical switch boxes
3 oil can covers
dozen dipsticks
1 metal compass/protractor
1 toothbrush
2 dozen assorted saw blades
2 hand vice clamps
1 dog collar
1 leather strip/belt
18 dozen sm. aluminum net floats
6 large aluminum net floats
40 dozen small wood net floats
2 dozen small plastic net floats
1 wooden scrub brush
3 lead net weights
1/2 steel animal trap
1 humidity indicator
1 chalk marker
2 wooden yard sticks
3 life-jackets, cloth and cork
1 wooden wheel barrow
2 dozen wooden poles, approx. 10'
2 dozen net-mending needles/shuttles

GENERAL INVENTORY (cont'd)

1 dozen spools net-mending line
several metal pound net tags
2 old calendars
several paper fishnet sales tags
several old magazines, brochures, direction pamphlets
1 metal drag rake

Appendix F

Tentative proposed acquisition for the Hokenson Fishery Complex, dated February 28, 1979.

(Copy)

To: Superintendent, Apostle Islands National Lakeshore

From: Chief Naturalist, APIS

Subject: Purchase for Hokenson Fishery Complex*

The following list of items are those agreed upon by the Hokenson Brothers for sale to Apostle Islands National Lakeshore for inclusion into the Hokenson's Fishery Complex. All items are of high quality and appropriate for interpretive endeavors planned for the area. The skis and the horse hair/wool blanket are owned and for sale by Mrs. Irene Hokenson. Other items may be available at a later date either through donation or purchase.

1.	Original engine, propeller and shaft of fishing boat "Twilite"	$750.00
2.	Four gallon oil jug	60.00
3.	Horse hair/wool blanket (4'7" x 6')	850.00
4.	Large wood handle ice tongs	35.00
5.	Three pair steel ice tongs (3 sizes)	50.00
6.	Ice chipper	35.00
7.	Fish scoop	25.00
8.	Fish measuring board (solid oak)	35.00
9.	Pitcher pump	35.00
10.	One pair oil slacks (trousers)	10.00
11.	One pair handcrafted cross-country skis	40.00
12.	One 1894 carpenter brace/monkey wrench combination	35.00
13.	One hand made net grapple	25.00

Price listed above are estimates but have been agreed upon by the Hokenson Brothers and Mrs. Irene Hokenson. In most cases, an explanation and/or history of the items is available.

Philip Hastings

*In late 1979 Harpers Ferry Center provided $3,000 to the park for acquisition of these and other Hokenson artifacts.

Appendix G

Proposed additional artifacts to be sought for the Hokenson Fishery Exhibit.

The following listing is more of a sounding board for ideas rather than an enumeration of necessary acquisitions. Certain items could be extravagantly expensive, if obtained; so that it is suggested that such things be vicariously procured through photographs. One example of such a costly acquisition would be a Ford Model A automobile, such as the Hokensons used, modified into a pickup truck for hauling purposes. Photographic substitutions for such a truck would enhance the exhibit without imposing extravagant expenditures on the Park.

One difficulty with this alternative method is that neither the photographic collection of the Roy or Eskel Hokenson household is extensive. A remedial solution to this dilemma would be a broadcast inquiry in neighboring communities for the use of analogous photographic representations. The Bayfield Historical Society has a collection of photographs reposing in the Carnegie Library in Bayfield, and Mrs. Marjorie Benton of Bayfield is custodian of part of that collection. Garner Hadland of Bayfield also has a variegated photo collection centering on recent Bayfield life that he uses for display on his cable TV station, Channel 5. Additionally members of many communities along the South Shore of Lake Superior, including Port Wing, Cornucopia, Bayfield, Washburn and Ashland, must have a store of useful old photographs that could be copied. Such subject areas as ice harvesting and winter ice fishing have doubtlessly produced a wealth of photographic endeavor over the years, and, even though the time frame might not match the Hokenson era too exactly, the long enduring persistence of old fishing practices and paraphernalia would make such pictures as valuable as direct evidence from the Hokenson family.

Another category itemized on the following list are artifacts already held by the Park, but which require better identification. Included in this category are machines or motors that could be better identified by brand name, model number, serial number, horsepower or other precisely descriptive terms. Included in this category would be an electric motor on the float lathe, the gasoline motor on the rotary ice saw, the first diesel engine for the Twilite, and the old Coleman lantern on the Twine Shed workbench. When such identification is desired, the symbol "I.D." will be used.

The artifacts will be listed in a sequence similar to the outline of the entire furnishing study. Some items, such as stoves, will be mentioned in several places, since they were needed in each building and in the Twilite. Similar items, such as lanterns, which were needed in various places, will also be mentioned more than once.

I. Outdoor Artifacts for Display

A. Model A Ford Modified into a pickup truck; or photographic alternative.

1. Truck(s) for hauling ice to Ice House; or photographic alternative

B. Gill-Net Drying Spindles--At least one more drying spindle should be obtained or constructed; one draped with a single gill-net (c. 300 feet) of 2 3/8" mesh to illustrate a herring net. It could be nylon for greater longevity. The other could be draped with a gill-net for lake trout or whitefish with 4 1/2" mesh, also made of nylon. Purpose: to show a common form of gill-net used in the Apostle Islands region, but one which the Hokensons did not use.

C. Some sample of an old ice surface vehicle used on Lake Superior in winter; or a photographic alternative. The Hokensons had one version of a propeller pushed sled; other Bayfielders had "wind sleds" or early prototypes of the snowmobile.

D. Pile driver Raft and its accoutrements--An old and decrepit sample of this contrivance should be obtainable in neighboring towns; as one stands beached in Emory Jones' boatyard in Cornucopia. Also photographic alternative.

E. Sawmill and Accoutrements- Eskel Hokenson still uses his sawmill equipment at his residence on County Road K, about 2 3/4 miles from the fishery. Some of the components have been updated and modernized over the years, and the equipment is sheltered under a corrugated metal shed. The photographic alternative seems indicated here.

1. Handsaw(s) for felling timber--Since the brothers did considerable lumber manufacture for themselves in the construction of the fishery complex, it is apparent that a few artifacts of this aspect of their experience be duplicated.

II. Pound-Net Boat (HS-01-138H) Furnishings

A. I.D. of c. 1922 Evinrude outboard motor held by Robert Hokenson; or photographic alternative.

B. Vintage (c. 1935) set of oars for pound boat.

C. Fish measuring board.

D. Fish scoops whether wood or metal.

E. Gasoline can, old, for outboard motor.

III. The Twilite (HS-01-138G) and its Accoutrements

A. I.D. on the International diesel engine, the original power plant for the Twilite c. 1937. Presently owned by the Hokenson brothers, but offered for sale.

1. Propeller and shaft for engine
2. Rudder controls and ship's wheel
3. Engine auxiliaries such as sump pump, etc. (Electric generator, if any)
4. Throttle quadrant for engine
5. Engine monitoring instruments, if any.
6. Fuel tank
7. Electric Lighting System, if any (otherwise obtain either old Coleman lantern(s) or kerosene lantern(s). This would include port and starboard lights (red and green), other running lights, and internal electric lights.
9. Cushioned seat for pilot
10. Oil jug for engine
11. Gas can for spare supply
12. Dipstick for fuel tank
13. Toolbox with tools and spare parts

B. Automatic Gill-Net Lifter; or photographic alternative

1. A power plant for it, or drive linkage to main power plant.

C. Wood Burning Stove to heat interior of Twilite

1. Seek a vintage model, small, with metal plate underneath to fend off fires.
2. Supply of firewood

D. Anchor, Cable, and Mooring Lines

1. Mooring cleats
2. Railings, or braces on upper deck
3. Exhaust stacks from engine
4. Masts, if any (their purpose or I.D. stated)

E. Wooden Bench and Fish Cleaning Board

F. Cleanup Hose from Auxiliary Pump

G. Three Life Jackets

H. Spare Floats and Sinkers for Gill-Nets and Pound-Nets

I. Several Empty Wooden Fish Boxes

IV. Fish House and Dock (HS-01-138A) Furnishings (See Appendix A)

A. Herring Cleaning Tables built onto west wall

1. Cleaning knives (4) with sharpening stone
2. Refuse receptacles for catching offal
3. Several trays (2) for transferring cleaned fish to rinsing tanks

B. Wood Stove for Central Section of West Wall

1. Supply of firewood
2. Two benches along wall

C. Herring Rinsing Tanks in Central Section of east Wall

D. Herring Salting Tables

1. Ten half-barrels, capped, and weighted to simulate 100 lbs. of herring cach. (Possibly these could be obtained from Booth's or Bodin's in Bayfield).
2. Five empty salt sacks, vintage 1930's or 1940's. These could be stuffed with sand or other material to simulate real salt.

E. Northern Storage Room Depending on the volume of visitor traffic, this space could be left empty, or be provided with the following artifacts:

1. Weighing scale
2. Flat Bed Barrow
3. Flat Bed Dolly
4. Several empty fish boxes
5. Several empty, but capped halfbarrels
   The Alternative is to display such items in the Twine Shed (HS-01-138F).

V. Twine Shed (HS-01-138F) and its Furnishings (See Appendix B)

A. Clothing Exhibit (Items themselves or photographic alternative)

1. Oilskins or Sou'westers; hats, coats, trousers, boots, gloves/mittens.
2. Summer clothing: bib overalls (denim, preferably made in Wisconsin, e.g., by "Oshkosh B'Gosh"), flannel or cotton long sleeved shirts, hightopped shoes with rubber heels, golf type caps, summer socks.
3. Winter clothing: Winter caps, heavy wool jackets or peacoats, scarves, sweaters, wool trousers, gloves/mittens, wool socks (long), winter boots or overshoes.

   a. underclothing: union suits

B. Netting Exhibit

1. Scale model of a typical Hokenson Pound Net set in position
2. Scale model of a typical Hokenson gang of gill nets for herring, set in position
3. Sample swatches of the basic netting materials for the past hundred years: hemp, linen, cotton and nylon
4. Sample swatches of the different varieties of mesh sizes:

    a. One inch (pound-net) for smelt
    b. 2 1/4", 2 3/8", 2 1/2" (gill-net) for herring
    c. Three inch (gill-net) for menominees
    d. 4 1/2 to 6 inch (gill-net) for lake trout
    e. 4 1/2 to 6 inch (pound-net) for lake trout; a heavier and more visible weave. These could be mounted on a display board with the mesh stretched open.

5. Sample Floats

    a. Small cedar for gill-nets
    b. Medium cedar for pound-net leader
    c. Large float for end buoy on gill-net
    d. Above floats in wood, plastic or aluminum varieties

6. Sample sinkers for gill-nets

    a. Sample anchors for gill-net ends

7. Sample buoys for marking ends of gill-nets or pound-net leaders

C. Preservative Exhibit A number of preservatives survive on the western workbench of the Twine Shed (HS-01-138F); in opaque containers; but a collection of them could be shown in large clear jars.

1. Blue Vitriol or Copper Sulfate ($Cu\ SO_4\ 5\ H_2O$): used on early nets against fungus, bacteria and rot; fisherman who used aluminum floats found that blue vitriol dissolved them.
2. Tanning liquid: came from a variety of sources including logwood and hemlock bark extract: had preservative as well as coloration functions.
3. Linseed Oil: used mainly on wooden floats such as cedar; was applied while hot to soak in better.
4. Lime Solution: used both on old netting materials as well as nylon; it retarded growth of fungus and bacteria on nets.
5. "Norwegian Jell": used more by North Shore fishermen as a coating on fish to protect them against freezing stiff.

D. Fish Exhibit Taxidermy samples of principal commercial fish of Lake Superior; or photographic alternative.

1. Lake Trout (Salvelinus Namaycush)
2. Siscowet (Salvelinus Namaycush Siscowet)
3. Whitefish (Coregonus Clupeaformis)
4. Lake Herring (Coregonus Artedii)
5. American Smelt (Osmerus Mordax)

E. Ice Processing Equipment/Winter Exhibit

1. I.D. on motor for powered rotary ice saw
2. I.D. on power plant for airplane-like ice sled of the 1940's
3. Homemade cross-country skis
4. Snowshoes
5. Ice Pick(s) and other miscellaneous ice processing equipment not now held by the Park

F. Photographic Exhibit

1. Photographs centering topically around ice harvesting operations on the surface of Lake Superior, from Bayfield County residents.

    a. Ice fishing photos ("bobbing" lines and pushing gill nets under the ice with long boards)
    b. Heated fish houses on the lake surface
    c. Vehicles for travel across the ice surface, preferably vintage 1920's, 1930's and 1940's: propeller powered "wind sleds", "motor toboggans", etc.

2. Photographs from the Wisconsin Department of Natural Resources illustrating the various phases of fish hatchery operations.
3. A sample commercial fishing license (Wisconsin) of the 1920's 1930's or 1940's; the older the better.
4. A sample of a Wisconsin monthly commercial fishing report; a legal requirement that commenced in 1936.

G. Blacksmith Forge* and Arc Welder; or photographic alternative. The original Hokenson forge is no longer extant. The arc welder has similarly disappeared, but a set of operating instructions for it was among the artifacts found in the Twine Shed (Figures 7 and 8). The model was a Sears Craftsman A.C. Arc Welder #113.1923, the last four digits probably designating the year.

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*John Wise, of Harpers Ferry Center, remembers seeing a forge about the Hokenson properties at Little Sand Bay. If this is the one that was once used by the Hokensons for their fishery, it should be acquired, as it is an important piece of equipment in the Twine Shed (HS-01-138F).

H. Box Shaped Space Heater in Twine Shed (Figure 9)

1. This wood stove, together with its stove pipes and dampers, needs only to be reconnected and made to appear functioning. A quantity of firewood can be piled near it.

I. A more complete set of tools of a type used in the era of the 1930's and 1940's. The list that follows need not be meticulously collected, but only considered as possibilities.*

1. Several more knives for fish cleaning, and a multipurpose pocketknife as a perennial tool of many types of workmen.
2. Other utensils for cleaning fish, such as fish scalers
3. Screwdrivers; Phillips and blade
4. Several sets of pliers
5. Several kinds of hammers
6. Wrenches; socket set, pipe, monkey, and Crescent
7. Punches, awls, files, gouges
8. Chisels, hatchet, axe
9. Carpentry tools: planes, saws, miter box
10. Brace and bit, auger
11. Scraper, sickle
12. A vice and vicegrip pliers
13. Shovels and shears

J. Acquisition and/or construction of more (perhaps ten) Hokenson style wooden fish boxes, using available ones as models.

K. Acquisition of perhaps ten samples of halfbarrels used for packing herring, complete with covers to simulate a packed catch. They could be weighted with nonperishable substance to simulate 100 pounds of herring. (Booths or Bodins in Bayfield as a potential source).

L. I.D. on float lathe and its electric motor.

M. Several old chairs for net mending chores.

N. Old Coleman lantern and a kerosene lantern.

O. I.D. of as many as possible of the small parts in the Twine Shed.

P. I.D. of several modest sized wooden artifacts in the Twine Shed:

1. A woodenframed item, about two feet tall, having a central rotatable axis on a base, and four transverse wings, the total of which resembles a twine spindle (Figure 139).

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*The Regional Director's letter to the Manager, Denver Service Center, of 17 January 1980, suggests that an attempt be made to offer to buy such old tools as are available from the Hokensons, and replace them with new tools for the Hokensons' present daily use.

2. Another wooden frame that has some analogous contours to a sled (Figure 138).
3. Smaller wooden pieces stowed in the aft section of the pound boat in the Twine Shed, having resemblances to either buoys, floats, or docking fenders (Figure 18).

FOOTNOTES

PREFACE

1. Interview of Roy and Irene Hokenson by David Fritz, July 10, 1978.

INTRODUCTION

1. Interview of Roy and Irene Hokenson by David Fritz, July 11, 1978.

2. Interview of David Kangas, Facility Manager, Apostle Islands National Lakeshore by David Fritz, January 15, 1979.

3. Interview of Hjalmer Mattson by Barbara J. Sommer, July 11, 1977. (Part of the North Shore Commercial Fishing Oral History Project, Northeast Minnesota Historical Center, University of Minnesota at Duluth, Catalog #S2207, Act. #2209; hereafter abbreviated as UMD Interviews).

4. Interview of Herman Johnson by David Fritz, July 14, 1978. Johnson stated that he wrestled so long with the problem of at sea net picking that he even dreamed about it. He said the answer to the dilemma eventually occurred to him in such a dream. The solution involved the utilization of assembly line methods onboard, with precise stationing of his crew members.

5. Interview of Roy and Irene Hokenson by David Fritz, July 10, 1978.

6. "Scrapbook of a Fisherman's Wife," Wisconisn REA News, October 1953, page 12.

7. Interview of Roy and Irene Hokenson by David Fritz, July 10, 1978.

8. Wisconsin REA News, October 1953, 12.

9. Interview of Eskel and Florence Hokenson by David Fritz, January 16, 1979.

10. U.S., Congress, Senate, The Fisheries and Fishery Industries of the United States, S. Doc. 124, 47th Cong: 1st sess., 1887, "The Fisheries of the Great Lakes," by Ludwig Kumlien, Section V, Part XIV, 758; hereafter cited as Fisheries 1887.

11. Fisheries 1887, Section II, Part XVII, "The Fisheries of the Great Lakes; Statistical Recapitulation," by Frederick W. True, 633.

12. Fisheries 1887, Section V, Part XI, "The Pound-Net Fisheries of the Atlantic States," by Frederick W. True, 597.

13. Interview of Richard L. Pycha, U.S. Fish and Wildlife Service, Ashland, Wisconsin, by David Fritz, June 21, 1978.

TEXT FOOTNOTES

1. U.S., Congress, House, Report of the Commissioners of Fish and Fisheries, 1887, H. Doc. 133, 50th Cong., 2nd sess., Appendix I, "Fisheries of the Great Lakes in 1885," compiled by Hugh M. Smith and Mervin-Marie Snell, with introduction and a description of fishing vessels and boats by J.W. Collins, Part III, "The Fisheries of Lake Superior," 33, hereafter cited as Fishery Commissioner's Report, 1887.

2. This is the consensus of the Minnesota fishermen in the UMD Interviews.

3. Interview of Emory Jones, Cornucopia fisherman, by David Fritz, July 17, 1978. Jones said he had occasion frequently to talk with oceangoing seafarers in Duluth/Superior who would invariably testify to the greater intensity and hazard of Lake Superior storms. He attributed the difference to the greater density of fresh water, which produced waves of shorter length and greater pounding power.

4. Fisheries 1887, Section V, Part XIV, "The Fisheries of the Great Lakes," by Ludwig Kumlien, 759.

5. Interview of Roy and Irene Hokenson by David Fritz, July 10, 1978.

6. If the Park succeeds in purchasing Robert Hokenson's old Evinrude motor, the serial number can be checked against the guidelisting provided by Evinrude Motors in Appendix C.

7. The practice remains the same today. On July 12, 1978, the researcher accompanied John Erickson, Bayfield fisherman, as he serviced his series of pound nets, and noted the continued practice.

8. Interview of Roy and Irene Hokenson by David Fritz, October 16, 1978.

9. Ibid.

10. Richard L. Pycha and George R. King, Changes in the Lake Trout Population of Southern Lake Superior in Relation to the Fishery, The Sea Lamprey, and Stocking, 1950-70, Technical Report No. 28, Great Lakes Fishery Commission, (Ann Arbor: GLFC, July, 1975), 6; hereafter cited as: Pycha and King, Lake Trout Population.

11. Interview of Roy and Irene Hokenson, by David Fritz, July 11, 1978.

12. Researcher's observations on a fishing trip with John Erickson, July 12, 1978.

13. Interview of Roy and Irene Hokenson, by David Fritz, January 16, 1979.

14. Matti Kaups, "North Shore Commercial Fishing, 1849-1870,", Minnesota History, 46 (Summer 1978): 58. In a private conversation with Professor Kaups on January 9, 1979, he again stressed the paramountcy of the role of the railroad in expanding the scope of the Lake Superior fishery.

15. Fishery Commissioner's Report, 1887, Appendix I, Part III, "The Fisheries of Lake Superior," 33.

16. Ibid, 50. The Boutin family was an exception to the general rule that applied most readily to Duluth fish traders, namely that the tug owners did not engage actively in the fishery. At Bayfield, from 1870 to at least 1885, almost the entire community was connected with the fishery in one way or another. The Boutins had come to Bayfield for no other purpose than to fish. Nelson Boutin and his brothers, all experienced and energetic fishermen, had worked their way up the western shore of Lake Michigan from Chicago to Green Bay and beyond in search of ever better fishing grounds. By 1879 they had hit upon Chequamegon Bay, Lake Superior, and finally settled in Bayfield. See idem, p. 54.

17. U.S., Senate, Report of the Commissioners of Fish and Fisheries for 1872 and 1873, S. Doc. 74, 42nd cong. 3d sess. 1874, Appendix A, "The Fisheries of the Great Lakes, and the Species of Coregonus or WhiteFish", by James W. Milner, p. 1314; hereafter cited as Milner, Great Lakes.

18. Interviews of Halvor Reiten by David Fritz on July 13, 1978, and January 17, 1979.

19. Notes by Sheree Fisher, naturalist, October-November, 1978, Apostle Islands National Lakeshore Headquarters files, Little Sand Bay. Dimensions of Twilite are interpolated from Sheree Fisher's notes and Halvor Reiten's preliminary drawing.

20. Interview of Eskel and Florence Hokenson, by David Fritz, July 11, 1978.

21. Interview of George Torgeson by Barbara J. Sommer, June 27, 1977; UMD Interviews. Torgeson told how, in November, 1943, he made a catch of eleven tons of herring. It took him and his crew 28 hours of continuous work to make the fishing run, pick the nets clean, and prepare the fish for shipment. The crew was so exhausted that they skipped a valuable day on the lake. Thereafter Torgeson resolved to regulate his herring catch between five and six tons per day, in order not to overburden his crew and equipment.

22. Observations made on fishing trip with John Erickson, July 12, 1978.

23. A boat stove played a major role in the survival of two of the Boutin brothers in January of 1932. Allison and Wilfred Boutin spent six days adrift on Lake Superior in a powerless boat, and owed their survival to the presence of a small wood stove on board. After two days on the lake, hunger was no longer a problem. The heat of the

stove mitigated the bitter nighttime cold, as the brothers broke up fish boxes and floorboards for fuel. The original story was chronicled in the pages of the Ashland Press during the latter half of January 1932. A Bayfield historian, Eleanor Knight, recalled the story in the pages of the Bayfield County Press for January 20th, 27th, and February 3rd 1955.

24. See Appendices D, E, and F. The oil jug is listed in the latter appendix as one item among many which the Hokensons appear willing to sell to the Park.

25. Fisheries 1887, Section V, Part XIV, 760.

26. Interview of Eskel and Florence Hokenson, July 11, 1978.

27. Interview of Roy and Irene Hokenson, July 11, 1978.

28. Bayfield County Press, December 31, 1942. The owner of the motor toboggan was Peter Brostowitz.

29. See note 6 and 8 supra.

30. See Appendix F.

31. Interview of Eskel and Florence Hokenson of July 11, 1978.

32. As Ingaborg Holte described the process in UMD Interviews, of July 6, 1977, the split herring were slid across a portion of the work table that was liberally salted. When a worker placed the herring into the keg, he or she knew intuitively whether a given herring had enough salt. If it did not, the worker added another sprinkling of salt. Another Minnesota fisher, Conrad Lorntsen, idem, June 29, 1977, said that his family used 100 pounds of salt for every five or six halfbarrels of herring. That would be a ratio of five or six to one by weight, fish to salt.

33. U.S., Congress, Senate, Report of the Commissioner for Fish and Fisheries, 1873-4 and 1874-5, S. Doc. 108, 43rd Cong., 2d sess. Appendix A, "Sea Fisheries and the Fishes and Invertebrates Used as Food;" Part I, "Historical Observations on the Conditions of the Fisheries Among the Ancient Greeks and Romans, and on Their Mode of Salting and Pickling Fish," by J.K. Smidth, 1876, p. 1417.

34. Fisheries 1887, Section V, Part VI, "The Herring Fishery and the Sardine Industry", by R. Edward Earll, 465.

35. Ibid, 433.

36. UMD Interviews, Conrad Lorntsen of June 29, 1977.

37. Fred Morgan, "Fisherman's Cove", in The Historic Apostle Islands, by Howard Mead. (Publisher and date not given), booklet held by Carnegie Library, Bayfield, Wisconsin. Morgan related the story of

John Hagen, Madeline Island's oldest fisherman. Hagen said that at the peak of his fishing career he had 17 miles of gill nets, needed innumerable drying reels for the nets, and required 20 cats to protect the cotton webbing from rodents.

38. Interview of fisherman Emory Jones of Cornucopia by David Fritz, July 17, 1978. Jones stated that in the early 1940's he went to Madison to lobby in the interests of the Lake Superior South Shore Commercial Fishermen's Association. Since he went by invitation of the state Fishery Commission, he expected to find a host of professional fishermen there testifying before the commission. Instead, he was the only one. The chairman of the commission, a Madison lawyer, asked him what the fishermen wanted in the way of legislation, the implication being that they could have whatever they wanted. Jones made recommendations only on the mesh-size of gill nets, claiming that the weight or length of a gill net was self-regulating, in so far as a fisherman was physically limited by manpower or equipment in manipulating only so many square feet of netting. Jones said that the resultant legislation closely resembled the views he presented. A Bayfield County Press issue of 1938, precise date missing, (clipping collection of Mrs. Marjorie Benton of Bayfield), shows that Emory Jones was a committee member of the county committee of fisherman that year; and an issue of the Bayfield County Press for November 6, 1941, revealed the election of Jones as President of the Lake Superior South Shore Commercial Fishermen's Association.

39. Fisheries 1887, Section V, Part VI, "The Herring Fishery and the Sardine Industry," by R. Edward Earll, 452. Earll told of the instance of unusually deep gill-nets. The mode of measuring mesh size is from Milner Great Lakes, 21.

40. Fisheries 1887, Section V, Part VI, 430; and Part XIV, 764.

41. William R. Dryer and Joseph Beil, "Life History of Lake Herring in Lake Superior", Fishery Bulletin: 63 (Fall 1964): 500.

42. Interview of Roy Oberg by Barbara J. Sommer, July 30, 1977, UMD Interviews.

43. Interview of Conrad and Fern Lorntsen by Barbara J. Sommer, June 29, 1977, UMD Interviews. Conrad Lorntsen told how two people worked on opposite sides of a gill-net, the one affixing corks, the other sinkers. He and a partner could do two nets per day. The nets were then 400 feet long. Both corks and sinkers were seven feet apart.

44. Interview of Roy and Irene Hokenson by David Fritz, July 11, 1978.

45. Two of the Minnesota fishermen, Milford Johnson, Jr., and Edwin C. Johnson expressed the view that the shorter the lead the better. This belief hinged on the notion that a frightened fish would prefer to make a 180° turn rather than follow along the entire length of an ominous looking leader. From UMD Interviews of July 14 and June 22, 1977, respectively.

46. Wisconsin REA News, October, 1953, 12.

47. Fisheries 1887, Section V, Part XIV, 758.

48. Ralph Hile, "Collection and Analysis of Commercial Fishery Statistics in the Great Lakes," Great Lakes Fishery Commission Technical Report No. 5, (Ann Arbor: December, 1962): 11. Hile says there: "The impounding nets are not classified by mesh size..." Several Minnesota fishermen, in the UMD Interviews, relate how pound-net mesh size differed only for species sought. Thus one inch mesh is now used for smelt; and variants from four to six inch mesh for lake trout or whitefish, depending on the season. Legal controls on pound-nets were imposed by means of a minimum size or weight restriction, not by mesh size controls. In any case, a fish that was too small could be returned to the lake alive. In passing, it should be noted that these Minnesotans who worked pound-nets, set them in Wisconsin waters, as pounds were banned for most years in Minnesota. Also the rocky and steep bottoms of the Minnesota shoreline of Lake Superior did not readily lend themselves to pounds. The information on pound-net meshes is from the interviews of Milford Johnson, Jr. and Edwin C. Johnson, of 14 July and 22 June, 1977, respectively; UMD Interviews.

49. Matti Kaups, "Evolution of Smelt-O-Mania on Lake Superior's North Shore," Journal of Popular Culture, 11 (Winter, 1978): 959-975. The article deals mainly with sport fishermen, but does state that commercial production of smelt during the period 1951-1977 totaled 18.4 million pounds for the Duluth area alone. The tenor of the article seems to indicate that sport fishermen took more smelt than the professionals during that period.

50. Pycha and King, Lake Trout Population, 6.

51. Observations made on fishing trip with John Erickson, July 12, 1978.

52. Ibid.

53. Garner Hadland of Route 1, Bayfield, has a collection of community photographs, unfortunately covering only recent years and close environs of Bayfield, which are shown on his cable TV station, Channel 5. Via this medium, older photographs could be solicited for the Park from the community at large to illustrate analogies with the Hokenson Fishery.

54. Interview of Roy and Irene Hokenson by David Fritz, October 16, 1978.

55. Storms on Lake Superior provide an endless literature on rescues, drownings and drama. Eskel Hokenson saw the survivors of the Sevona come ashore after shipwreck at Little Sand Bay in September of 1905. Herman Johnson of Bayfield was one of three eyewitnesses of the last moments of fisherman Harold Dahl when a sudden squall accompanied by a driving snow caught him near Sand Island in 1928. Johnson got a few last glimpses of Dahl, as his (Johnson's) own boat

rose to the crests of giant waves, seeing the latter frantically pulling the starting cord on an outboard motor. Louis Moe, another Sand Island inhabitant, saw man and boat between waves. After the next wave, both had disappeared. Dahl was less than a hundred yards from safe water in the lee of Sand Island. The story was told in the Bayfield County Press of May 3, 1928, and in the interview of Herman Johnson by David Fritz of July 14, 1978. Johnson was a neighbor to the Hokensons for many years, having a dock immediately to the east of them.

56. Interview of Roy and Irene Hokenson by David Fritz, October 16, 1978.

57. Interview of Conrad and Fern Lorntsen by Barbara J. Sommer, June 29, 1977, UMD Interviews, Roy Oberg followed a similar practice idem, interview of July 30, 1977.

58. Interview of Roy and Irene Hokenson, July 10, 1978; interview of Eskel and Florence Hokenson, July 11, 1978; both by David Fritz. The ten Minnesota fishermen in the UMD Interviews all play on the same theme. Practically all of these fishermen came from families whose traditional occupation was in the fishery. In this the Hokenson brothers were unique, as their father, Peter Hokanson, had been a hotel keeper and a carpenter. Many of the Minnesota fishermen branched out into vocations that related to the fishery, such as wholesalers, fish delivery by truck, boat builders, and purveyors of supplies to fishermen. But on the side, at least half of them were truck farmers or dairy farmers. Other occupations forced on these fishermen due to hard times with the fishery included carpentry, cabinetmaking, box-making, mail delivery, ore boat laborers, loggers, renters of cabins for tourists, trolling boat operators, truckers, and dock workers. Ragnvald Sve was probably the most versatile of all. He worked on ore boats, was a logger, did some boat building, built and rented tourist cabins, ran a trolling boat for sport fishermen, trucked pulpwood, did some farming, and engaged in box-making for smelt.

59. Interview of Conrad and Fern Lorntsen by Barbara J. Sommer, June 29, 1977, UMD Interviews.

60. Interview of Ingaborg Holte of July 6, 1977, of Conrad and Fern Lorntsen of July 14, 1977; of Roy Oberg July 30, 1977; and of George Torgeson of June 27, 1977; all by Barbara J. Sommer in the UMD Interviews.

61. Interview of Eskel and Florence Hokenson by David Fritz, January 16, 1979.

62. Bayfield County Press of February 27, 1930, and September 25, 1930.

ILLUSTRATIONS

"No rest for a fisherman. During the winter, the men put up the ice which will be used to pack next summer's fish. All the fishermen help one another with this operation. Leo has the only ice-cutting machine in the area."

Figure 1. The Hokenson Brothers' Ice-cutting Machine in the 1940's. Photograph from an article in the Wisconsin REA News, October 1953, page 12.

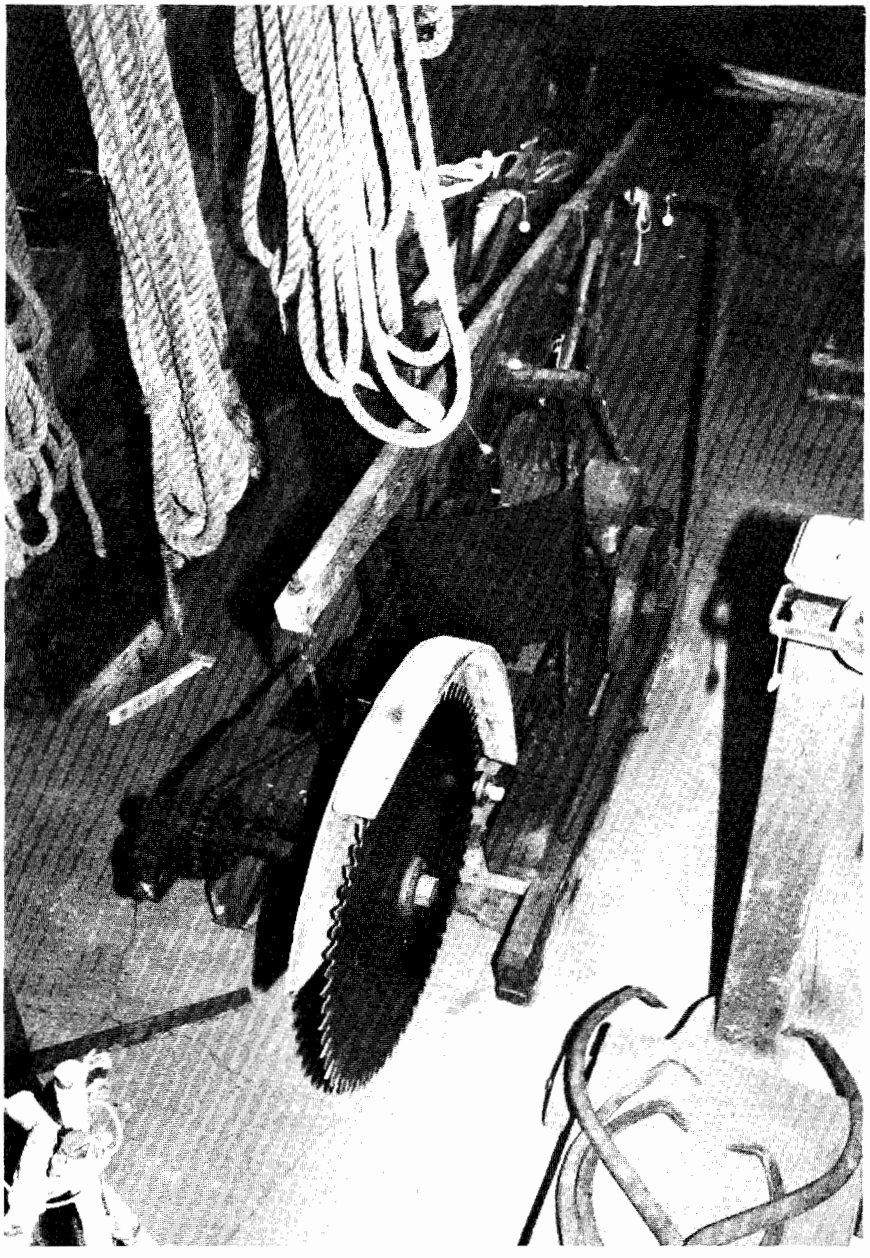


Figure 2. Top view of Hokenson's Motorized Rotary Ice Saw, January 1979.

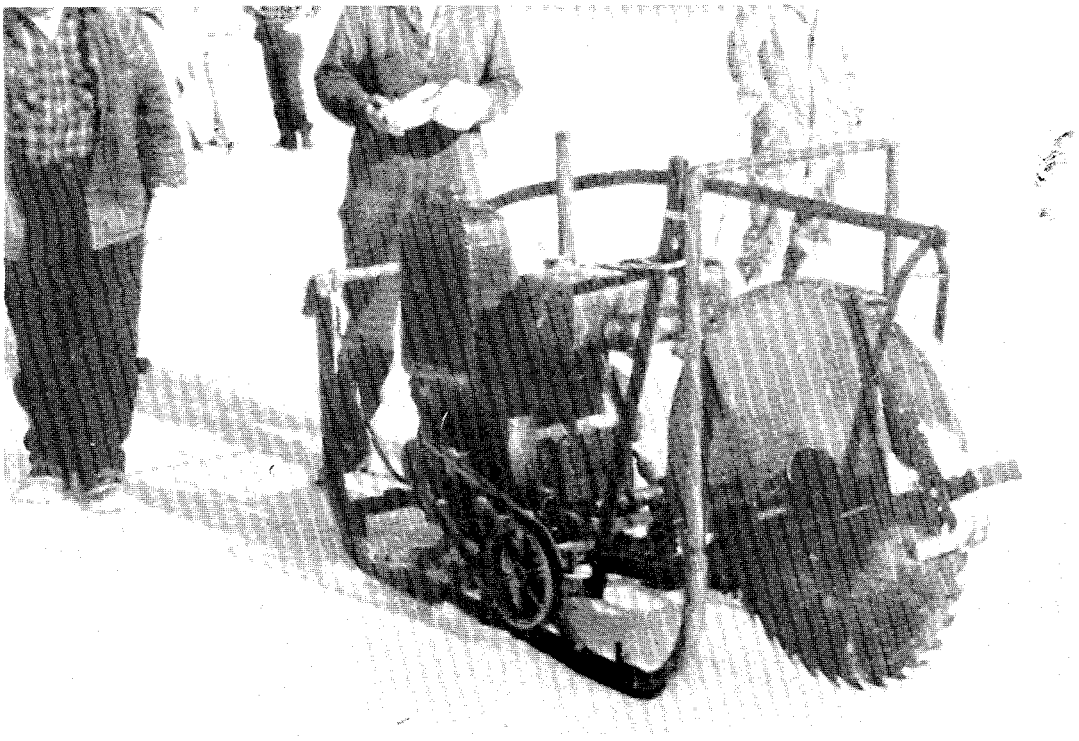


Figure 3. Another Bayfield Rotary Ice Saw. Courtesy of the Bayfield County Historical Society. Note metal frame, gas tank and automobile style radiator.

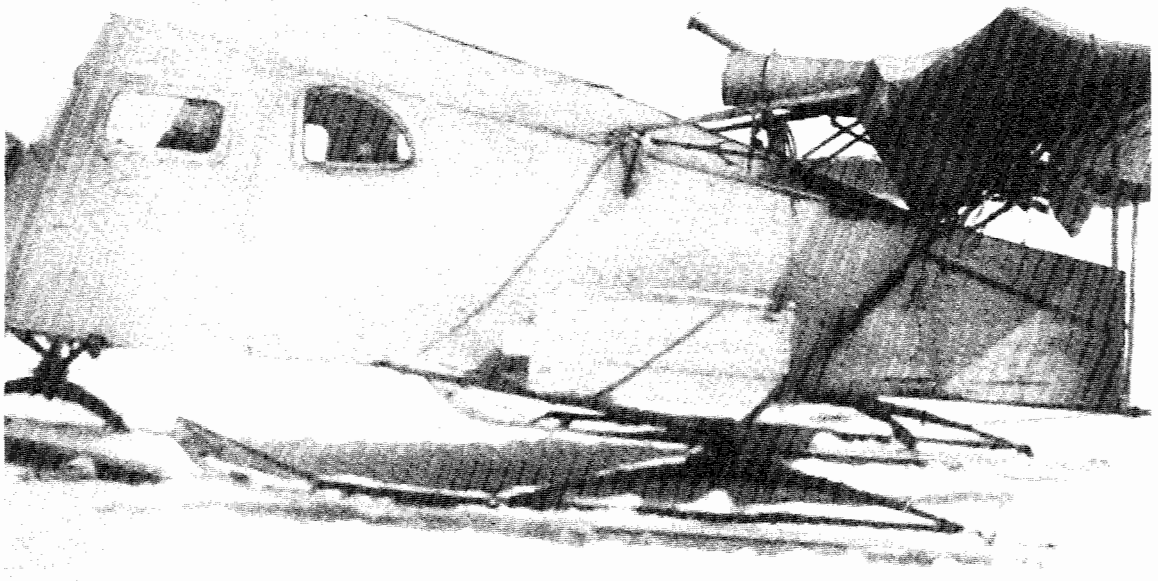


Figure 4. Hokensons' Propeller-powered Ice Sled, 1940's. Note fish box on external strut outside hull.

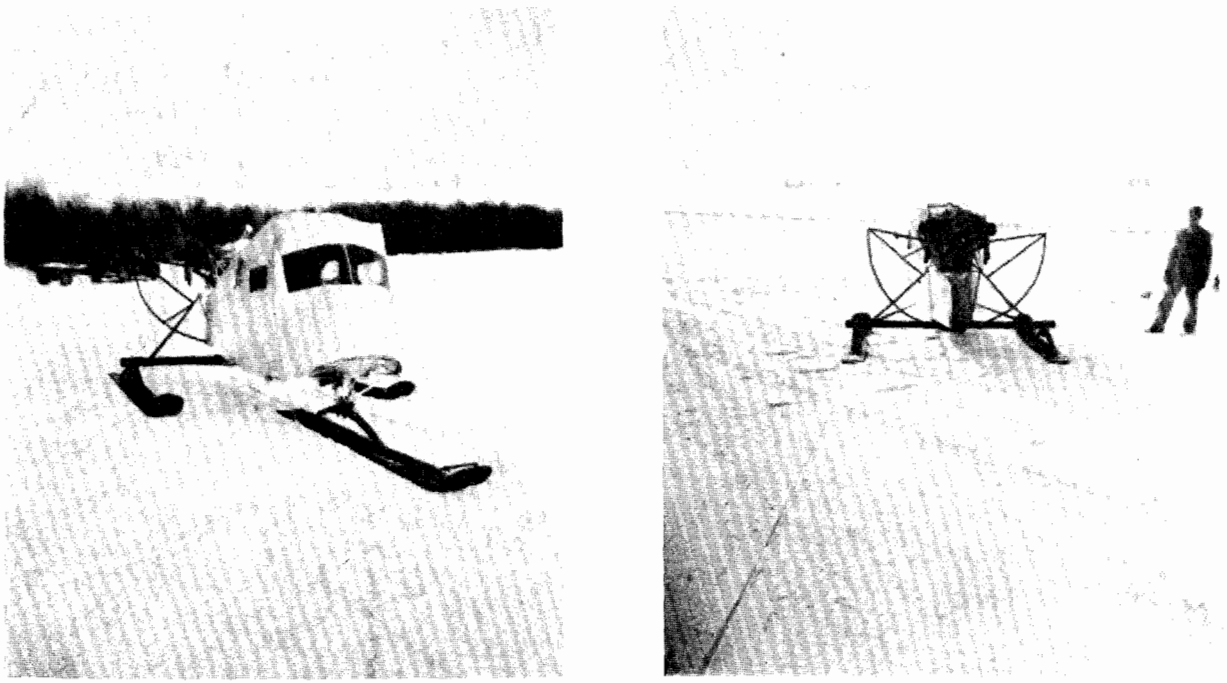


Figure 5. Hokensons' Ice Sled in Front and Rear Views, 1940's.

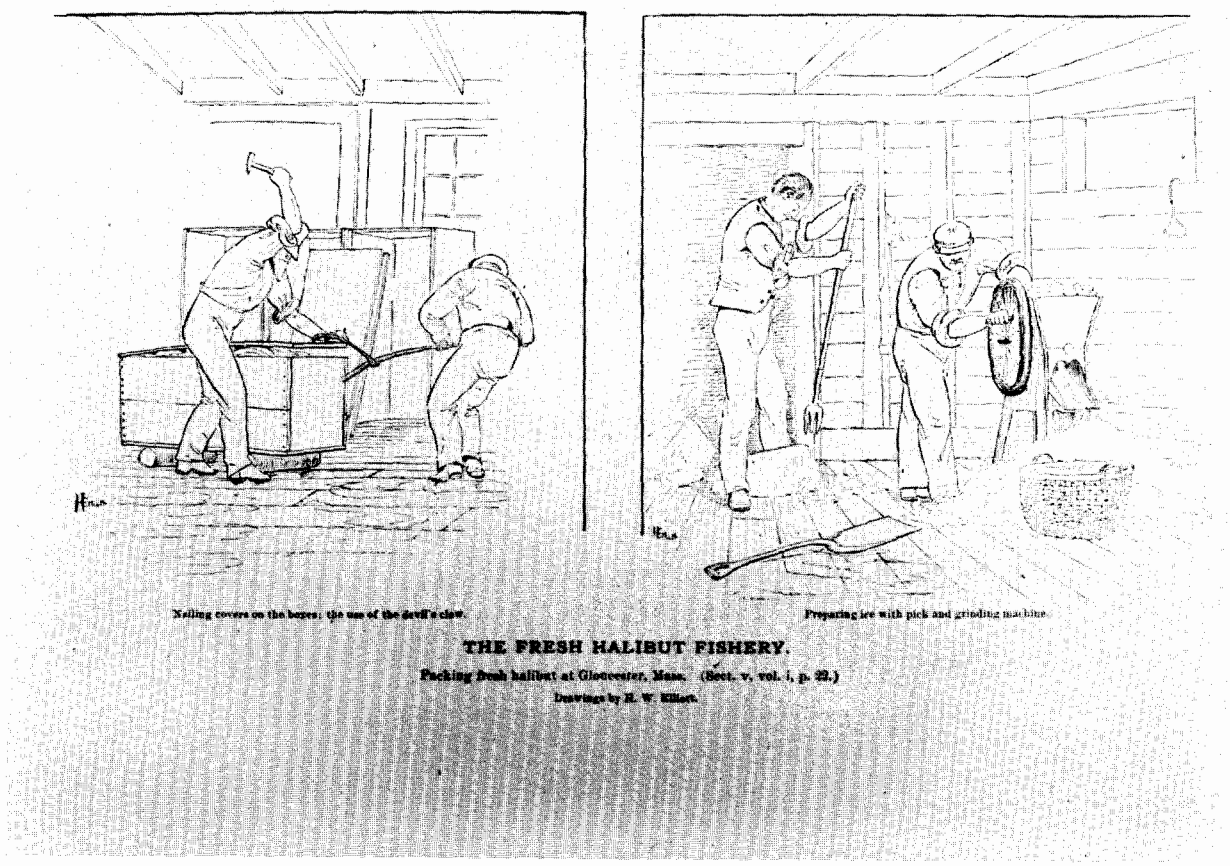


Figure 6. Nineteenth Century Fish Packing and Ice Chipping Methods. Note use of devil's claw at left and ice chipper and crusher at right. Illustrations derived from Senate Document 124, 47th Congress, 1st. Session, Section V, Plates Volume, Plate 22; hereafter cited as Fisheries 1887.

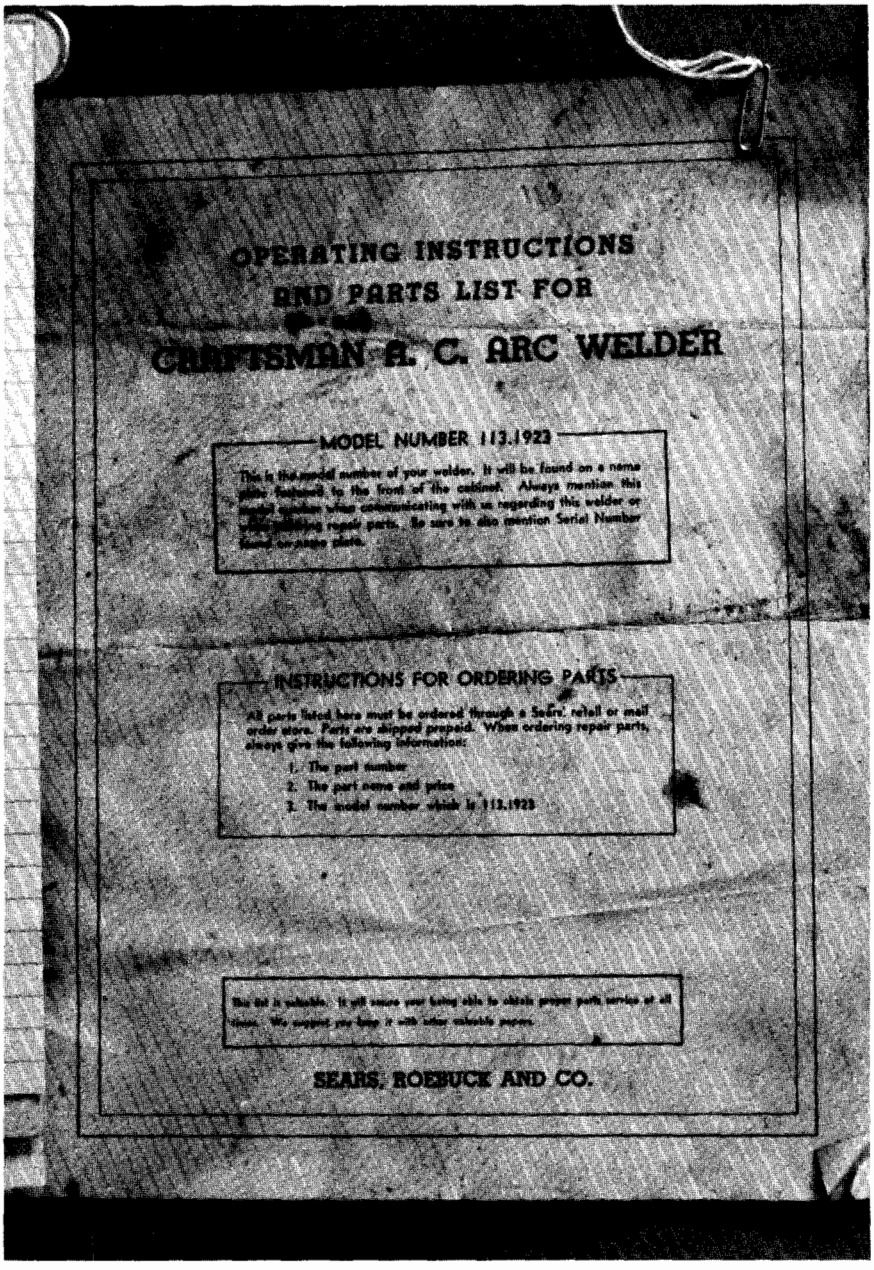
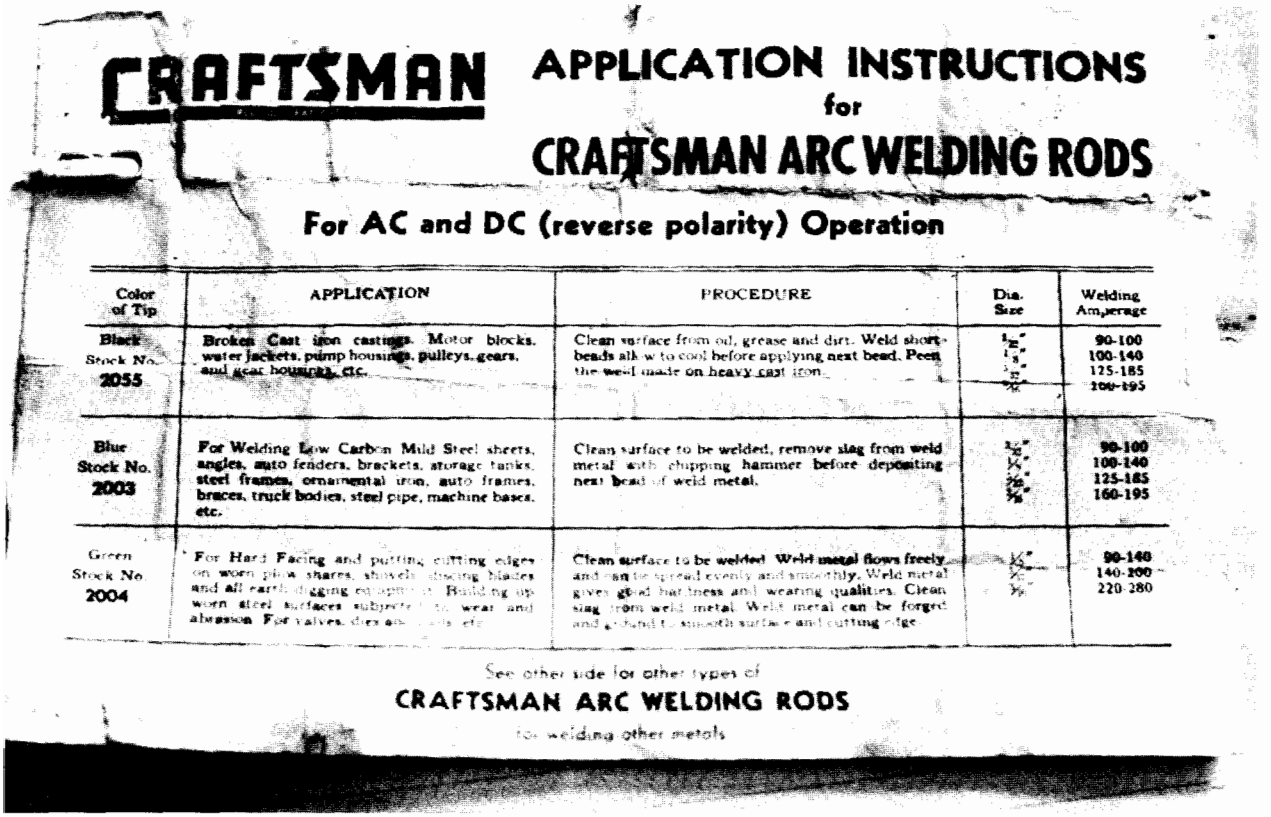


Figure 7. Cover to Instructions for Sears Craftsman A.C. Arc Welder.



CRAFTSMAN

APPLICATION INSTRUCTIONS for CRAFTSMAN ARC WELDING RODS

For AC and DC (reverse polarity) Operation

Color of Tip	APPLICATION	PROCEDURE	Dia. Size	Welding Amperage
Black Stock No. 2055	Broken Cast iron castings. Motor blocks, water jackets, pump housings, pulleys, gears, and gear housings, etc.	Clean surface from oil, grease and dirt. Weld short beads allow to cool before applying next bead. Peen the weld made on heavy cast iron.	1/8" 5/32" 3/16" 1/4"	90-100 100-140 125-185 160-195
Blue Stock No. 2003	For Welding Low Carbon Mild Steel sheets, angles, auto fenders, brackets, storage tanks, steel frames, ornamental iron, auto frames, braces, truck bodies, steel pipe, machine bases, etc.	Clean surface to be welded, remove slag from weld metal with chipping hammer before depositing next bead of weld metal.	1/8" 5/32" 3/16" 1/4"	90-100 100-140 125-185 160-195
Green Stock No. 2004	For Hard Facing and putting cutting edges on worn plow shares, shovels, dozing blades and all earth digging equipment. Building up worn steel surfaces subject to wear and abrasion. For valves, dies and tools etc.	Clean surface to be welded. Weld metal flows freely and can be spread evenly and smoothly. Weld metal gives good hardness and wearing qualities. Clean slag from weld metal. Weld metal can be forged and ground to smooth surface and cutting edge.	1/8" 5/32" 3/16"	90-140 140-200 220-280

See other side for other types of

CRAFTSMAN ARC WELDING RODS

for welding other metals

Figure 8. Instructions for Sears Craftsman Arc Welding Rods.

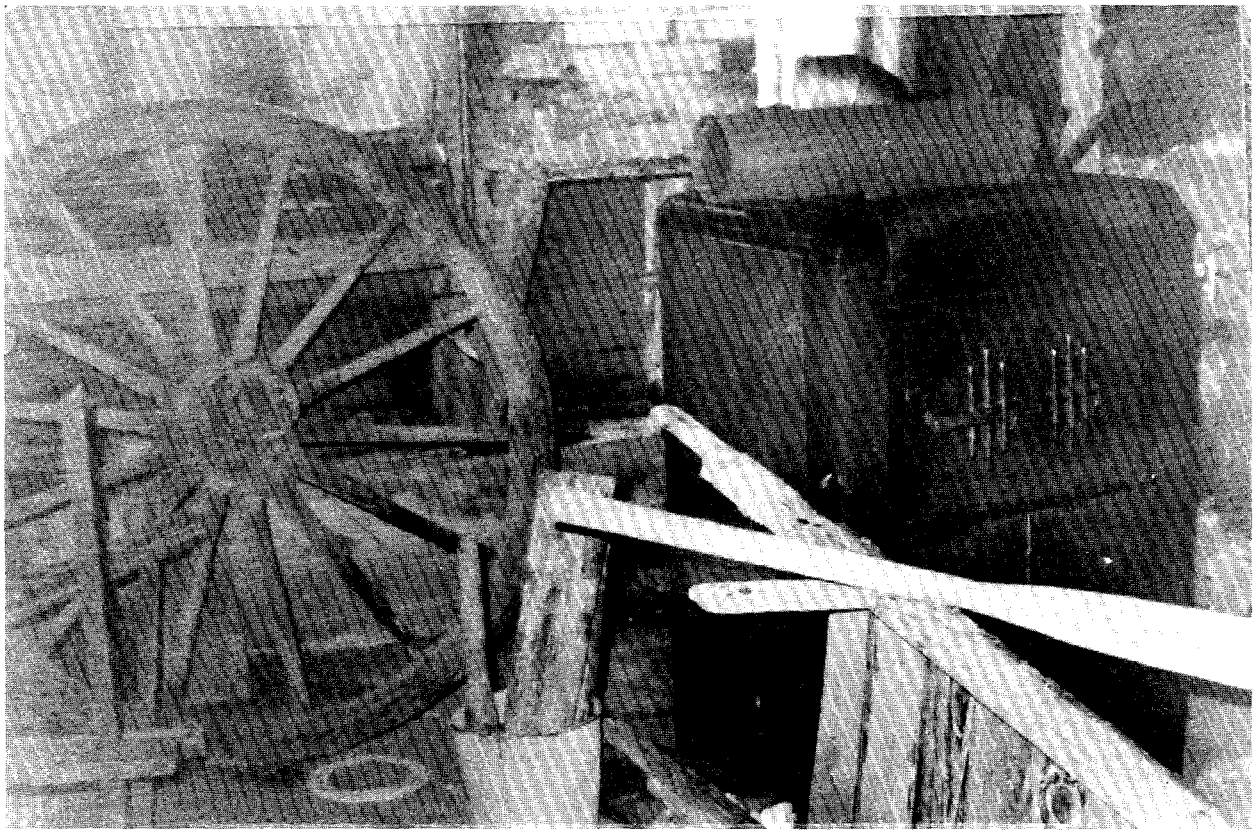
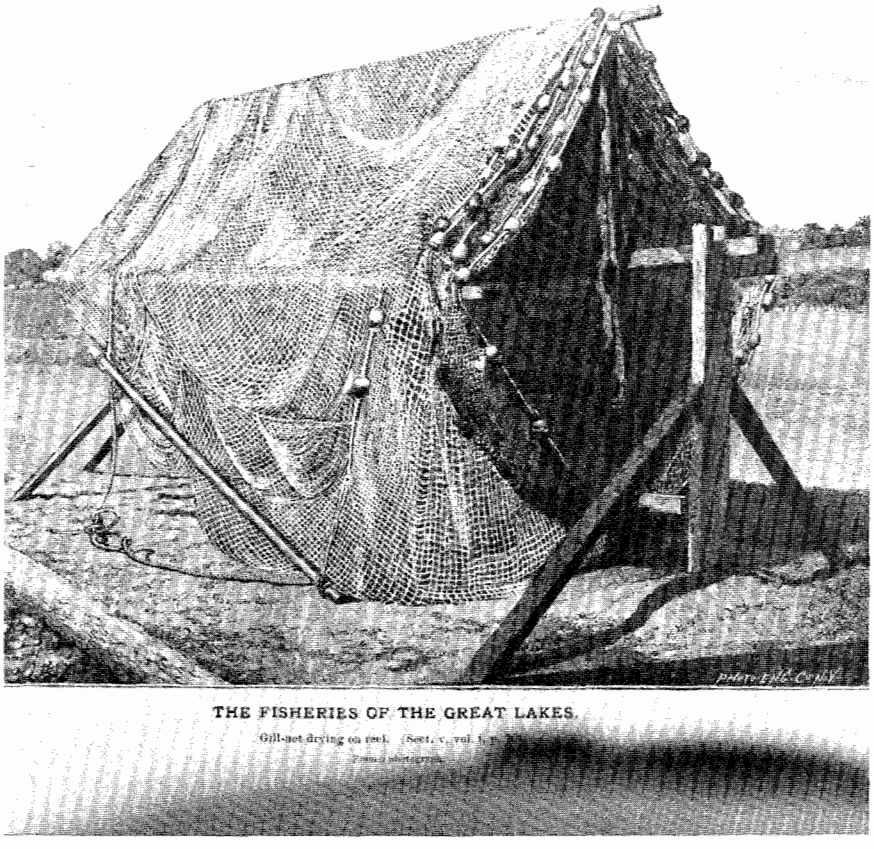


Figure 9. Center of South Wall of Twine Shed (HS-01-138F), September 1978. Note space heater on right with disconnected stovepipe sections. At left is wagon wheel from one of the Apostle Islands.

Figure 10. Components of a Pound-net Gathered into Bundles. Northwest corner of loft of Twine Shed (HS-01-138F), January 1979.



THE FISHERIES OF THE GREAT LAKES.

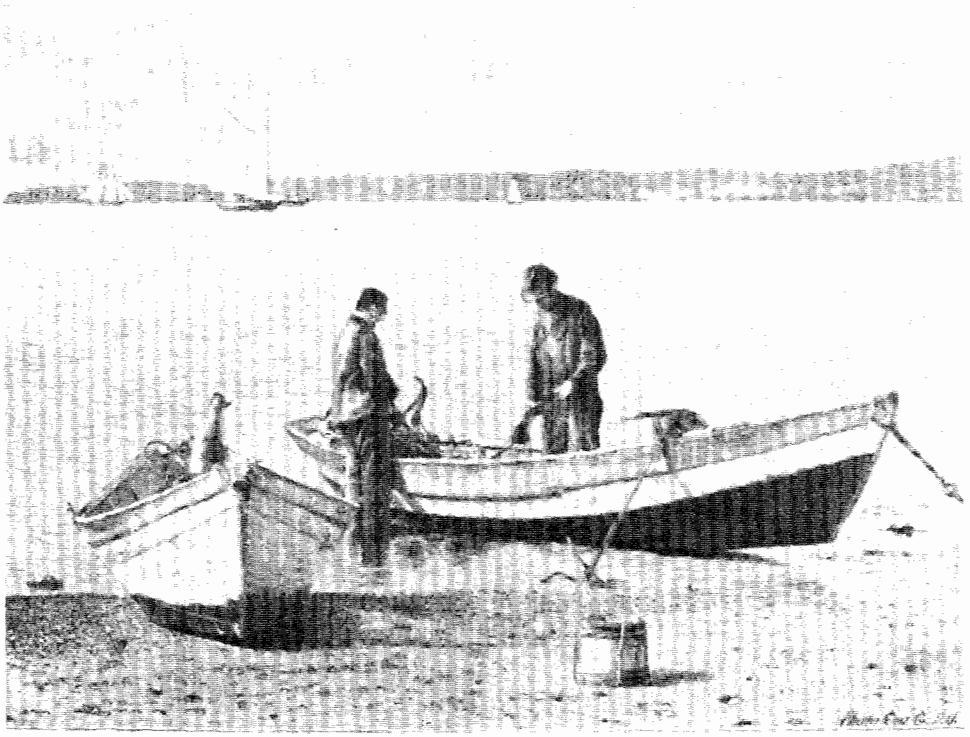
Gill-net drying on reel. (Sect. v, vol. I, p.

Figure 11. Fisheries 1887, Plate 178. Note type of floats on right edge of gill-net and mooring pole at end of net.

THE GILL-NET COD FISHERY.

Underrunning cod gill-nets in Ipswich Bay, Mass. (Sect. v, vol. i, p. 232.)
Drawing by H. W. Elliott and Capt. J. W. Collins.

Figure 12. Fisheries 1887, Plate 45. Minnesota herring gill-netters practiced their trade in a similar fashion well into the Twentieth Century.



THE HERRING FISHERY

Figure 13. Fisheries 1887, Plate 122. Note the sharp aspect of both bow and stern of these Atlantic seaboard skiffs. This better enabled them to weather heavy seas.

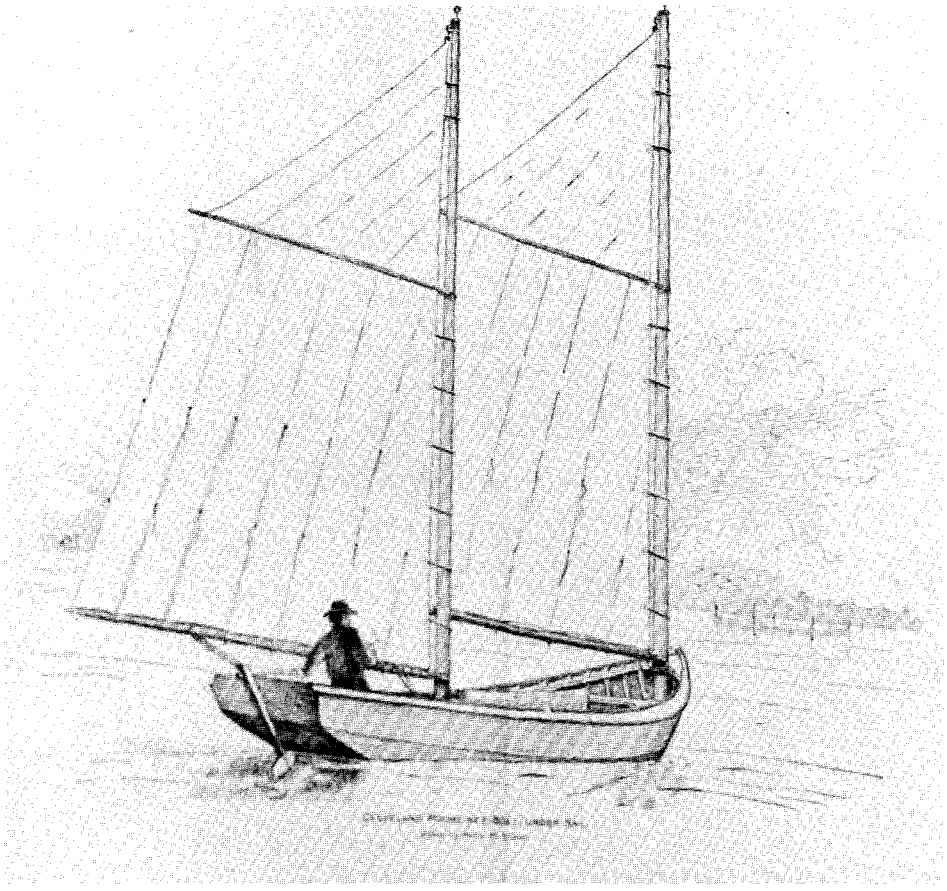


Figure 14. Nineteenth Century Pound-Net Boat. The absence of sails is the major difference today. Illustration derived from House Document 133, 50th Congress, Second Session, Appendix 1, Fisheries of the Great Lakes in 1885, Plate VII; hereafter cited as Great Lakes 1885.

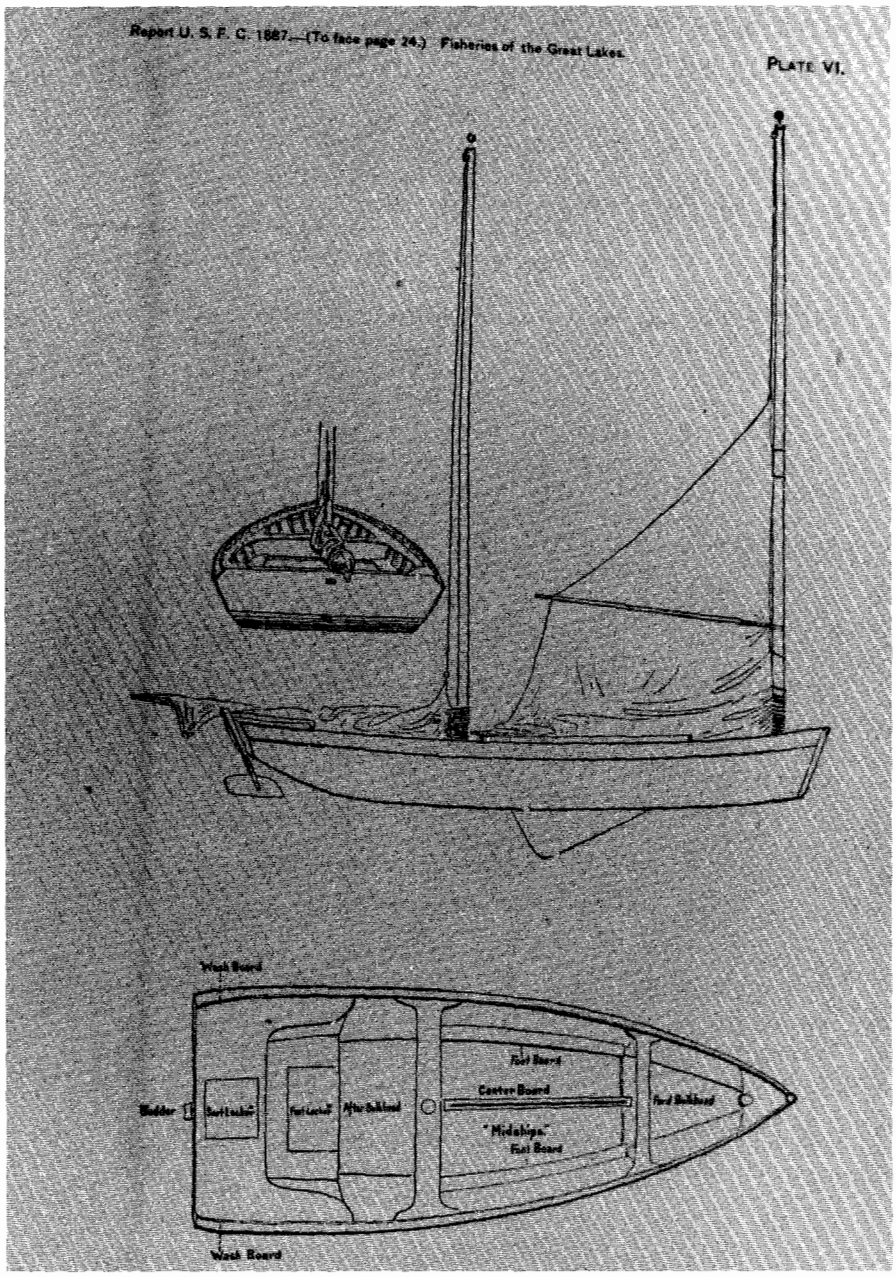


Figure 15. Great Lakes 1885, Plate VI. Plans of Typical Pound Net Boat.

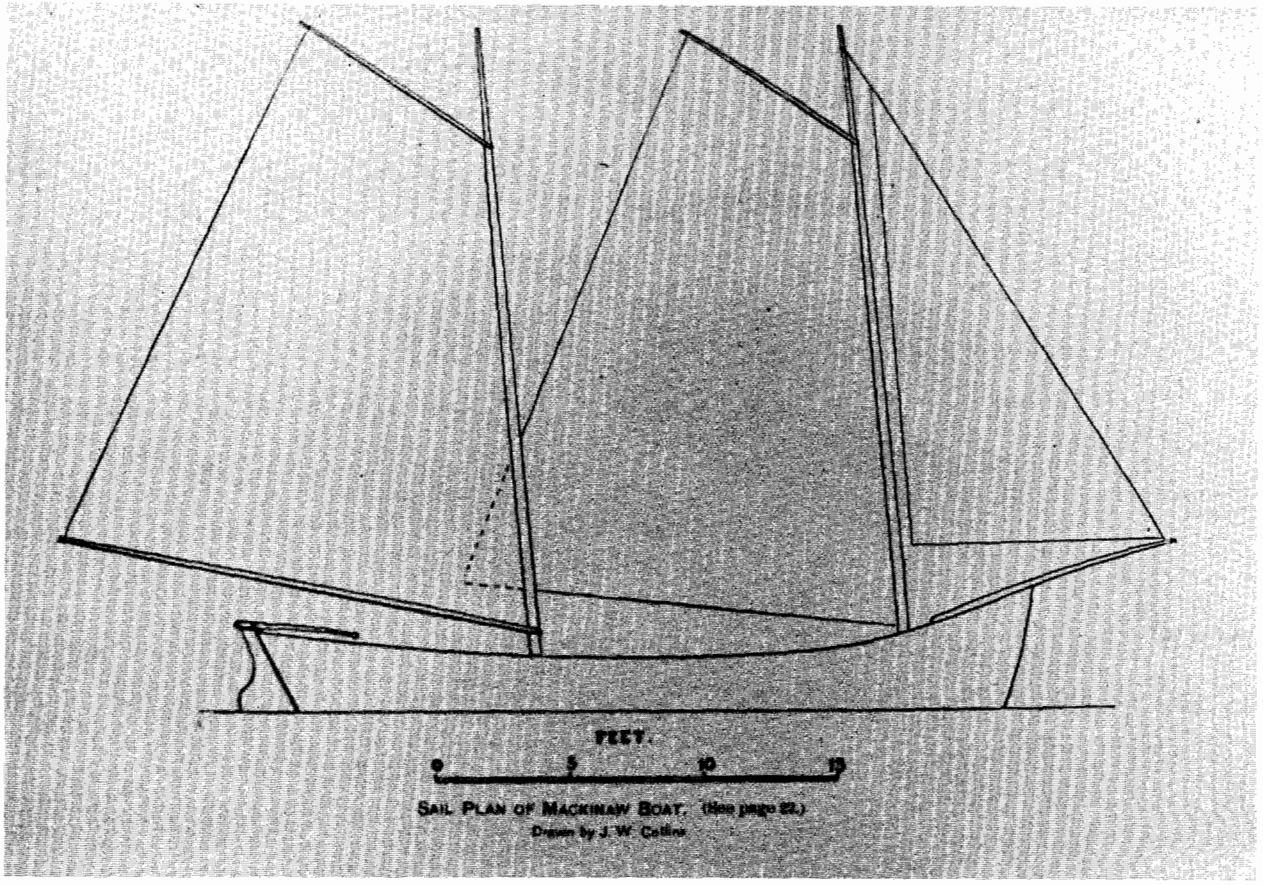


Figure 16. Great Lakes 1885, Plate V. The Mackinaw Boat survived until at least 1910.

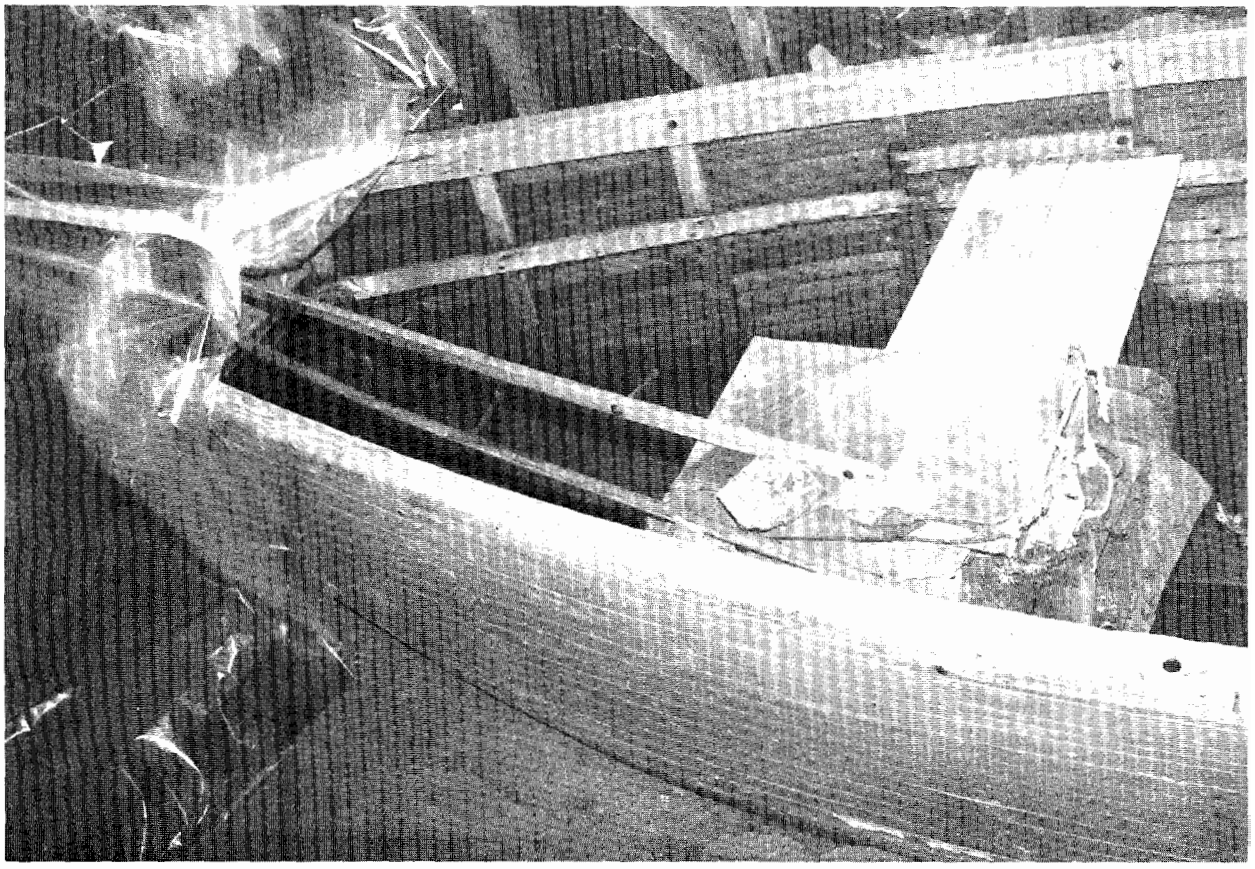


Figure 17. Bow of the Hokensons' Second Pound-Boat, (HS-01-138H), January 1979. Note hole for oarlock in gunwhale at right, also two large folded canvas bags on seat.

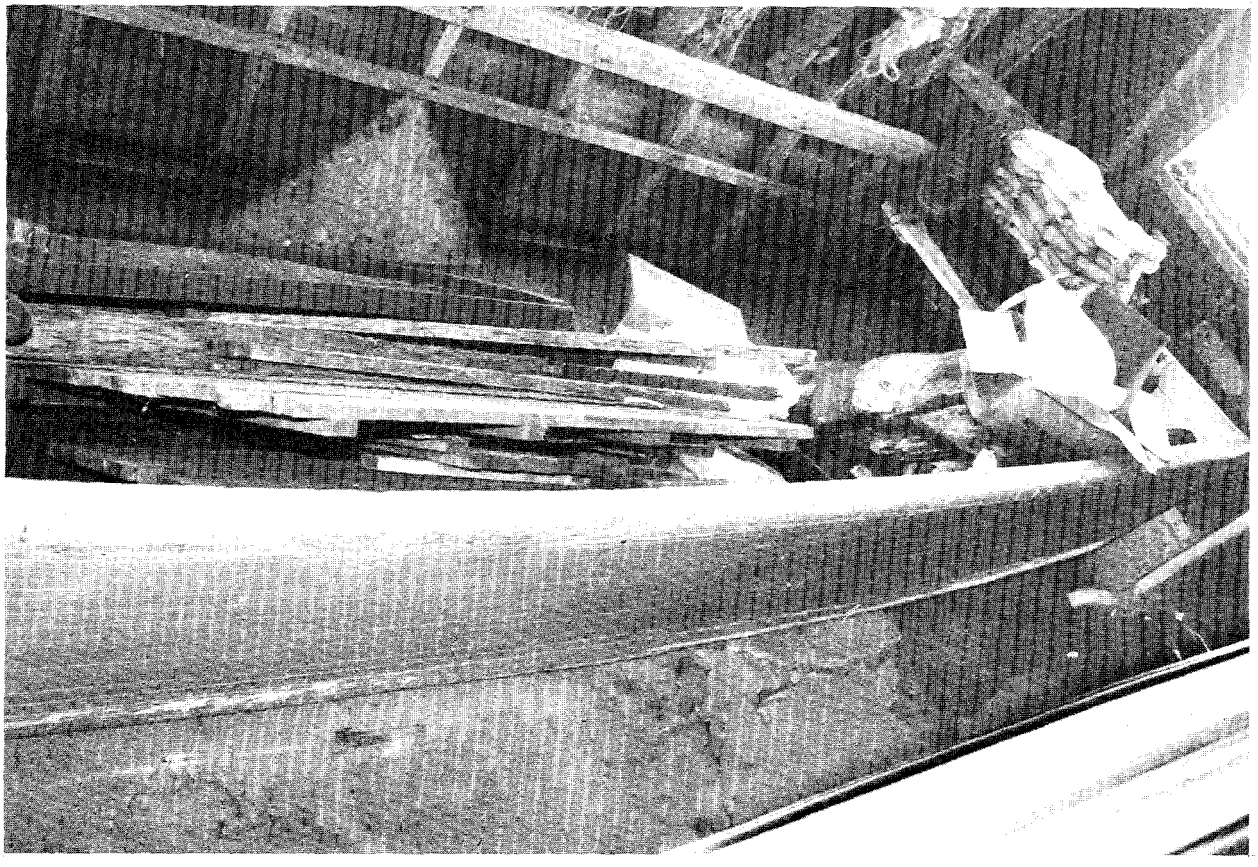


Figure 18. Stern of the Hokenson's Second Pound-Boat, (HS-01-138H), January 1979. Note rounded wooden artifacts in bottom of boat at right, as well as stakes at center photograph.

Figure 19. Hokensons tending a Pound-Net in the 1940's. Note seat amidships and space between gunwale and internal bracing. Eskel in bow, Roy and Leo Astern.

Figure 20. Photograph of Ole Evinrude with one of his Outboards from the 1922 Period. Courtesy of Evinrude Motors.

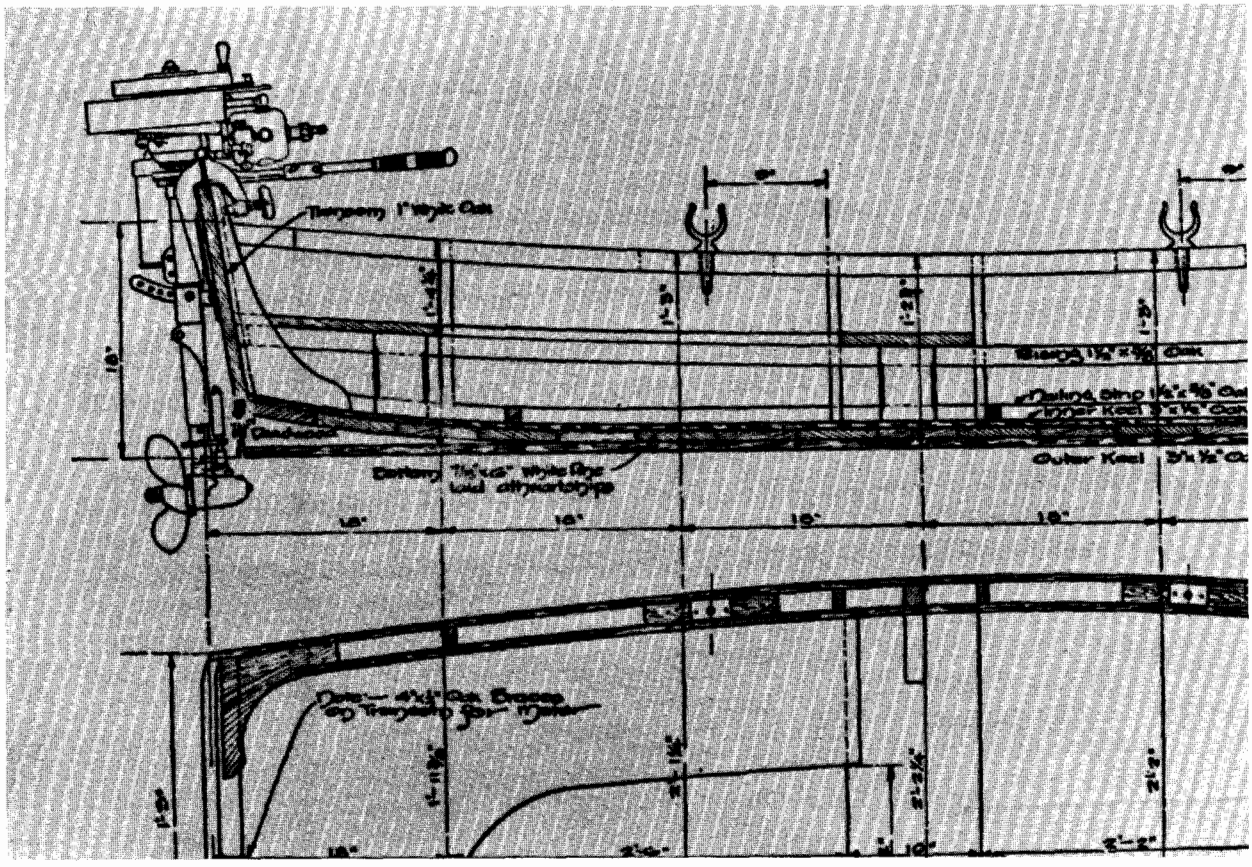


Figure 21. Side Plan of Early Evinrude Motor. Illustration from Charles F. Chapman, editor, The Outboard Motor Boat Book, (New York: Motor Boating, 1927), 40.

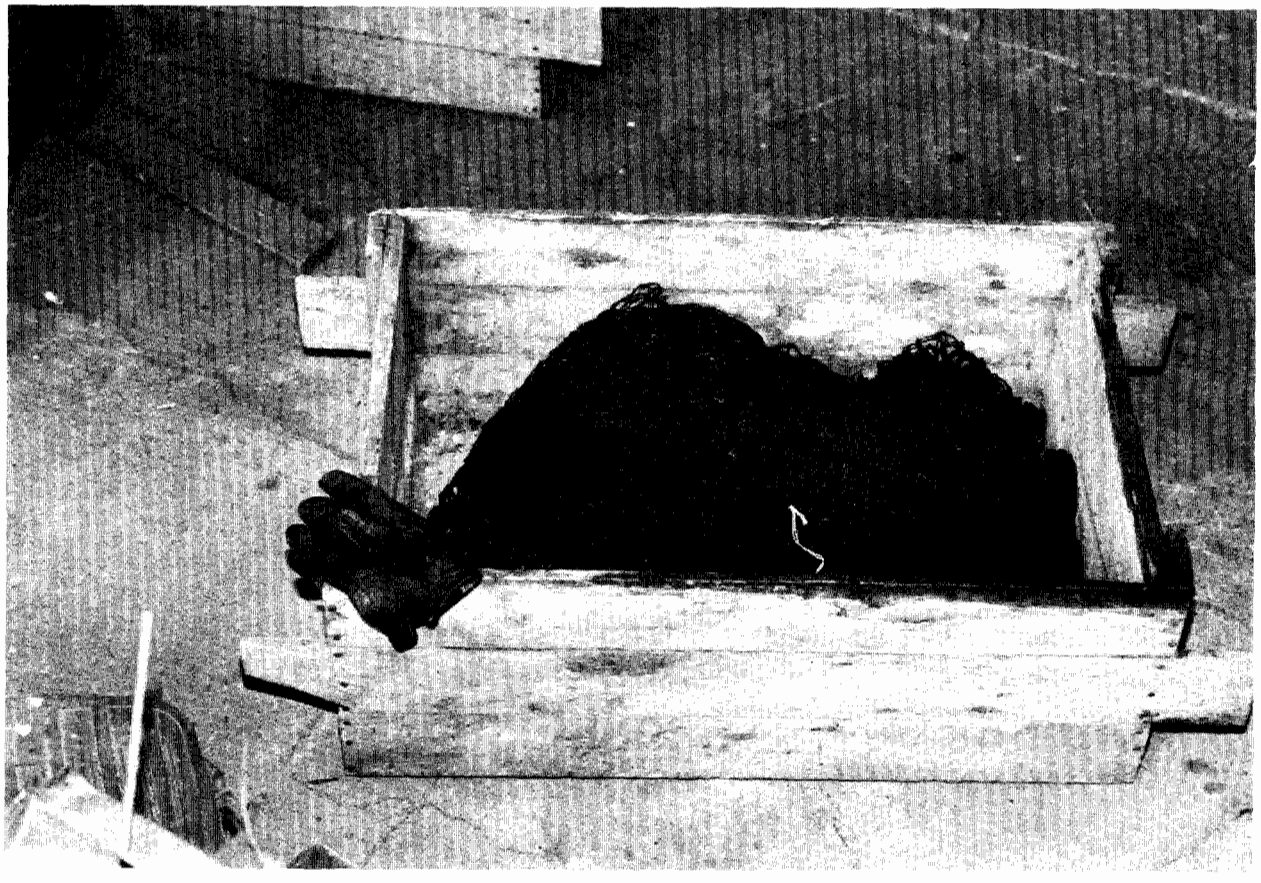


Figure 22. Hokenson Brothers' Homemade Fish and Net Box, January 1979.

"Eskel's son Gary just couldn't wait to be a fisherman. When he was nine years old, he built this raft, nailed a fish box to it and set sail on Little Sand Bay, using brooms for oars."

Figure 23. Photograph of Gary Hokenson in 1944. Note that fish box design is the same as Figure 22. Illustration from Wisconsin REA News, October 1953, page 12.

Figure 24. An Apostle Island Fisherman Scooping Whitefish from Pound-Boat to Fishing Tug. Abundance was so great that the fisherman did not use fish boxes, at least not in the pound-boat. Illustration courtesy of the Bayfield County Historical Society.

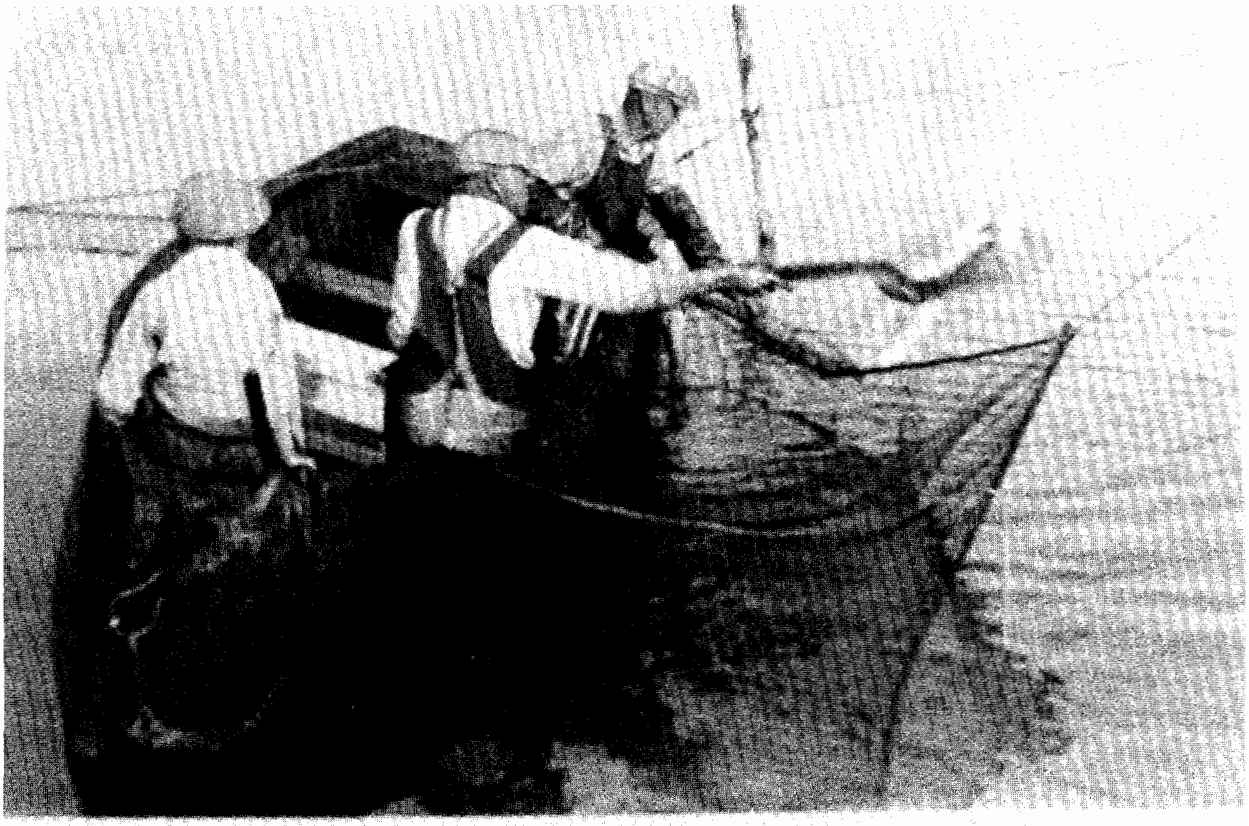
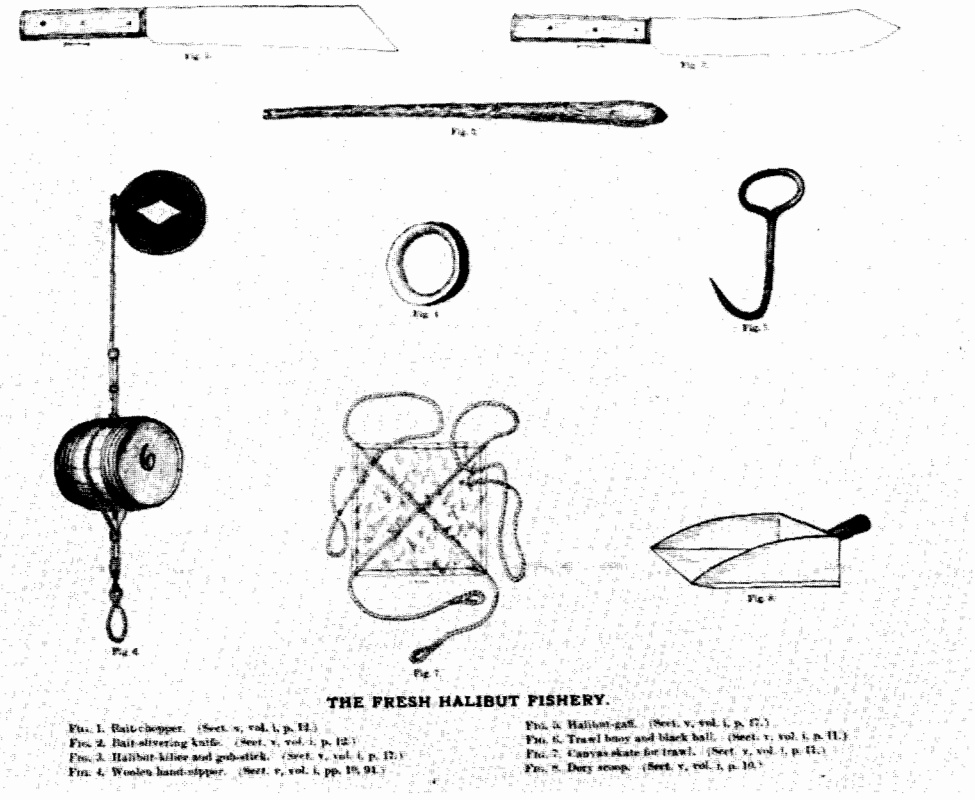


Figure 25. Hokensons Emptying a Pound-Net. Eskel is shown shovelling small rough fish back into the lake. His son, Gary, is in the bow of the pound-boat; his brother, Roy, in the stern. Photograph c. 1944. Note type of caps and protective trousers on Eskel.



THE FRESH HALIBUT FISHERY.

FIG. 1. Bait-chopper. (Sect. v, vol. i, p. 14.)
FIG. 2. Bait-slivering knife. (Sect. v, vol. i, p. 12.)
FIG. 3. Halibut-killer and gob-stick. (Sect. v, vol. i, p. 17.)
FIG. 4. Woolen hand-nipper. (Sect. v, vol. i, pp. 19, 94.)
FIG. 5. Halibut-gaff. (Sect. v, vol. i, p. 17.)
FIG. 6. Trawl buoy and black ball. (Sect. v, vol. i, p. 11.)
FIG. 7. Canvas skate for trawl. (Sect. v, vol. i, p. 11.)
FIG. 8. Dory scoop. (Sect. v, vol. i, p. 10.)

Figure 26. Analogous Tools in Another Type of Fishing. A wide variety of knives were used in the various fisheries. Note dory scoop at lower right. Illustration from Fisheries 1887, Plate 5.

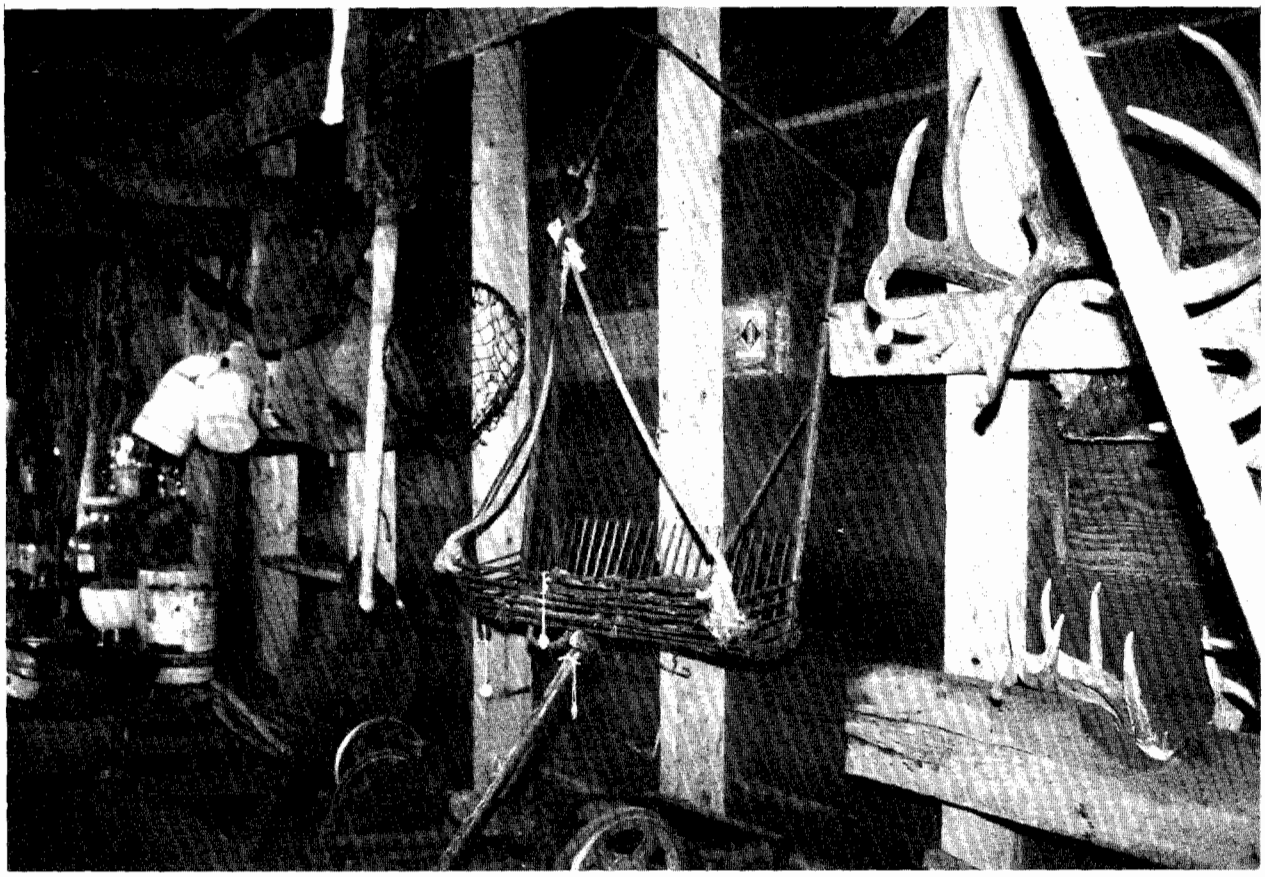


Figure 27. Center of West Wall of Twine Shed (HS-01-138F), January, 1979. Note two types of dip-net to left of drag-rake. Several canvas knapsacks hang to the left of the dip-nets. Two pairs of antlers are visible at right.

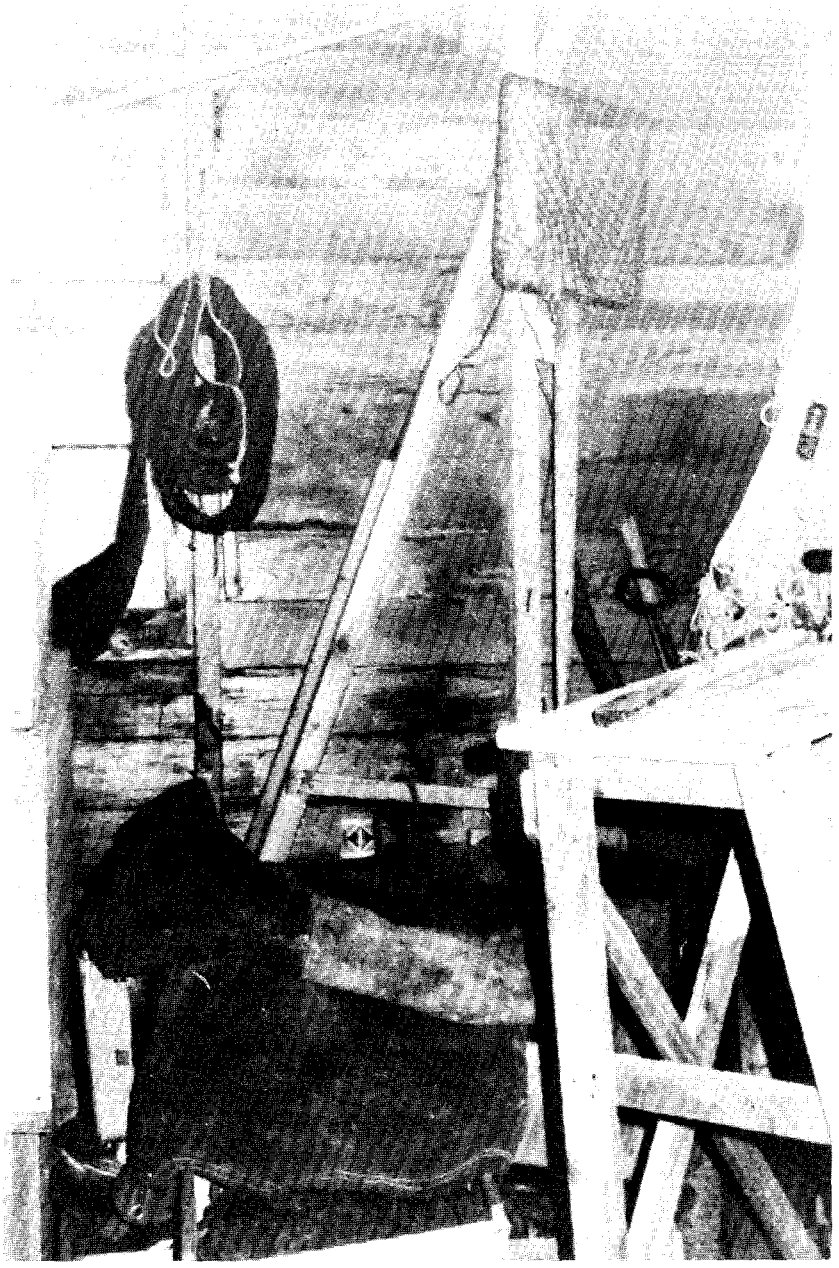


Figure 28. Center of West Wall of Twine Shed (HS-01-138F), September, 1978. Note square framed dip-net at center. Note heavy canvas items at bottom left.

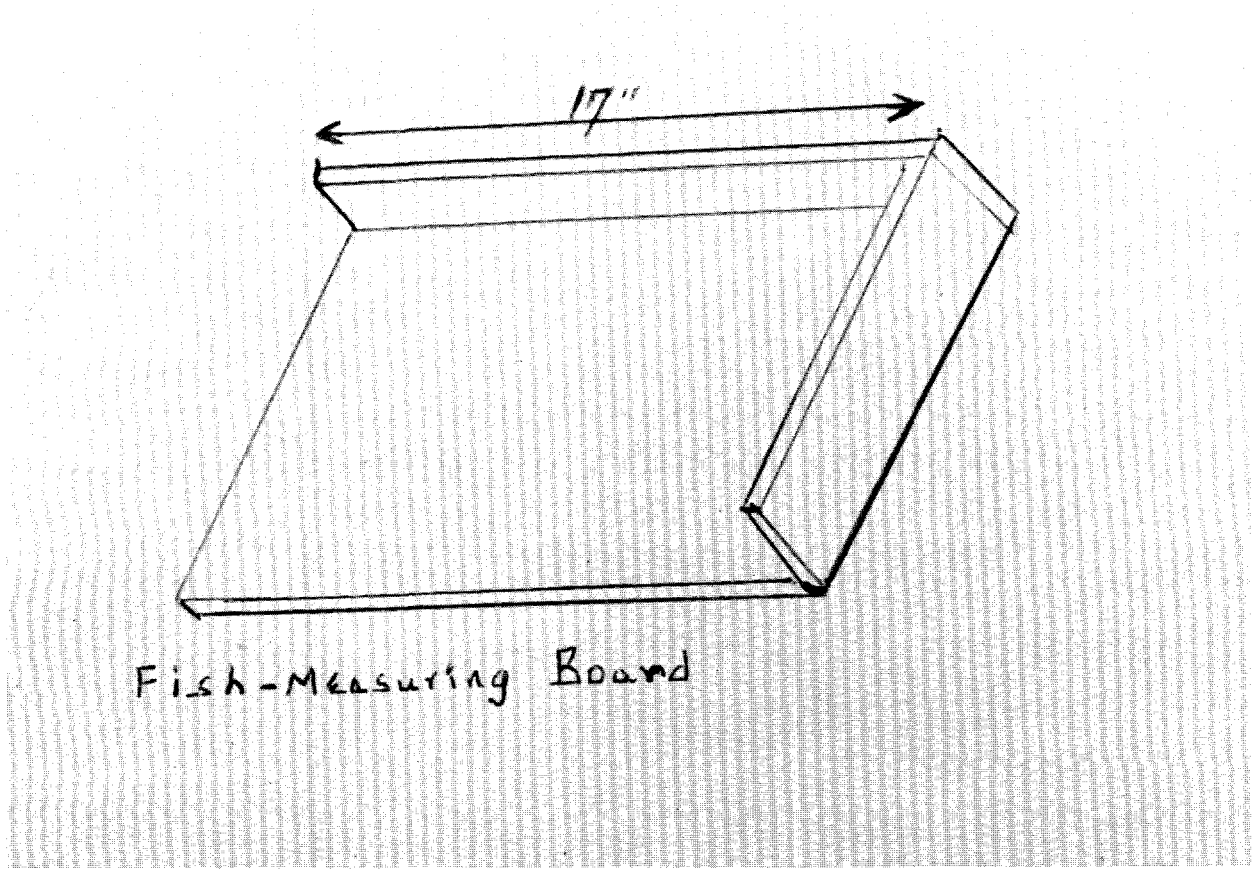


Figure 29. Diagram of Measuring Board.

Figure 30. Eskel Hokenson in Foreground Using Cleaning Board While Sitting in Pound-Boat. Harvey Soetebeer, a neighbor, in background. Note stiffness of trousers, probably oilskins. Photograph from 1942.

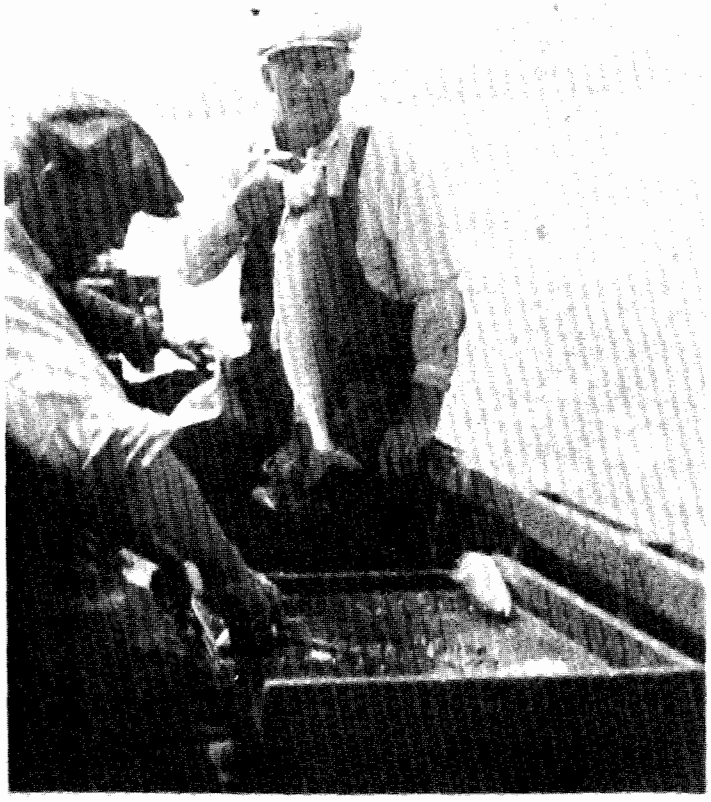


Figure 31. Another Photograph of *Fish Cleaning Board*. Eskel Hokenson at left, neighbor Harvey Soetebeer at right. Note size of lake trout. Photograph from 1942.

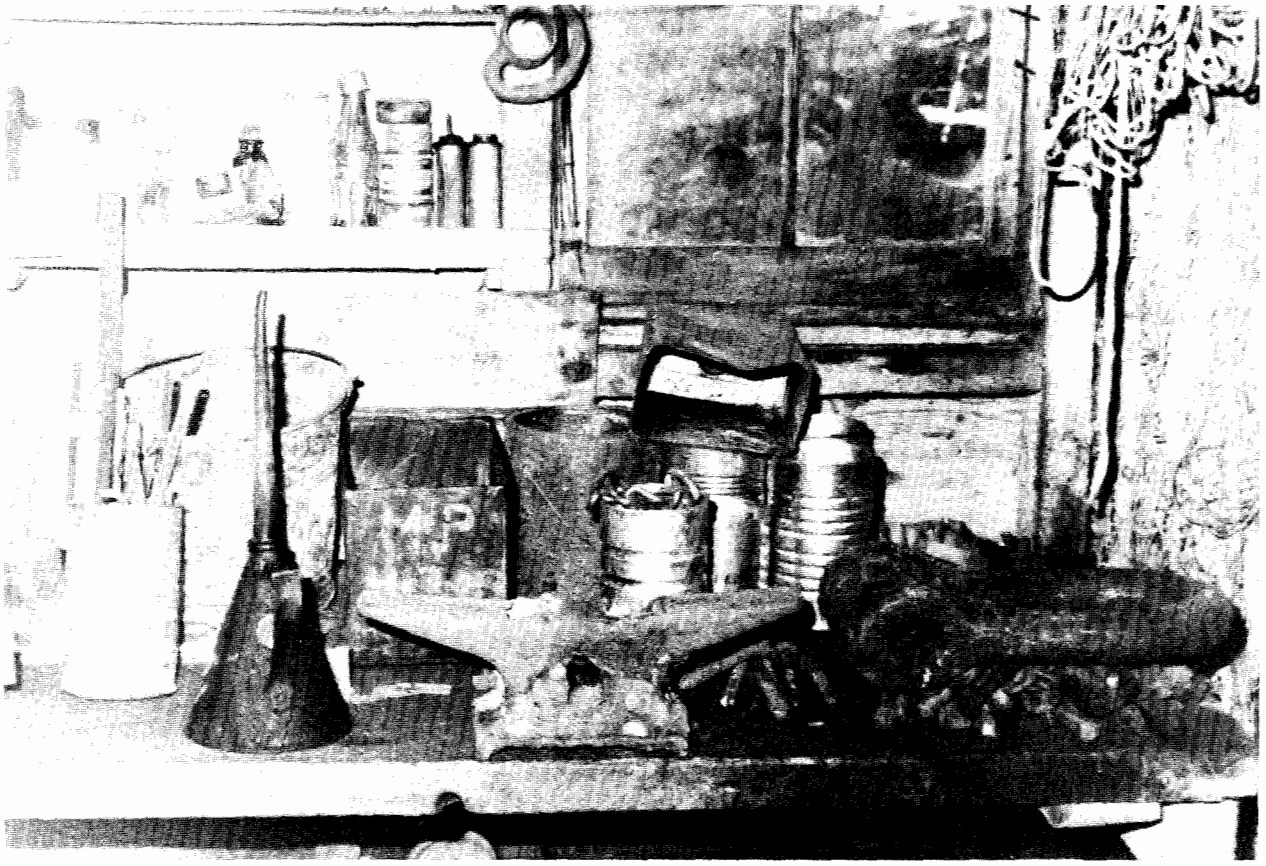


Figure 32. Southeast End of Eastern Workbench in Twine Shed (HS-01-138F), September, 1978. Refuse bucket at left, oil can in foreground in front of bucket, docking cleat in center foreground.

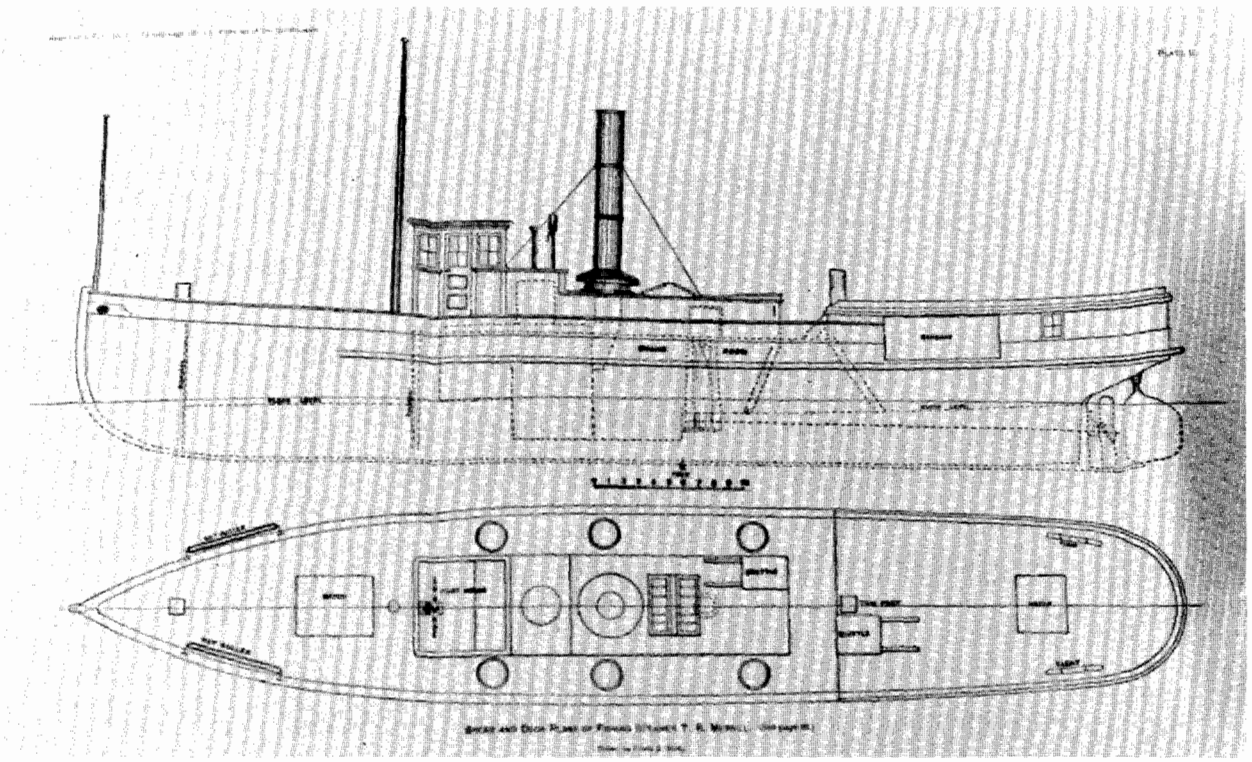


Figure 33. Sheer and Deck Plans of Fishing Steamer, T. R. Merrill. This ship was about 70 feet long, had net rollers on the prow, which indicated that it was both used for fishing as well as gathering wholesale fish for market. Illustration from Great Lakes 1885, Plate II.

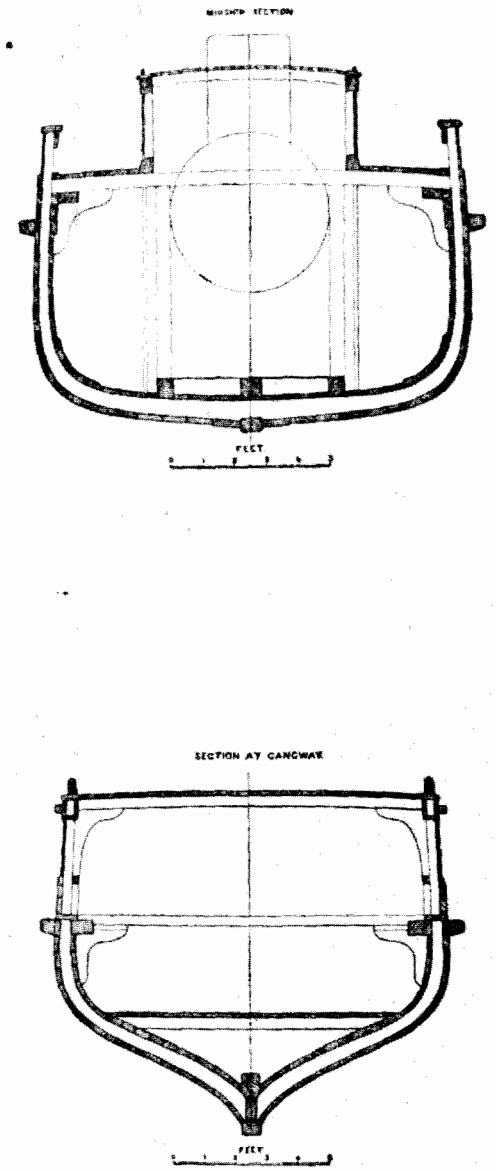


Figure 34. Cross Sections of Fishing Steamer T. R. Merrill. The ship had a beam of nearly 13 feet and could carry a considerable cargo of fish. Illustration from Great Lakes 1885, Plate III.

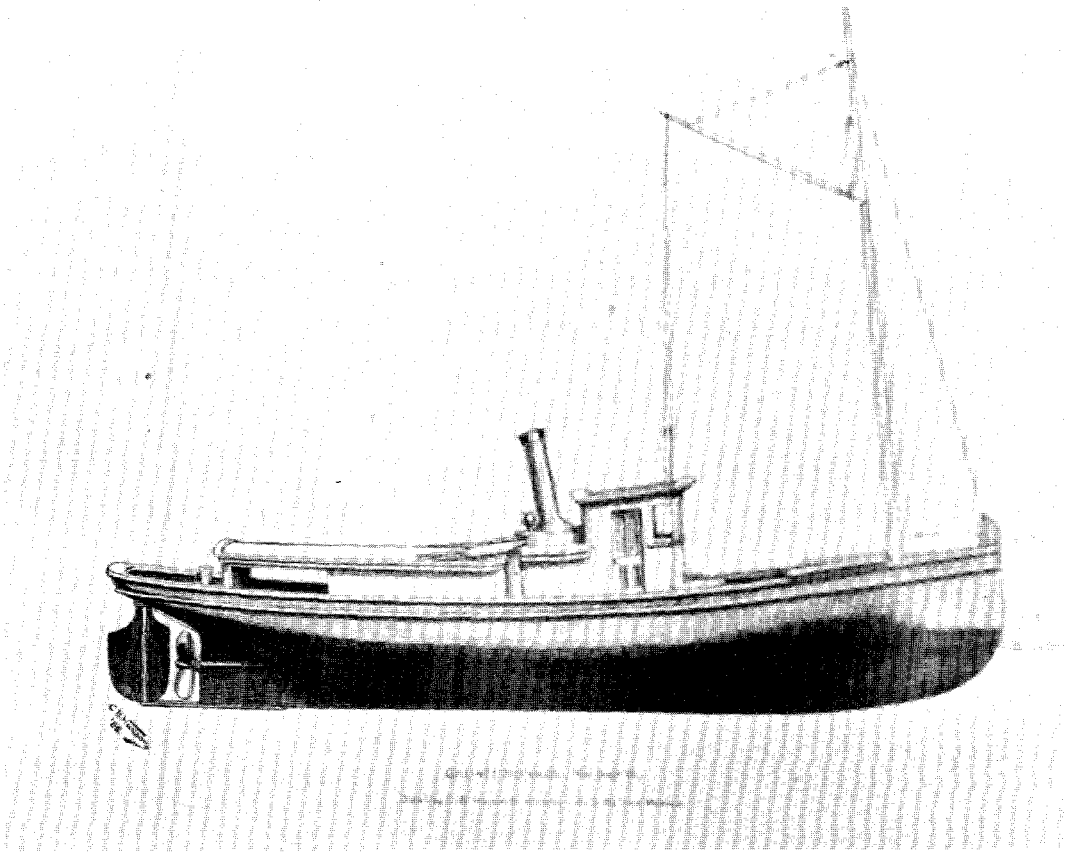


Figure 35. Another Type Fishing Vessel Which Combined Steam with Sail Power. Note gill net rollers aft of sail mast. Illustration from Great Lakes 1885, Plate I.

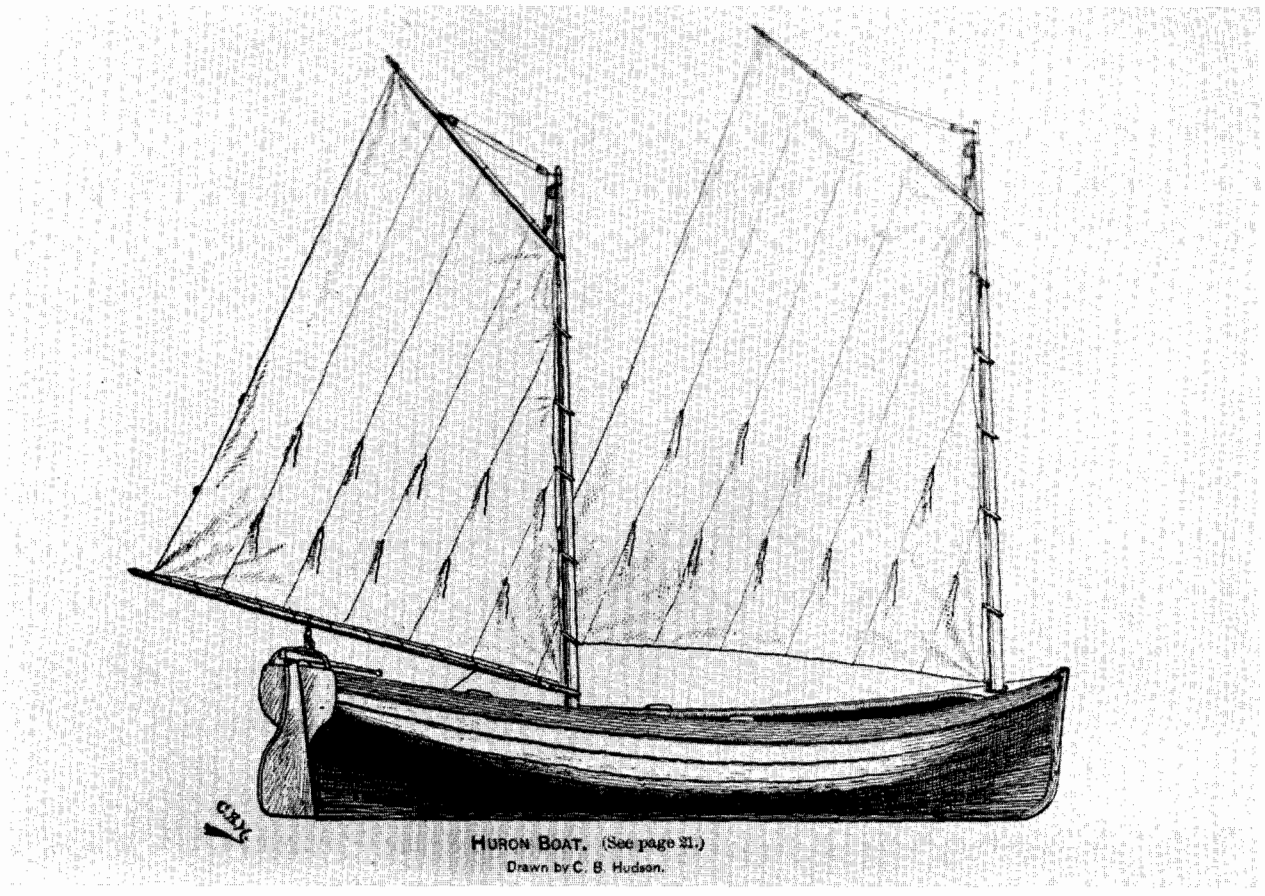


Figure 36. The Huron Boat from Great Lakes 1885, Plate IV.

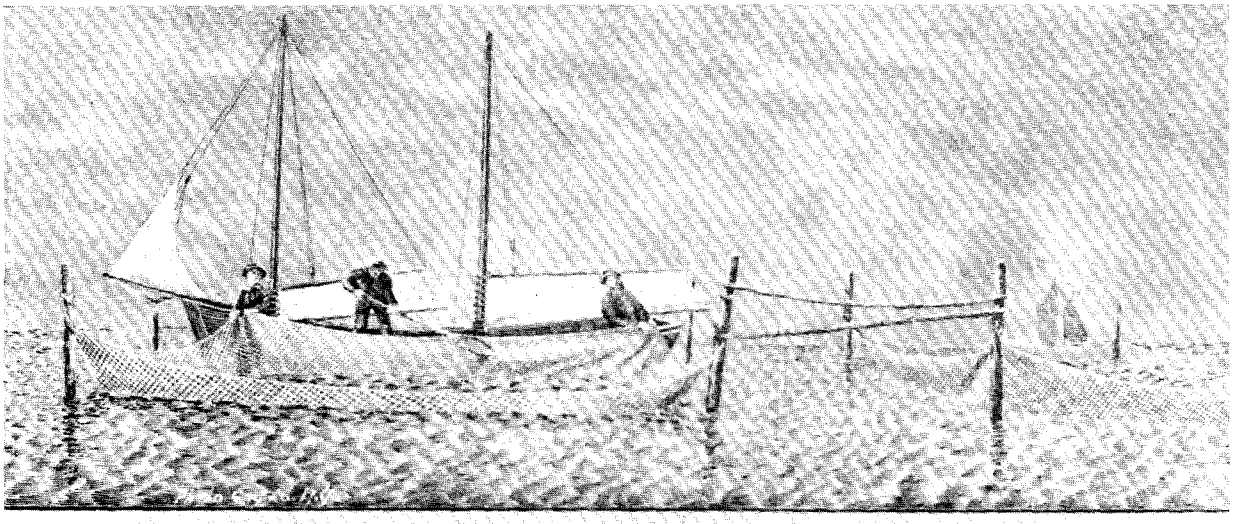


Figure 37. The Mackinaw Boat. The illustration leaves doubt whether this type of boat could enter the pot. Presumptively it could, since the pound could not have been emptied without the fishermen reaching all four corners of the pot. Illustration from Fisheries 1887, Plate 176.

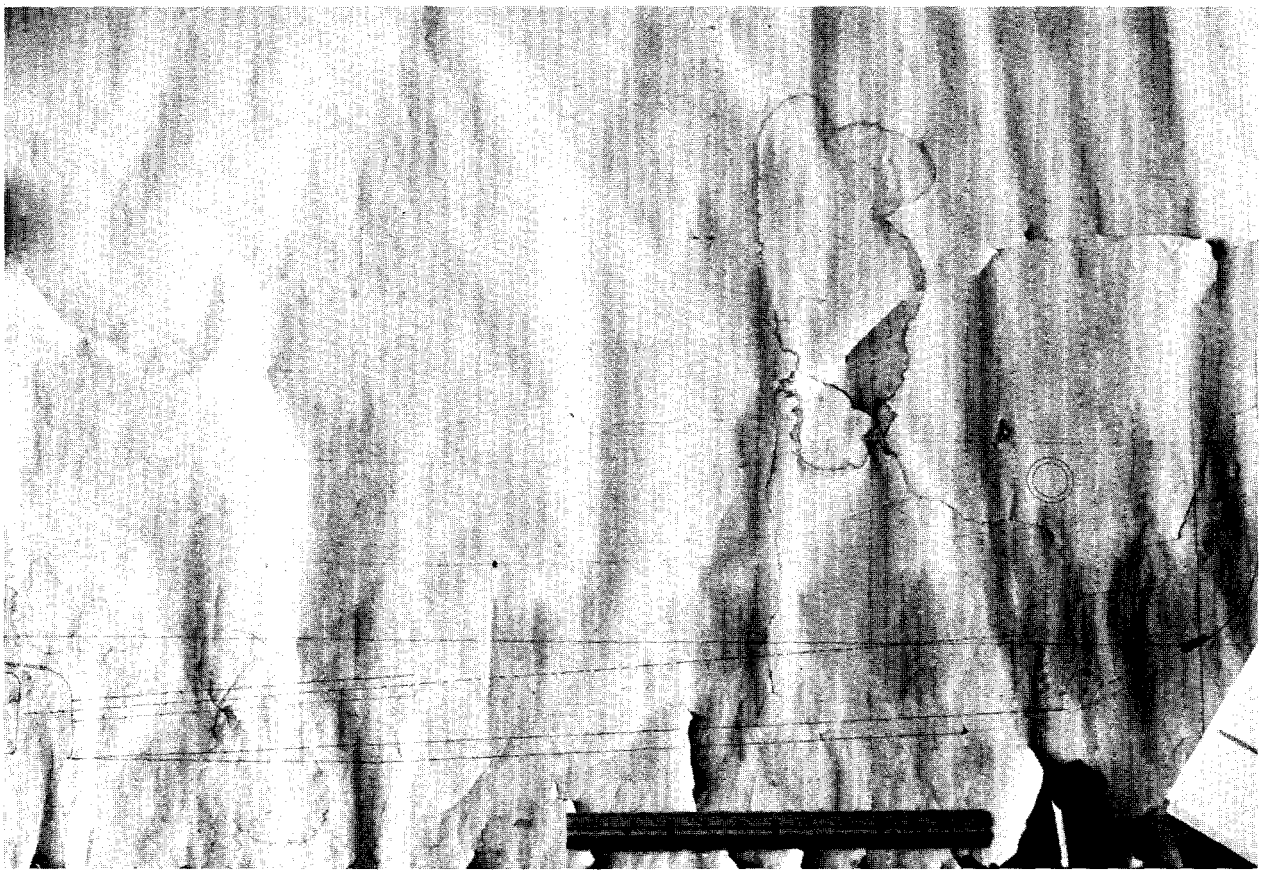


Figure 38. Halvor Reiten's Preliminary Drawings of the Twilite (HS-01-138G) from the 1930's. Reiten could not find his old construction diagrams in January 1979.

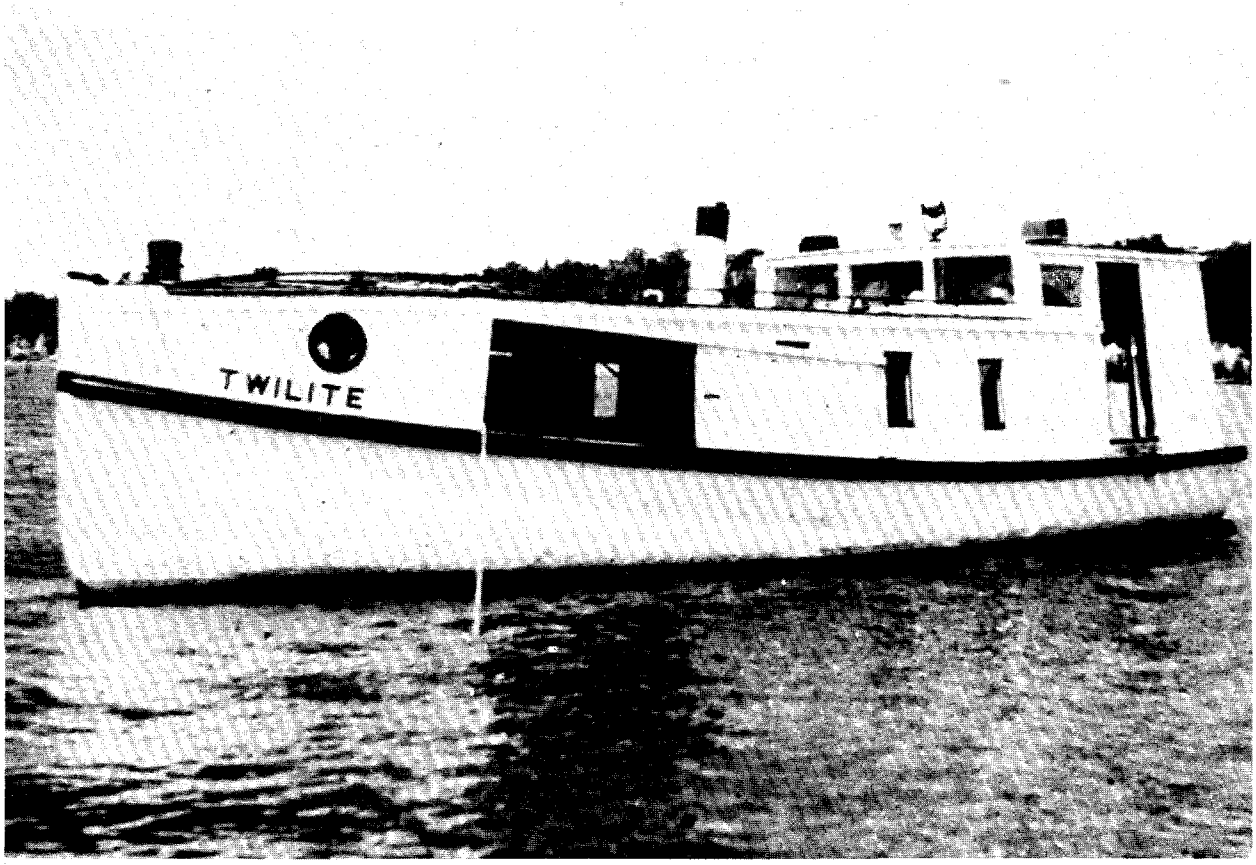


Figure 39. The Twilite (HS-01-138G) around 1940.

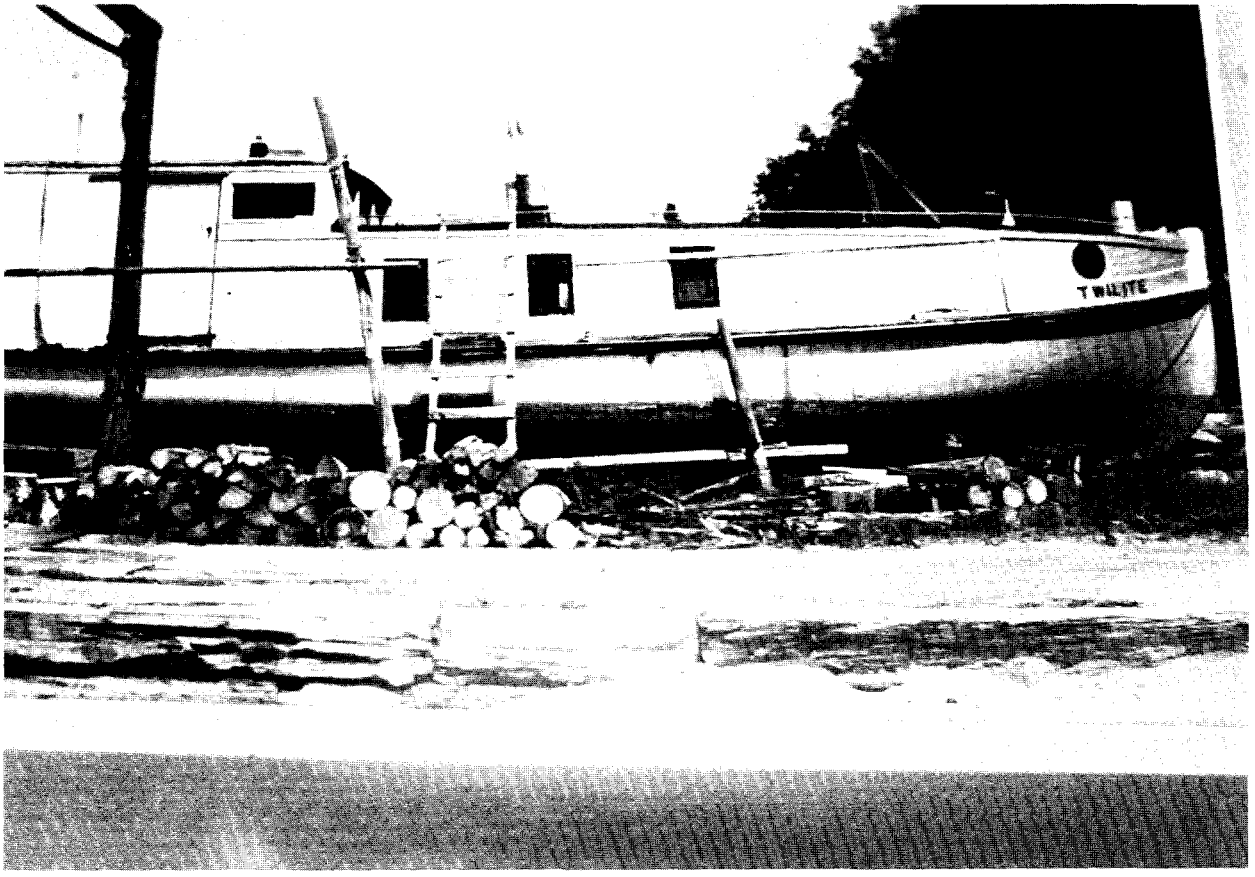


Figure 40. The Twilite (HS-01-138G) around 1945.

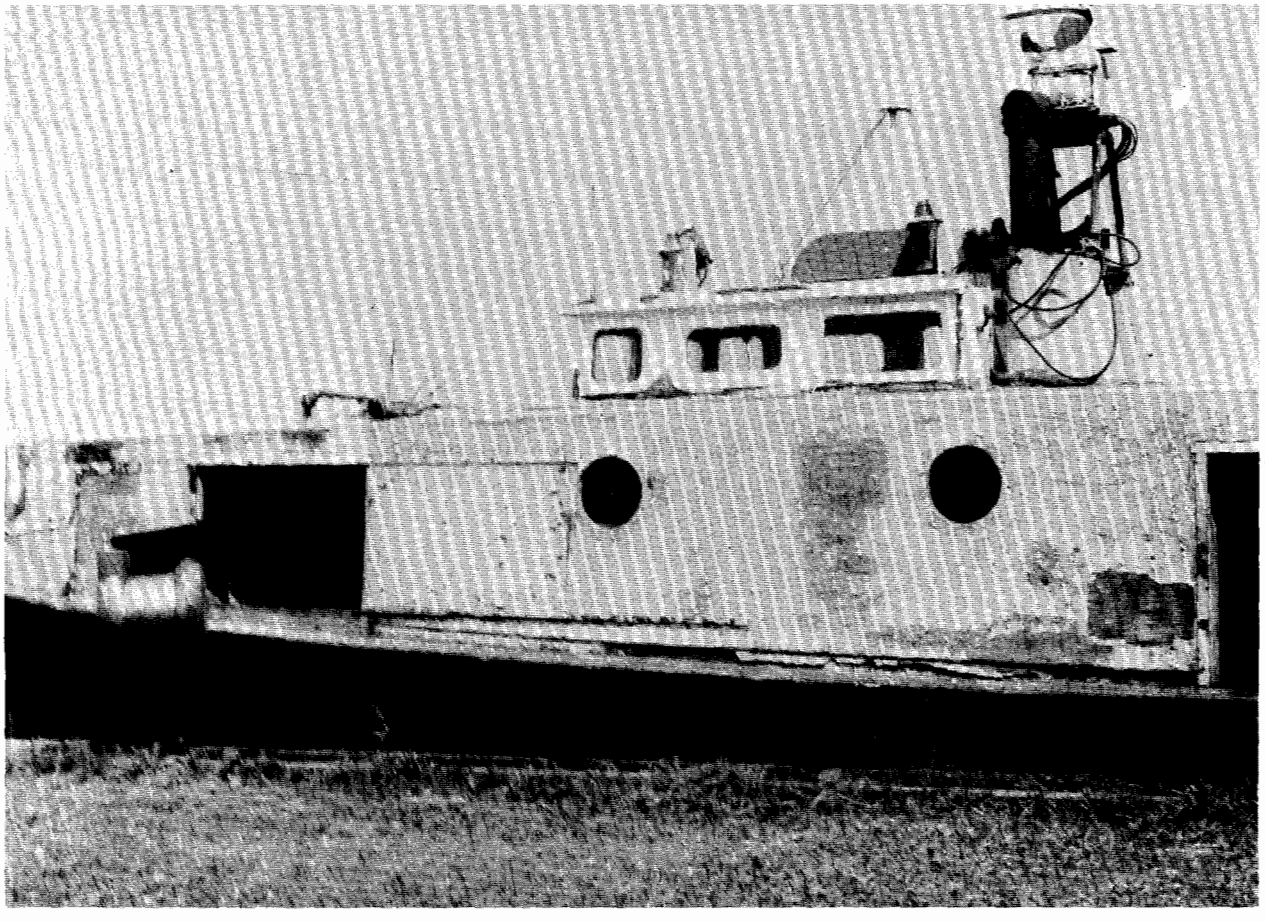


Figure 41. A Fishing Tug at Cornucopia, Wisconsin. Note fender of mechanical net lifter in foreward hatch at left.

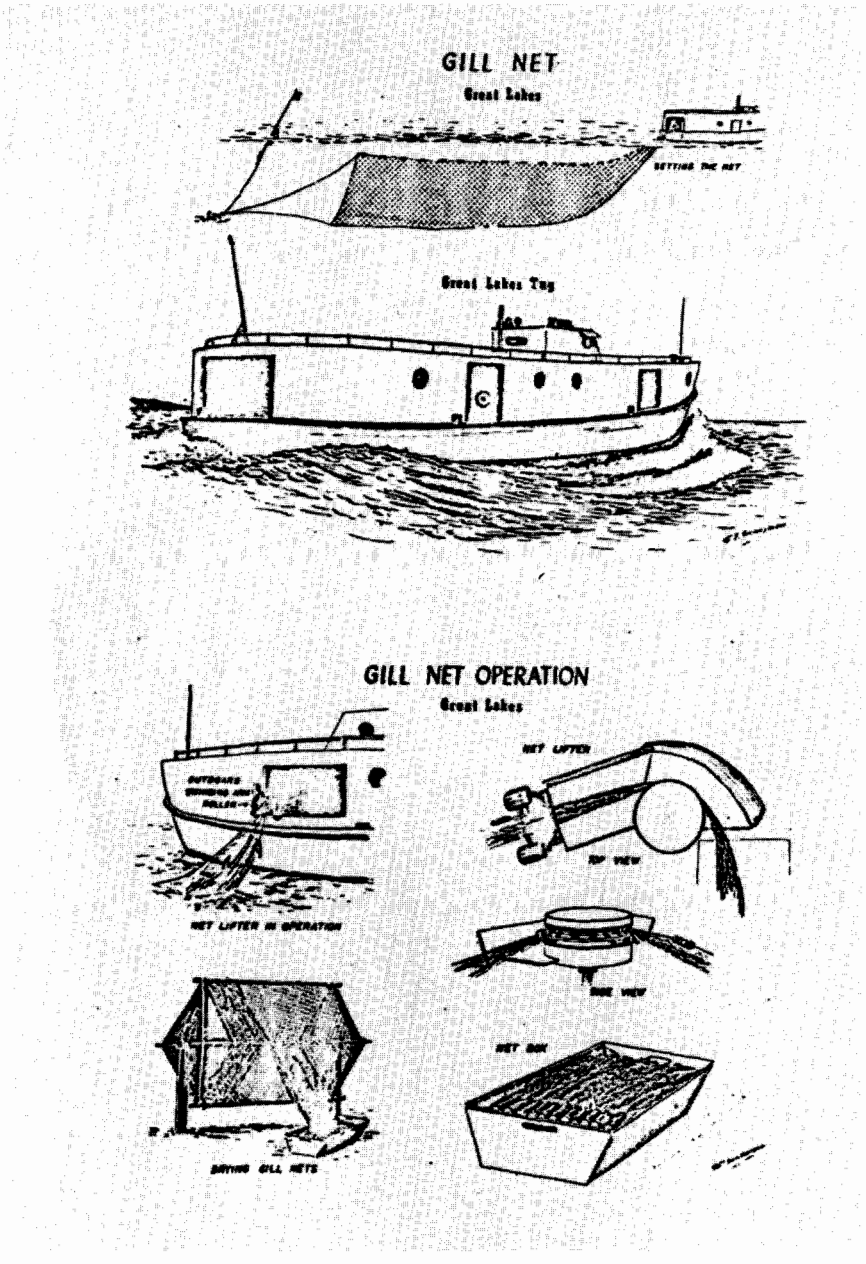


Figure 42. Gill-Net Operations. Note especially top and side view of net lifter. Illustration from Wisconsin's Lake Michigan Commerical Fisheries, 1940-1973. (Madison: Bureau of Fish and Wildlife Management, December, 1974), 40.

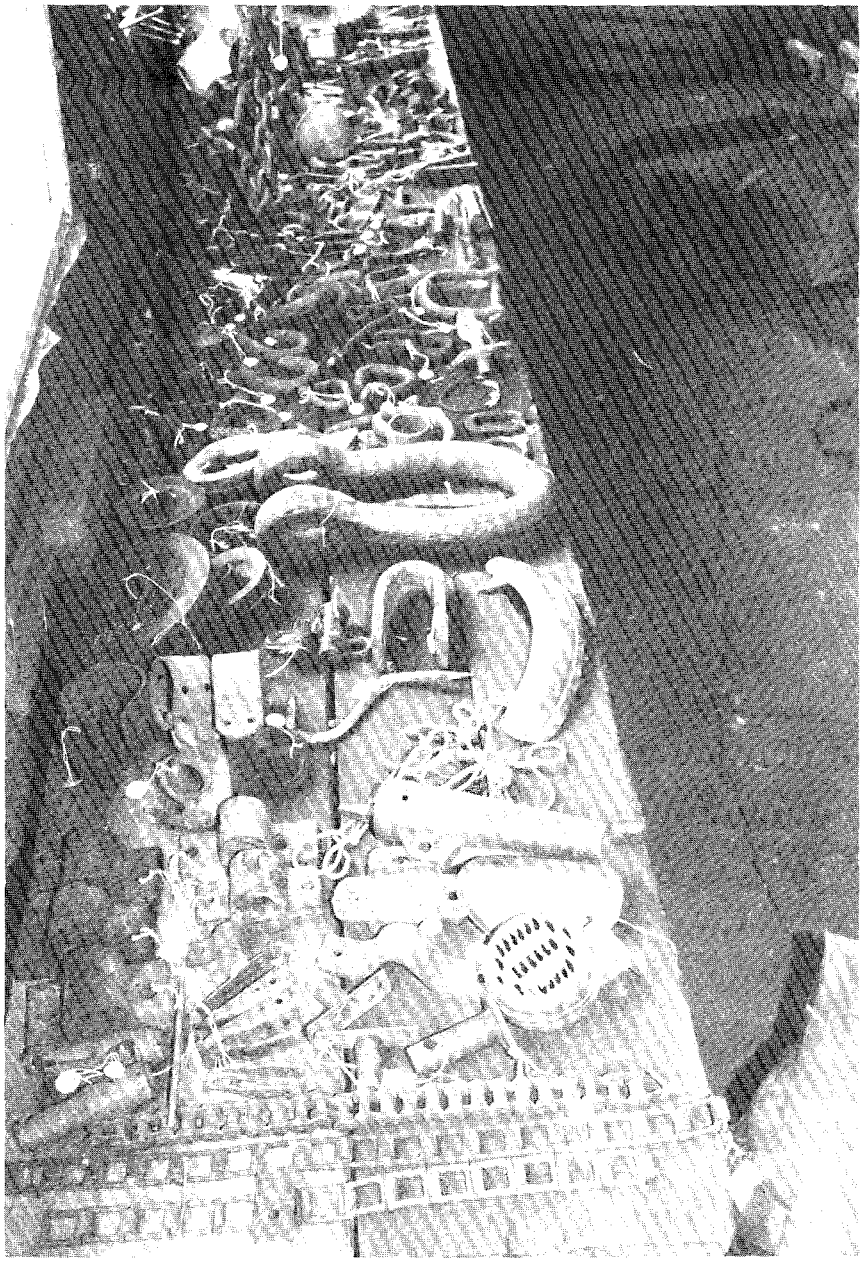


Figure 43. Northern Half of Eastern Workbench in Twine Shed (HS-01-138F), January 1979. All of these parts are tagged, as shown; but their identification has not as yet been established.

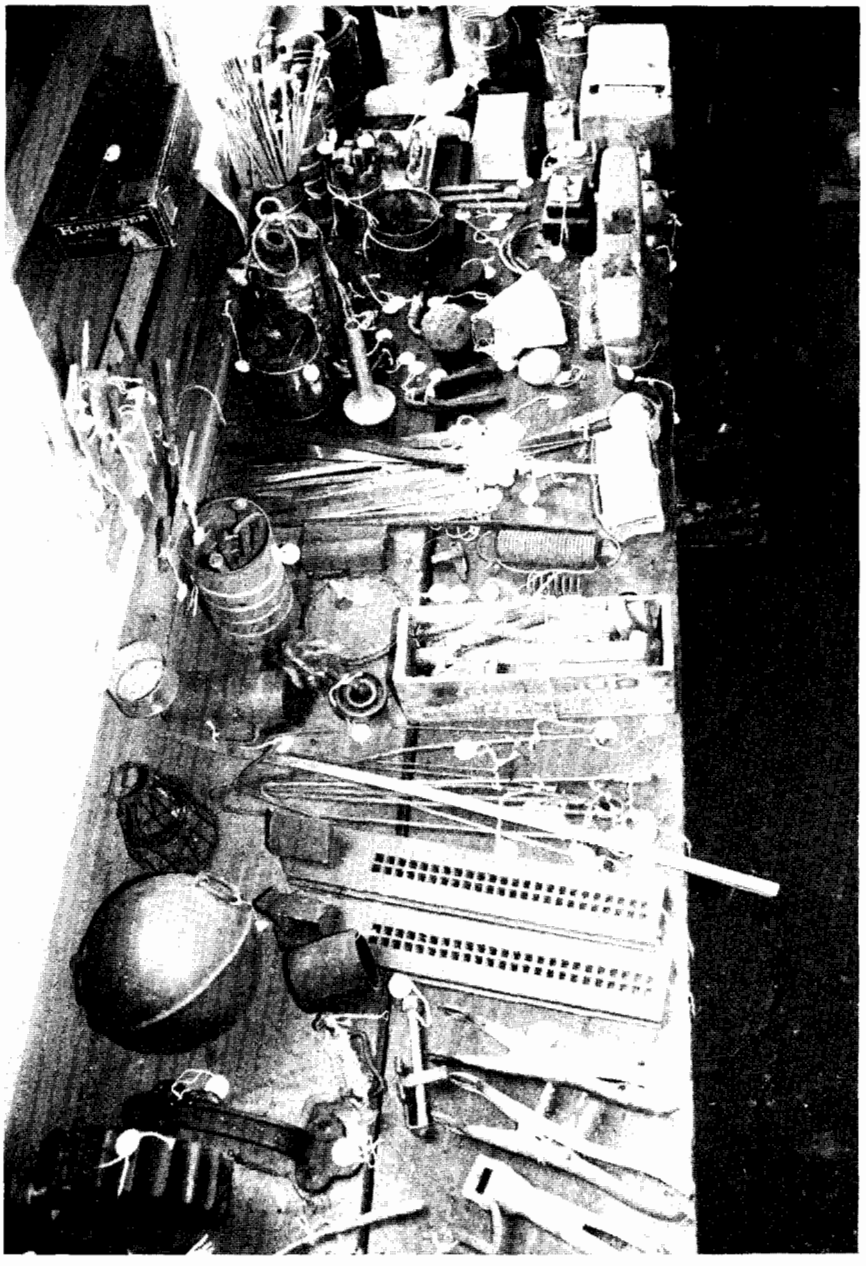


Figure 44. Southern Half of Eastern Workbench in Twine Shed (HS-01-138F), January 1979.

Figure 45. The Hokenson Dock (HS-01-138A) and the beached Twilite as seen from the northeast, June 1978.

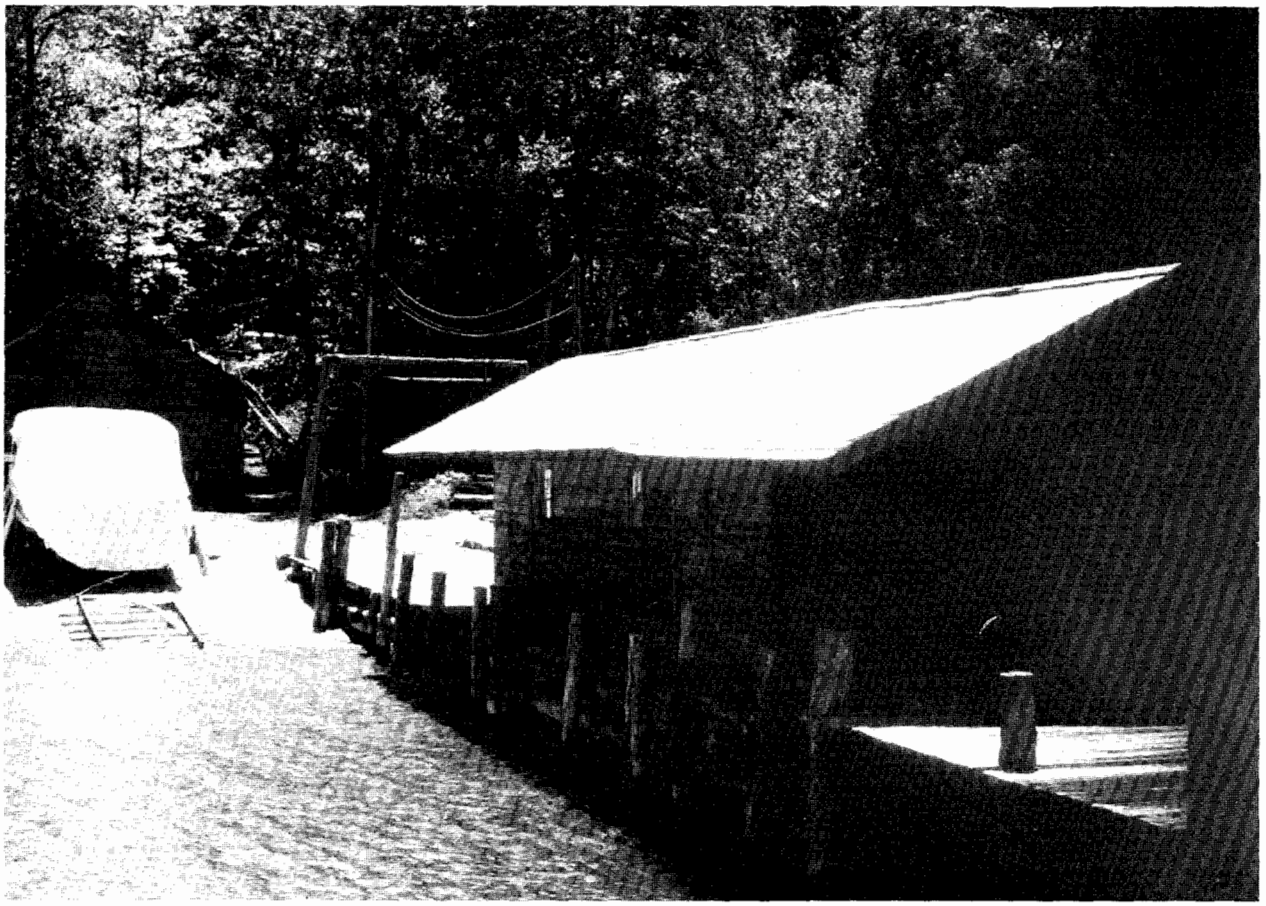


Figure 46. Fish House (HS-01-138A) and Beached Twilite (HS-01-138G). Seen From the North or "L" of the Dock, June 1978. Note steel tracks (HS-01-138D) for beaching of boat.

Figure 47. Hokenson Dock (HS-01-138A) and Beached Twilite (HS-01-138G) as Seen From the South, June 1978. Note boat carriage and timber braces under the Twilite.

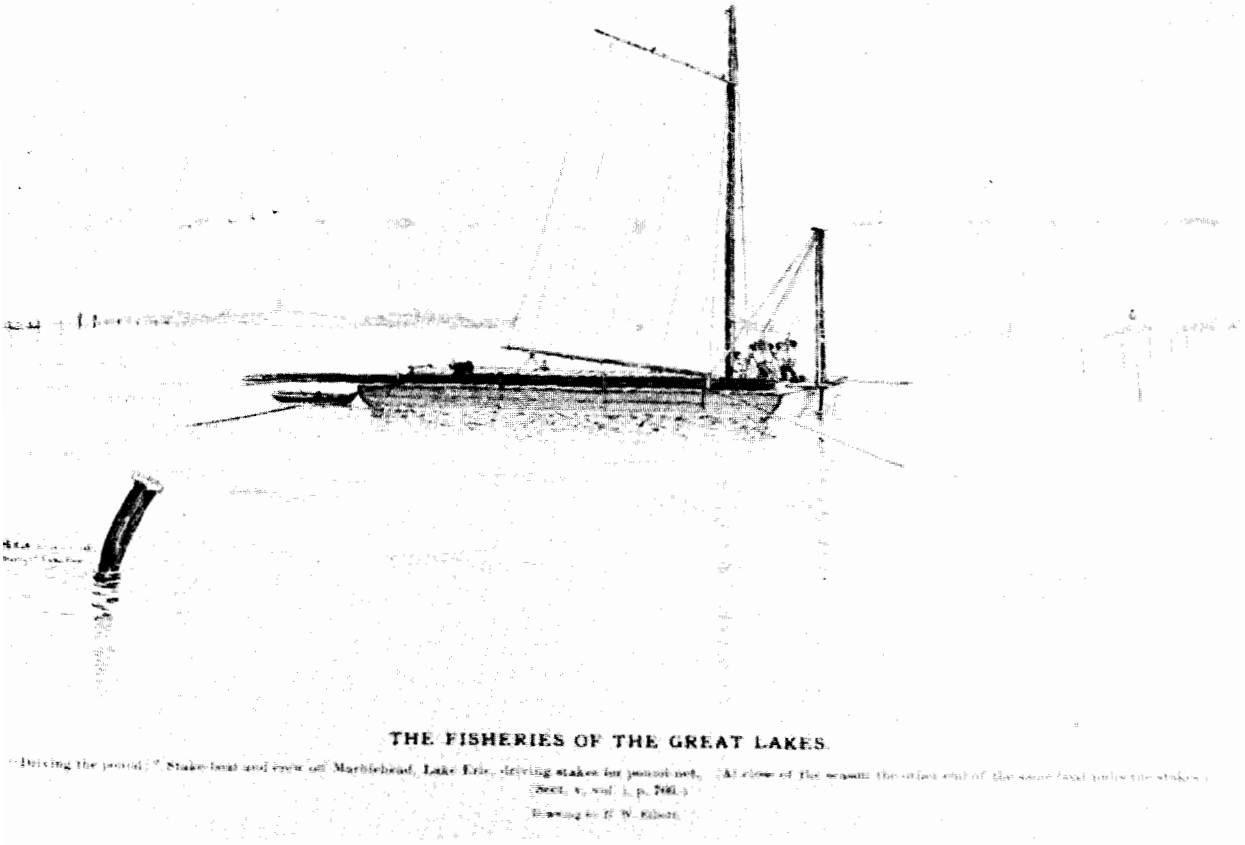


Figure 48. Nineteenth Century Stake Boat with Pile Driver in Action. Note that there are at least five men pulling on the rope to raise the pile driver hammer. Illustration from Fisheries 1887, Plate 173.

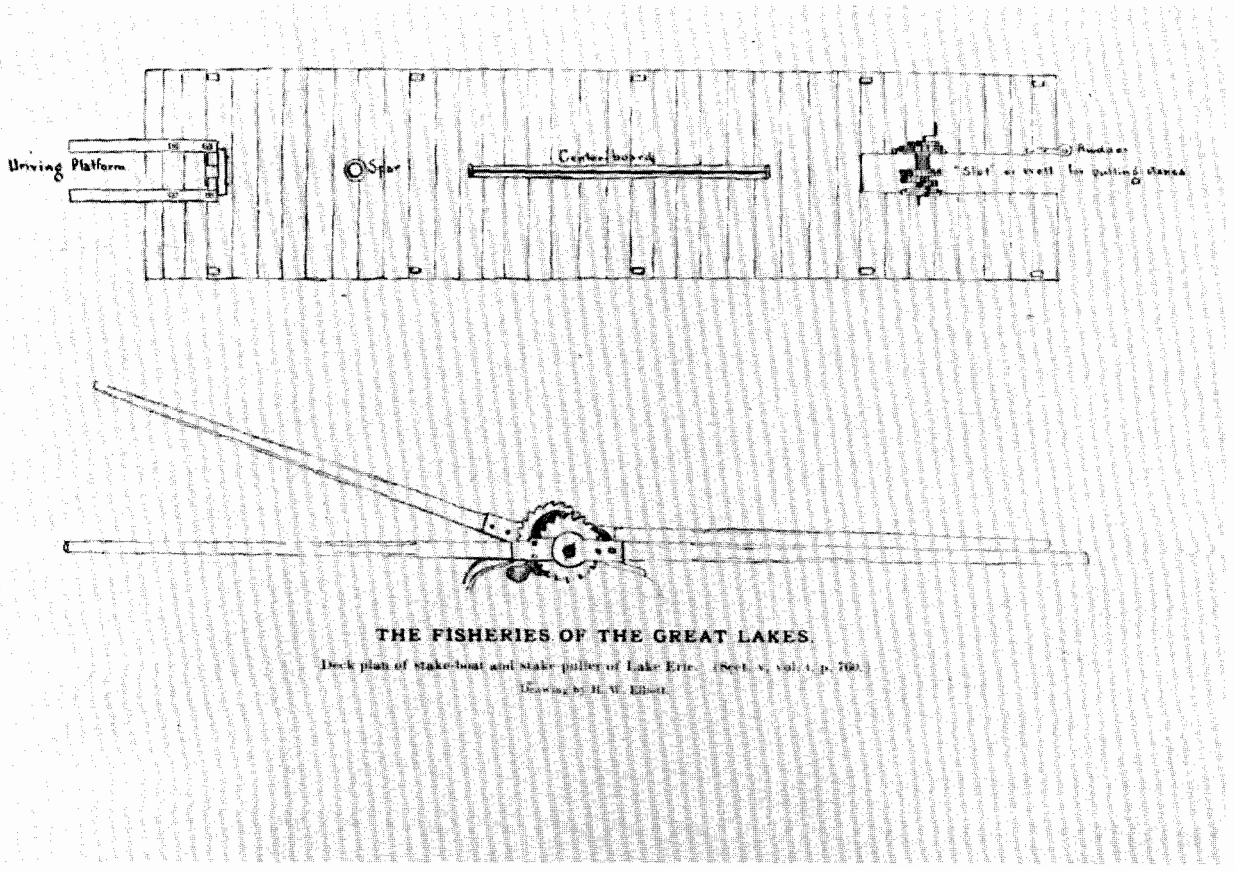


Figure 49. Pile driving and Removing Equipment, Nineteenth Century. Illustration from Fisheries 1887, Plate 174.

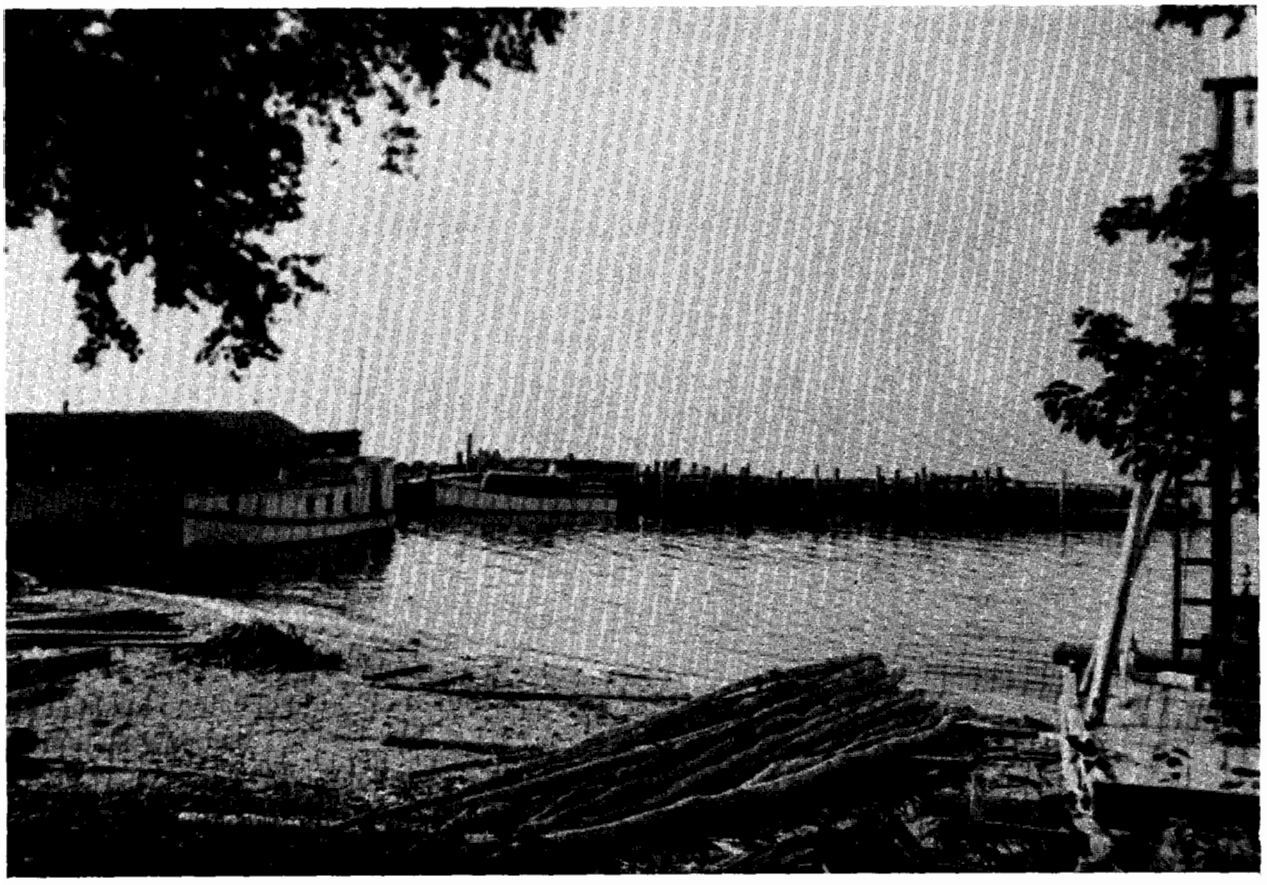


Figure 50. The Hokenson Dock (HS-01-138A), c. 1945. Note pile driver raft at right edge of picture.

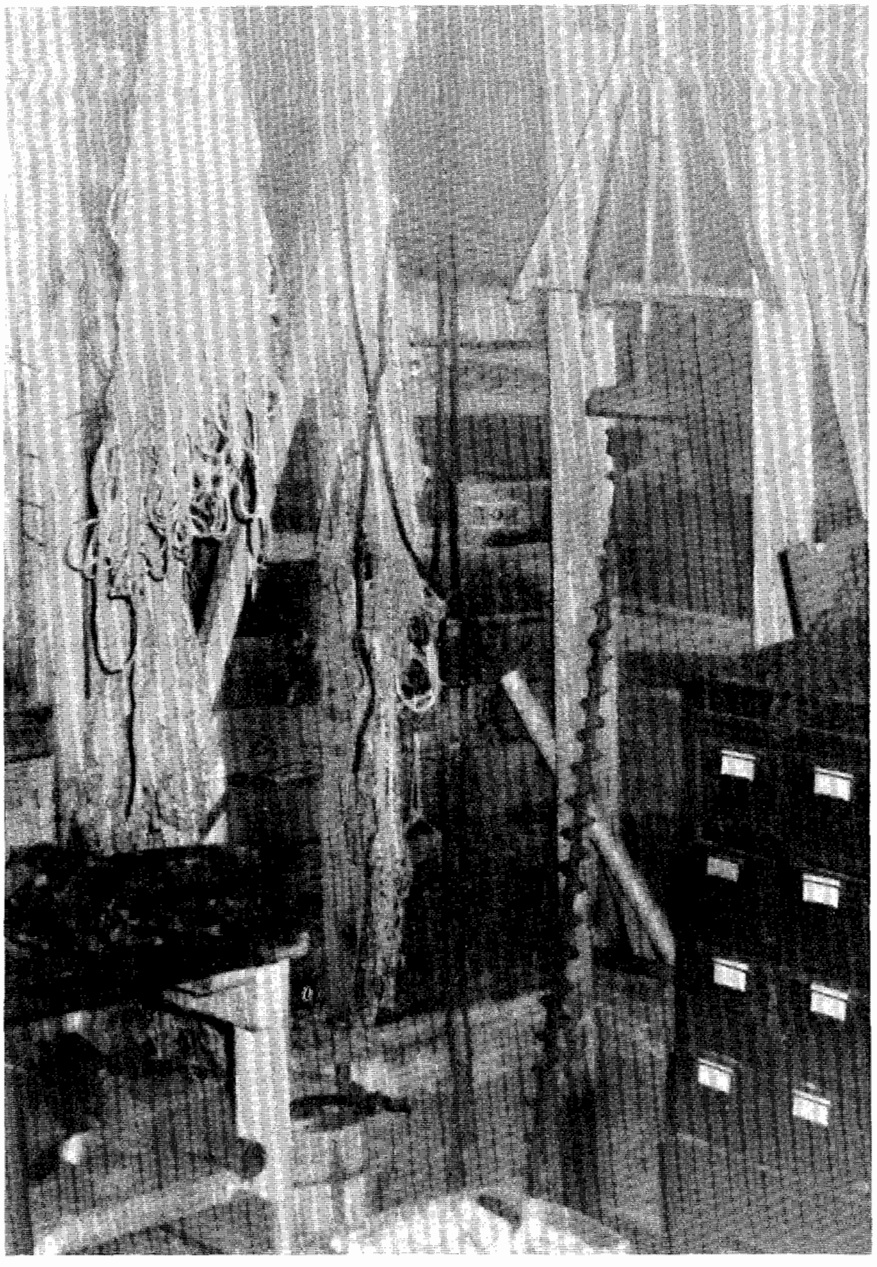


Figure 51. Southeast Corner of Twine Shed (HS-01-138F), September 1978. Note ice auger in corner, just to left of file cabinet.

Figure 52. Hand-held Ice Saw on Wall of Twine Shed (HS-01-138F), September 1978. Note hole for mounting hand bar.

Figure 53. Bayfielder Using a Hand-held Ice Saw. Photograph courtesy of the Bayfield County Historical Society. Note ice hook on the surface of the lake.

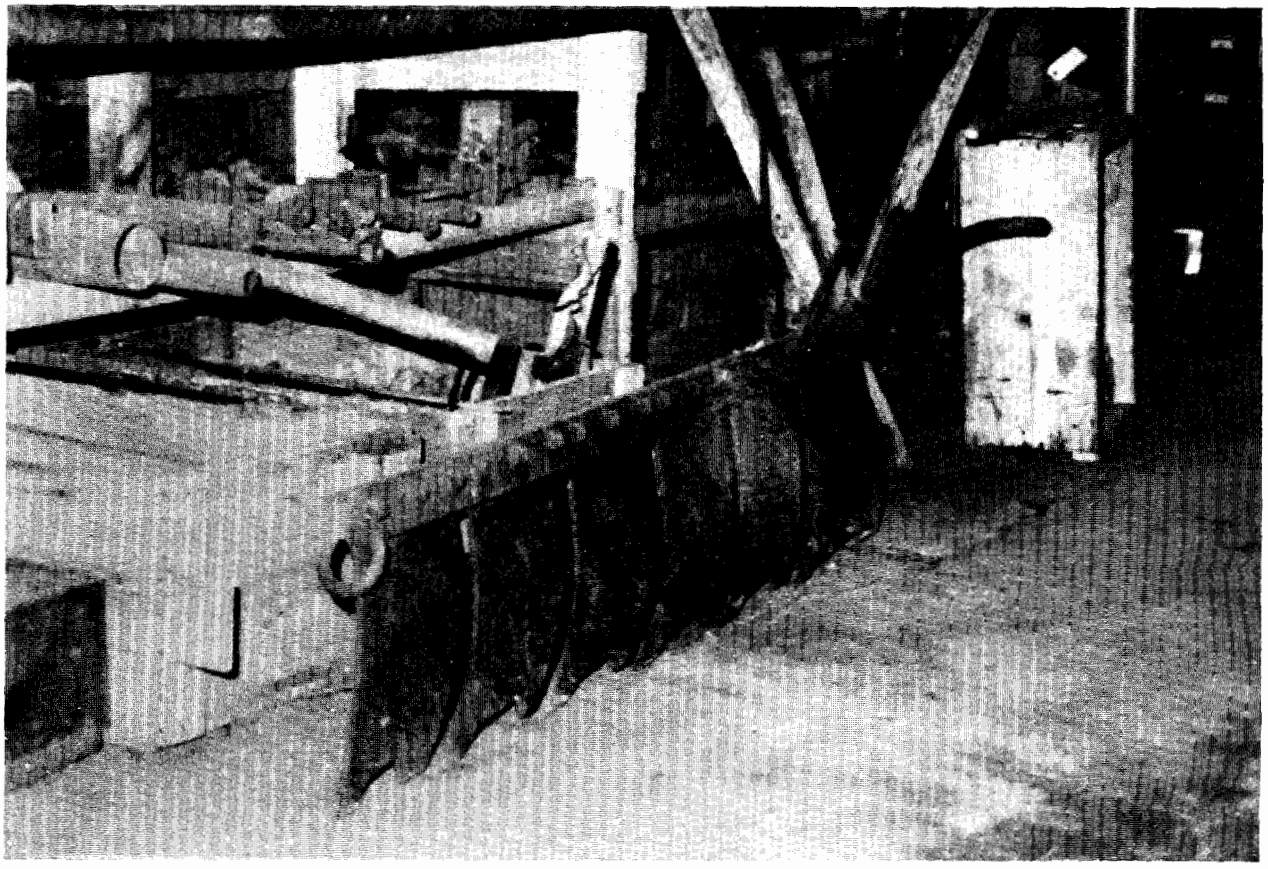


Figure 54. Ice Plow on the Floor of the Twine Shed (HS-01-138F) beneath the Eastern Workbench, September 1978. Note crowbar on wooden box in background, and pipes and bars on lower shelf.

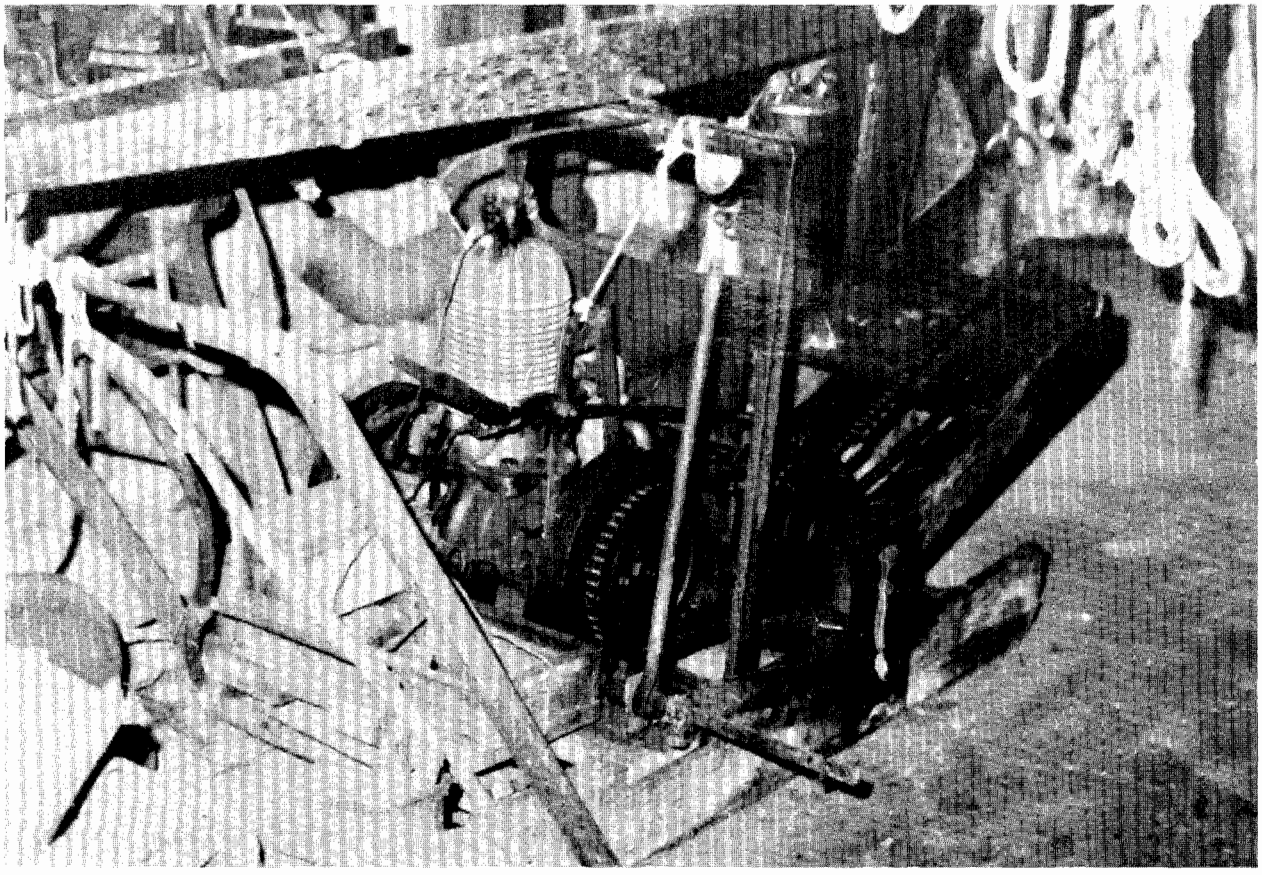


Figure 55. Motorized Rotary Ice Saw as Seen from the Rear. As depicted, the saw stood on the west side of Twine Shed (HS-01-138F), September 1978.

Figure 56. Hokensons Loading Ice Blocks into the Ice House (HS-01-138B). Photograph is from Wisconsin REA News, October 1953, Page 12.

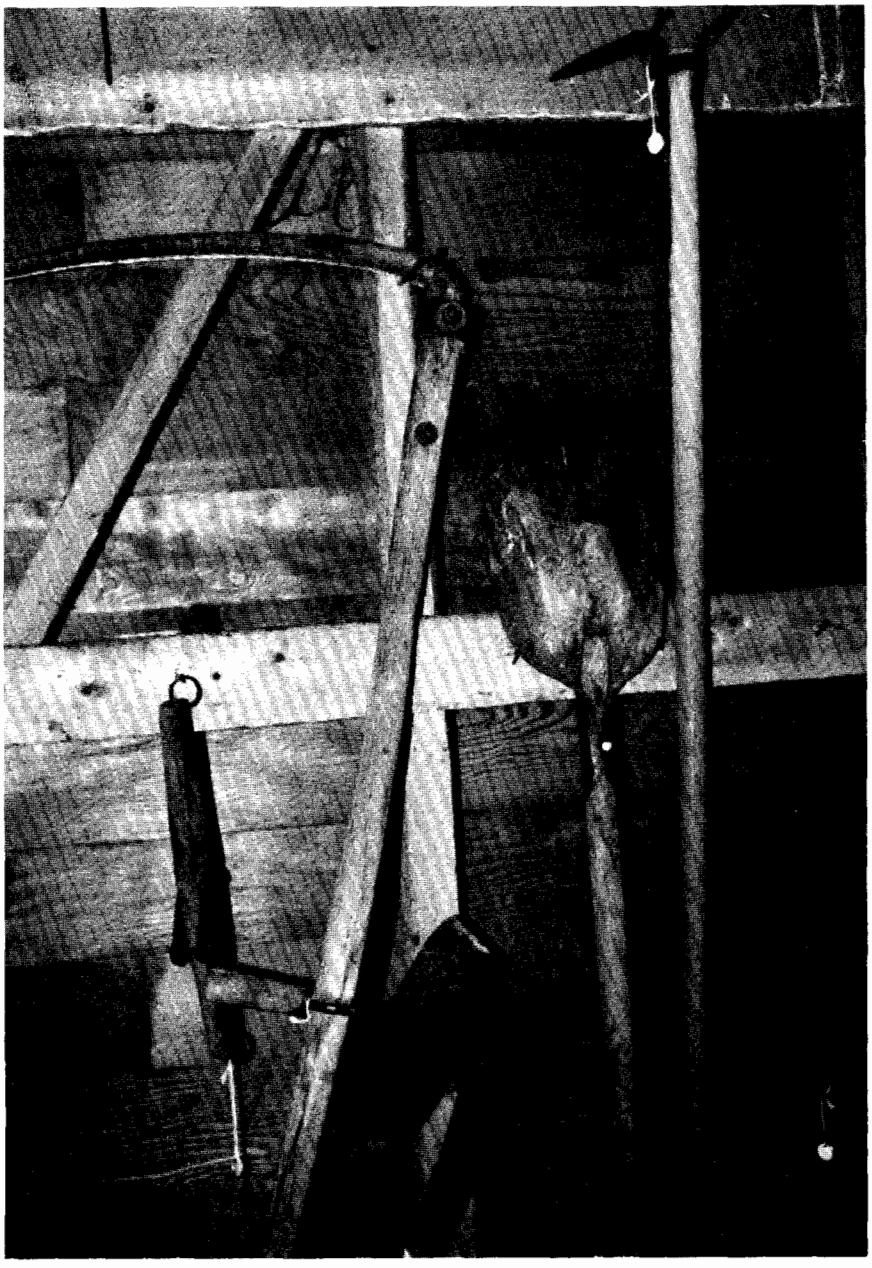


Figure 57. Artifacts on the West Wall of the Twine Shed (HS-01-138F), January 1979. Ice hook is at left with shovel next to it, followed by ax blade, scythe and unidentified object.

Figure 58. Center of West Wall of Twine Shed (HS-01-138F), September 1978. Note ice chipper in center foreground. Two metal wheels are to the left of chipper, with wooden spoked wheel against the wall behind them.

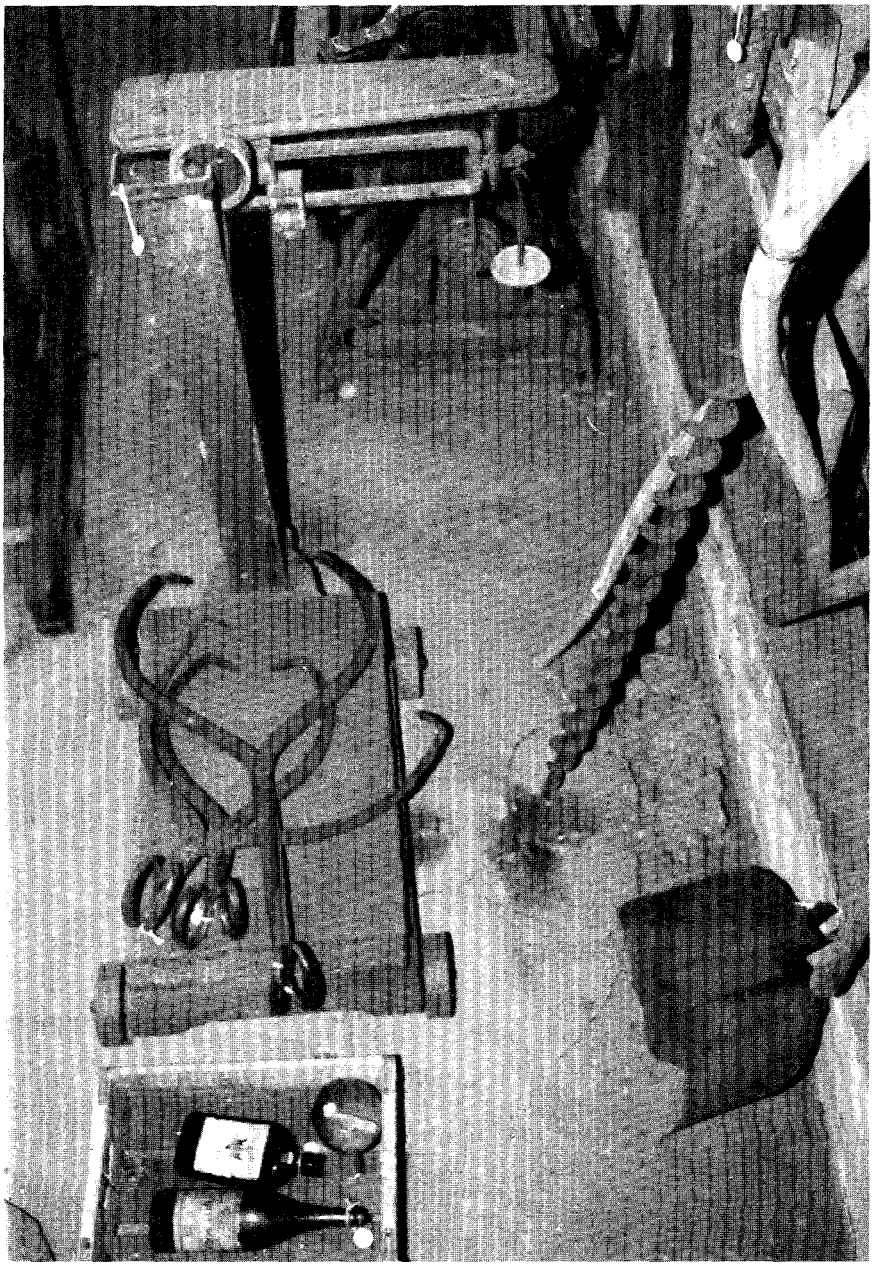
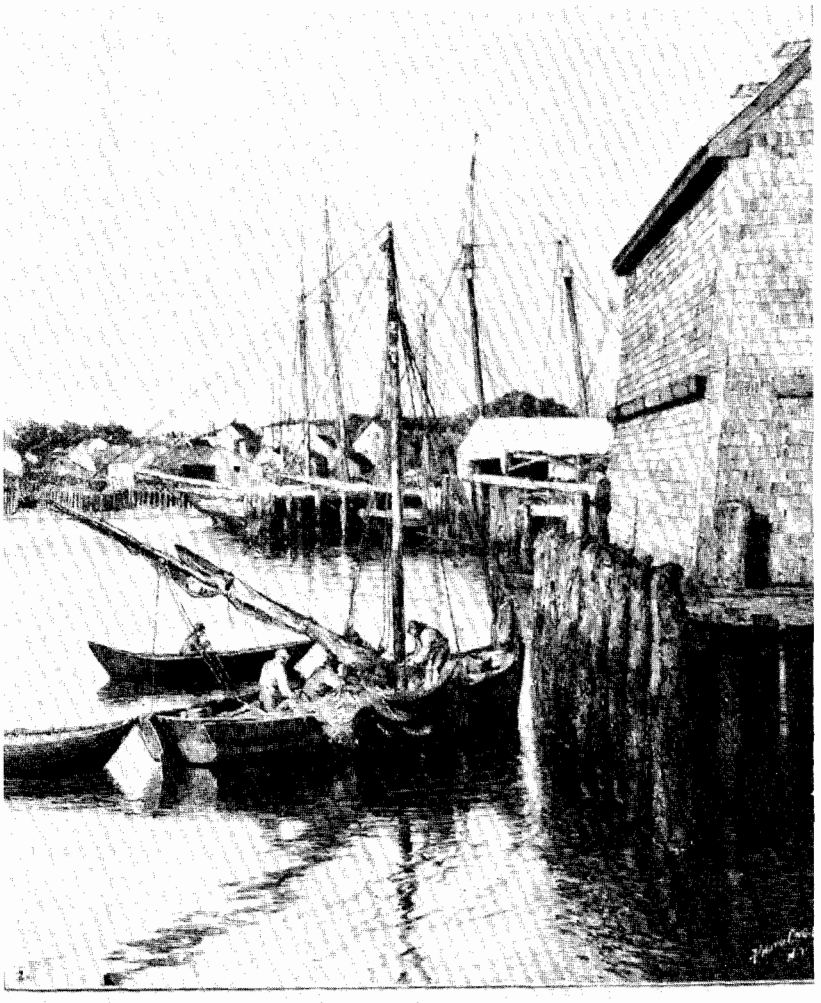


Figure 59. Ice Tongs on Weighing Scale Near Center of West Wall of Twine Shed (HS-01-138F), January 1979. Ice auger leans against wall at right, as does shovel scoop.

Figure 60. Eastern Workbench in Twine Shed (HS-01-138F), September, 1978. Note ice tongs near center photo, and canvas knapsacks at left.



THE HERRING FISHERY.

Figure 61. Atlantic Herring Fishermen in the Nineteenth Century Picking Herring From Their Gill-nets While in Port. Note, as well, the Sou'westers that two men are wearing. Illustration from Fisheries 1887, Plate 121.

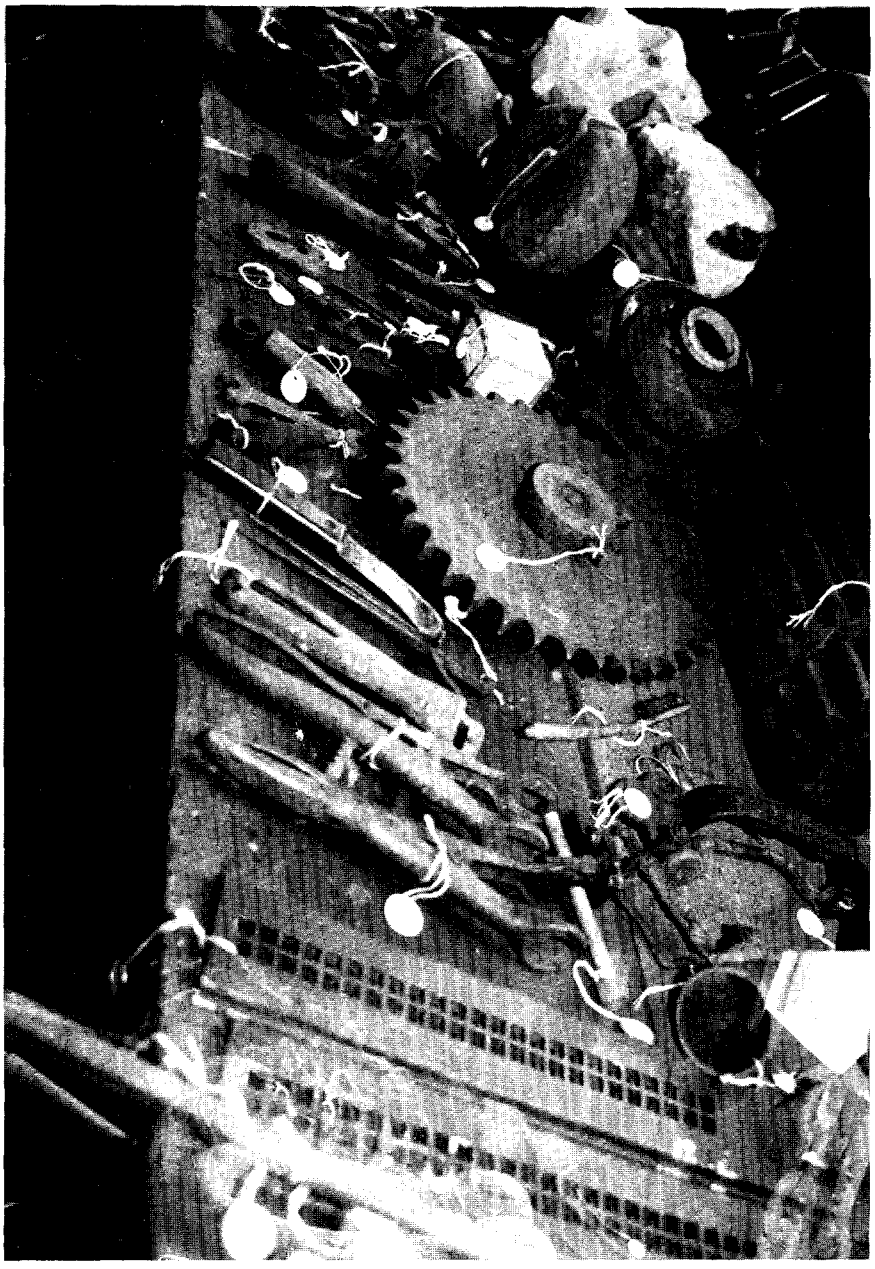


Figure 62. Center of Eastern Workbench, January 1979. To the right of the gear wheel at center is a blunt ended knife. Several wrenches are to the right of the knife.

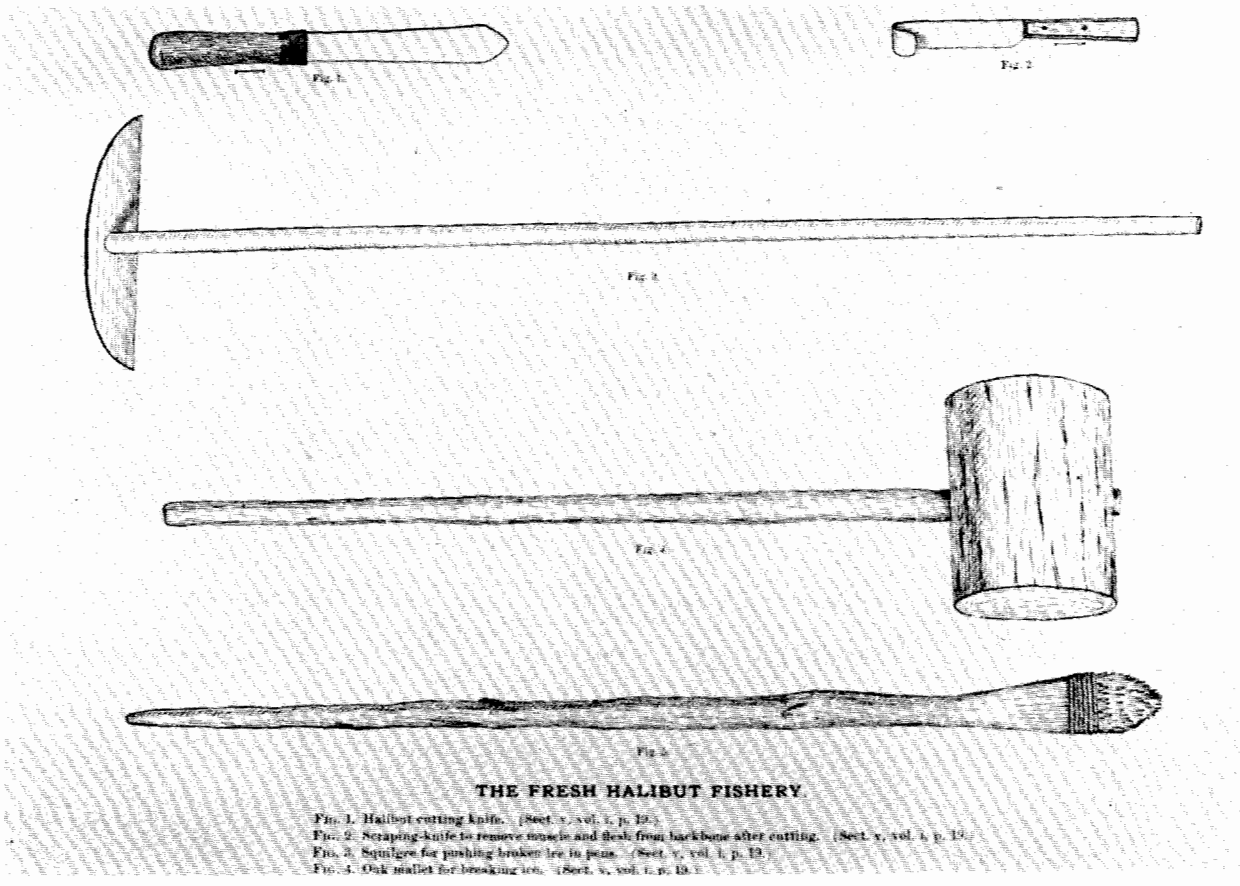
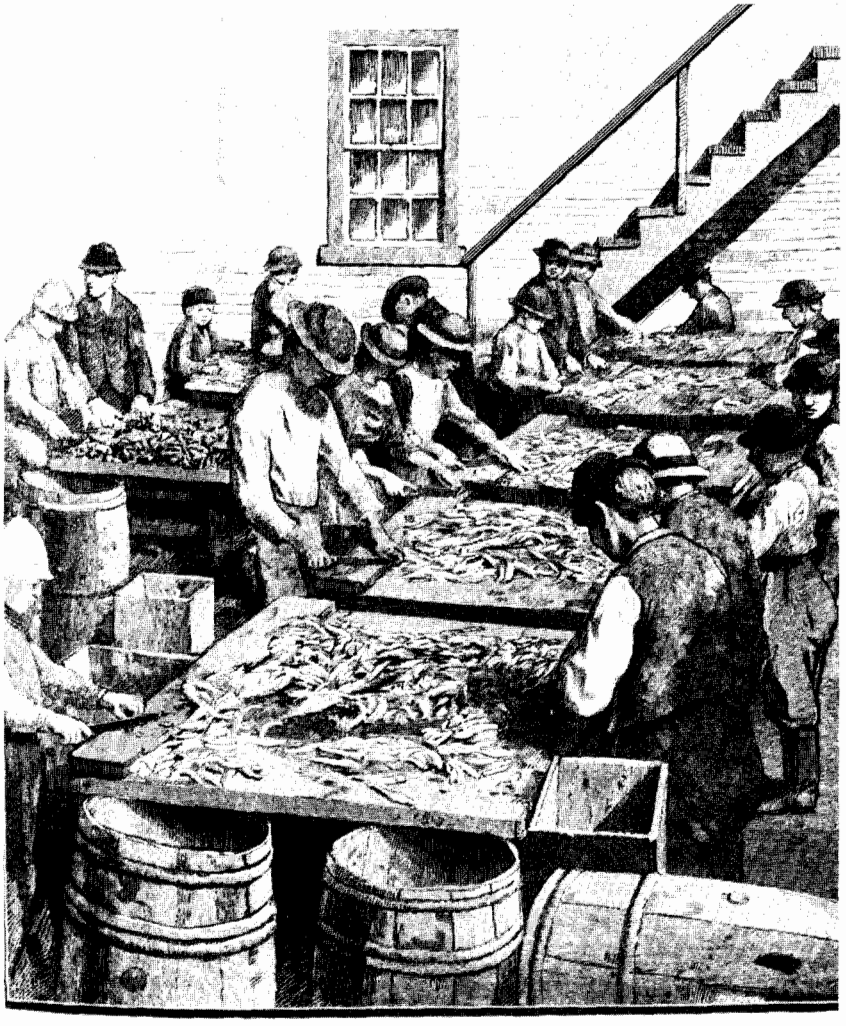


Figure 63. Sample Tools of a Brother Fishery. Note especially blunt edged knife at upper left. Illustrations from Fisheries 1887, Plate 17.



THE SARDINE INDUSTRY.

Figure 64. The Process of Cutting and Cleaning Herring has not Changed Much in a Hundred Years. Note that children were given this unpleasant chore. Illustration from Fisheries 1887, Plate 187.

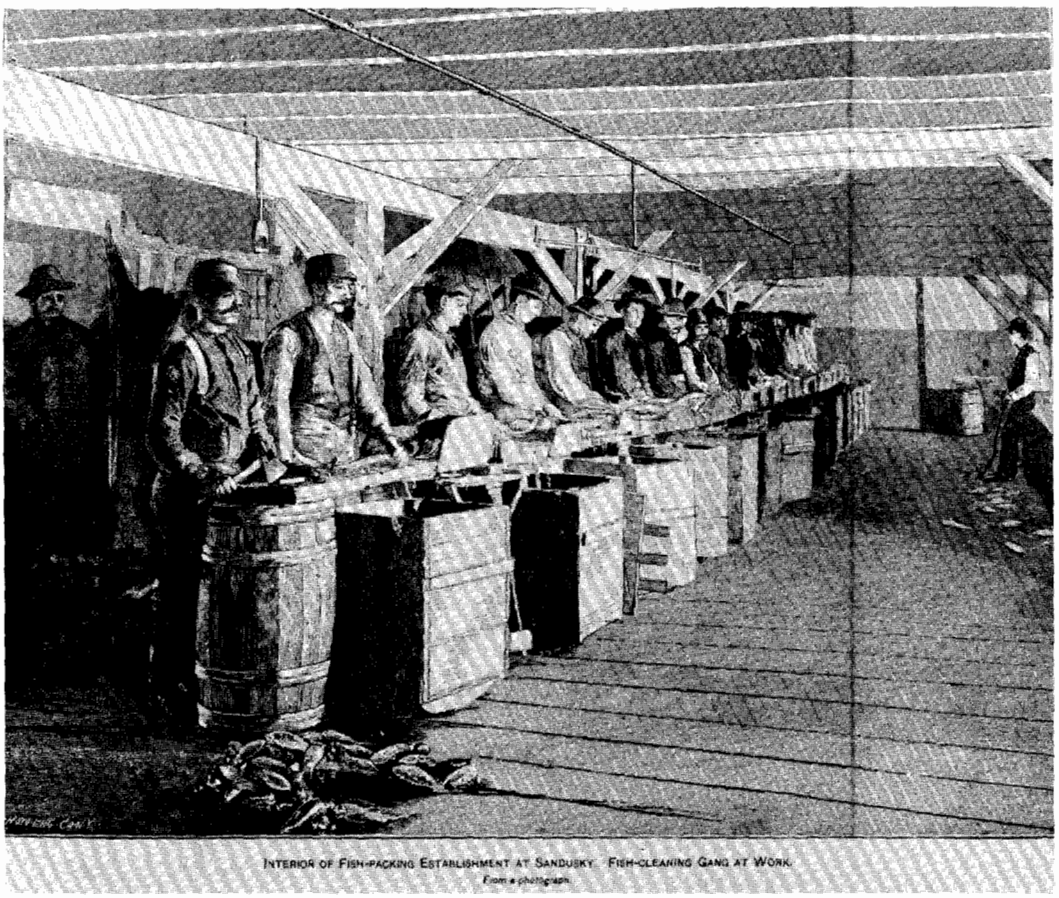


Figure 65. Another type of Fish Cleaning Operation. Note splash-boards in front of each worker and man at left with ax in hand. Illustration from Great Lakes 1885, Plate XXXIII.

Figure 66. Mackerel were slightly larger than herring, but processing methods had a close resemblance to one another. Illustration from Fisheries 1887, Plate 75.

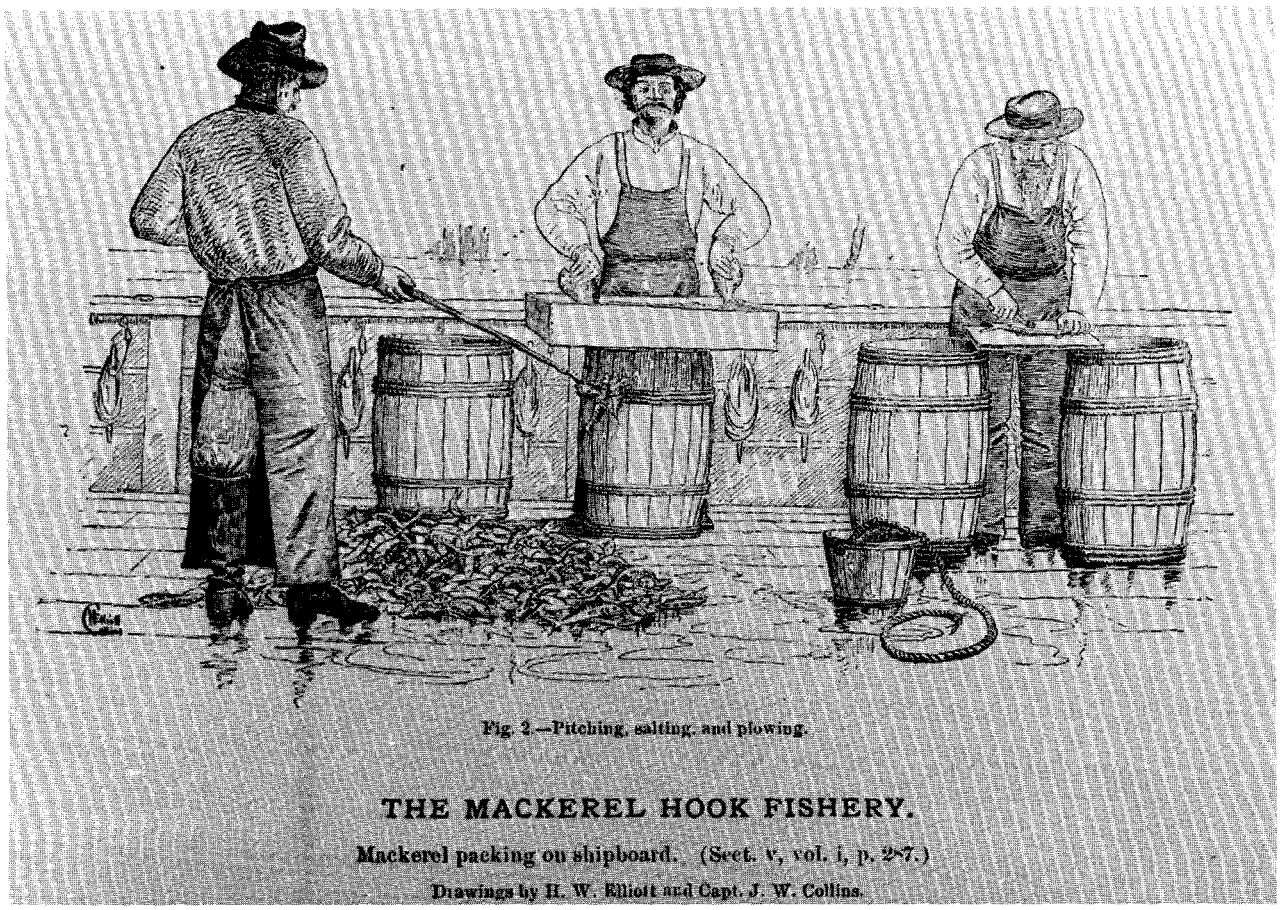


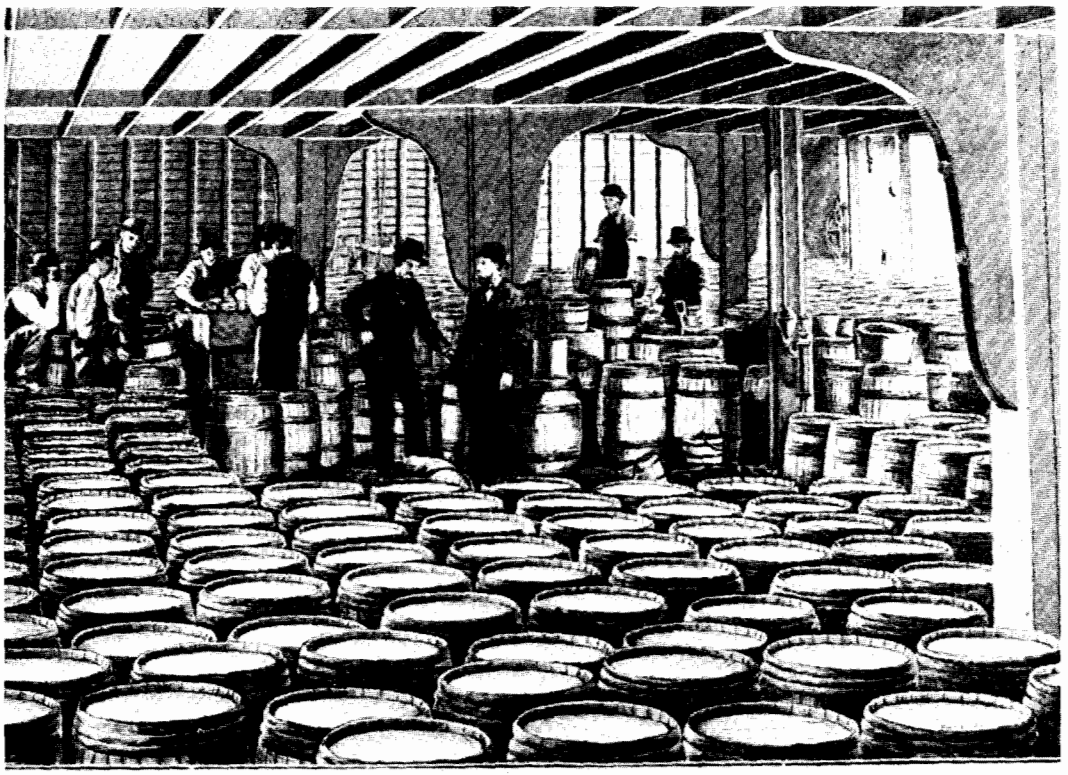
Fig. 2.—Pitching, salting, and plowing.

THE MACKEREL HOOK FISHERY.

Mackerel packing on shipboard. (Sect. v, vol. i, p. 287.)

Drawings by H. W. Elliott and Capt. J. W. Collins.

Figure 67. Analogies to the Modern Herring Fishery. Note ratchet wheel device for splitting or "plowing" the fish. Illustration from Fisheries 1887, Plate 75.



THE MACKEREL FISHERY.

Curing and packing mackerel at Portland, Me. (Sect. v, vol. i, p. 87.)
From a photograph by F. W. Smillie

Figure 68. A Very Large Packing Operation. The containers are full barrels, double the size of the usual Lake Superior cooperage product. Illustration from Fisheries 1887, Plate 67.

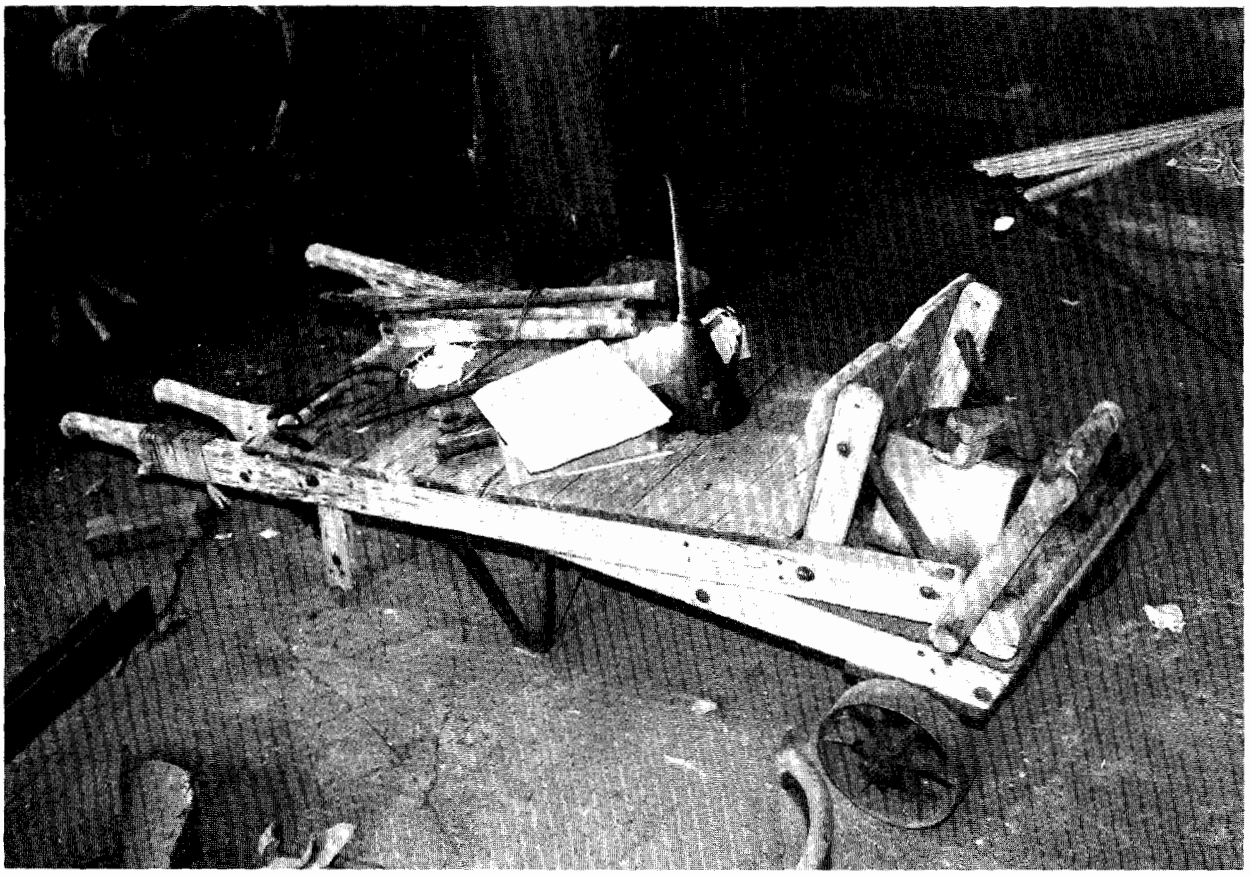


Figure 69. Flat Bed Barrow for Moving Fish Boxes on the Dock. Barrow Stands near center of Twine Shed floor (HS-01-138F) at the southern end, January, 1979. Note box-shaped heater in center background and three wagon wheels, at upper left. Upper left hand corner of barrow has a bundle of ax handles.

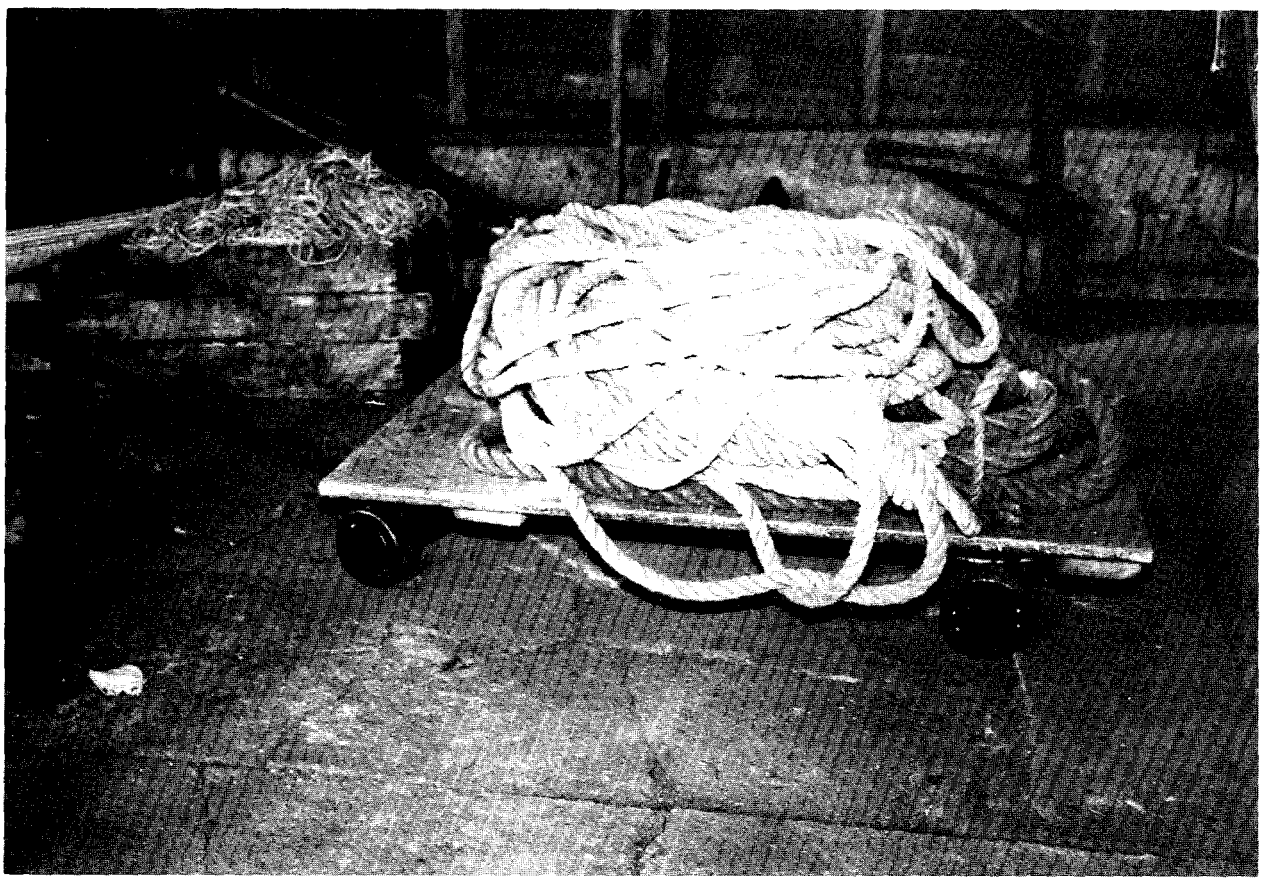


Figure 70. Flat Bed Dolly and Heavy Rope Standing at Mid-floor of Southern End of Twine Shed (HS-01-138F) in January 1979. Note fish box and line in left background.

Figure 71. Reel for Drying Herring Gill-nets Near Southeast Corner of Twine Shed (HS-01-138F), September 1978.

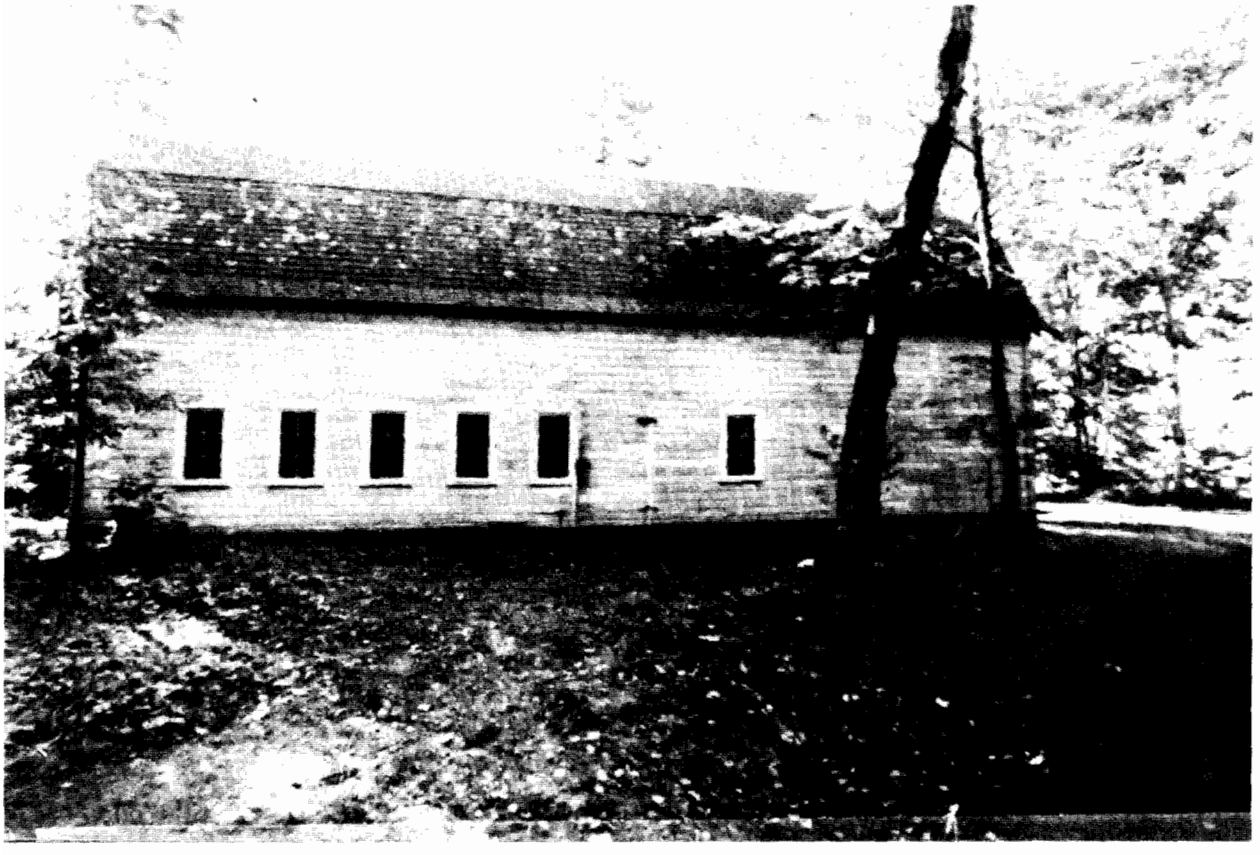


Figure 72. Eastern Side of Twine Shed (HS-01-138F), September 1978. There seems to be sufficient open space for displaying the drying reel with gill-netting in the clearing. Note the presence of five windows along the southern half of the Twine Shed.

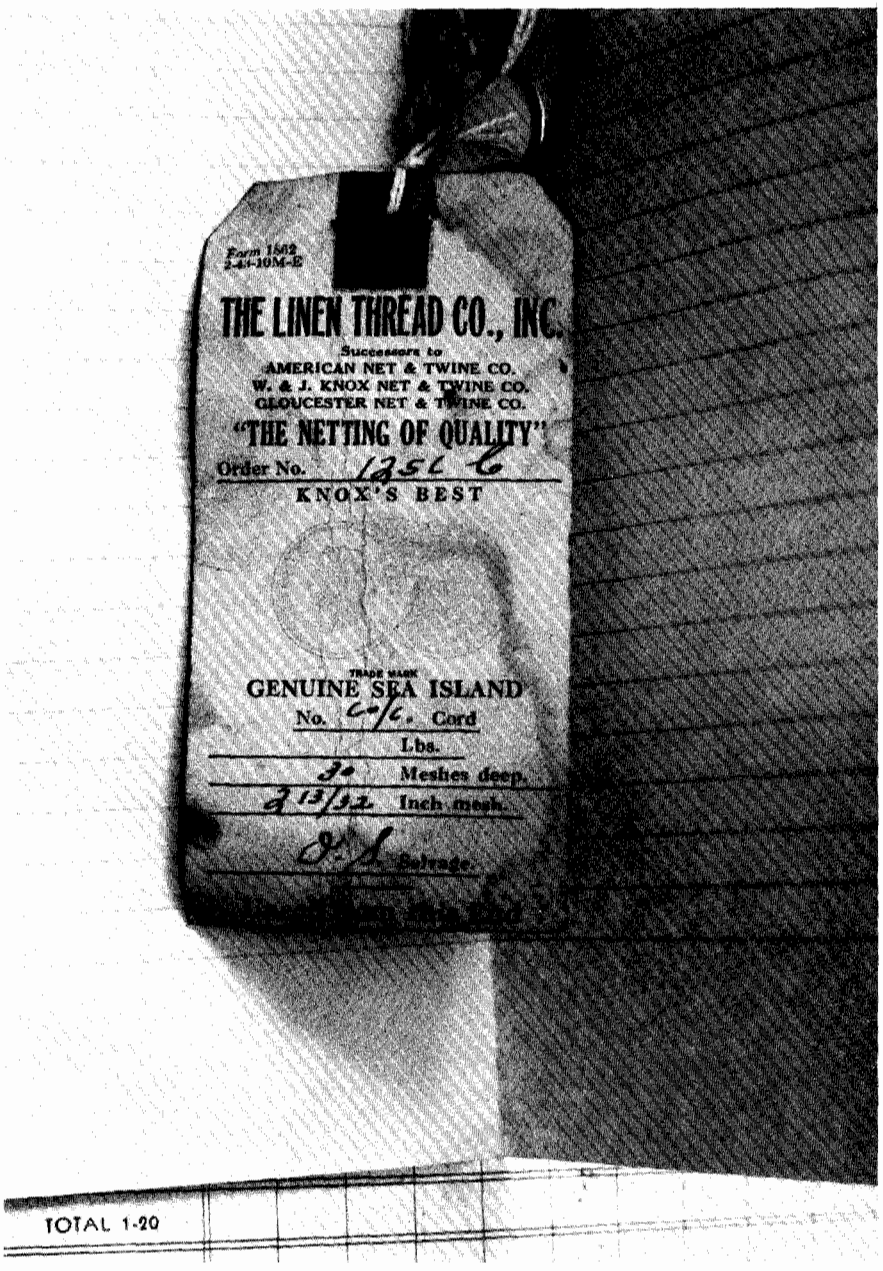


Figure 73. Hokenson Tag for a Linen Gill-net. Linen was still used and sold in the 1930's. This particular net was six feet high from top to bottom.

Figure 74. Hokenson Tag for Cotton Netting. The annotation at bottom indicates that the product was purchased from the Flieth-Ehlers Mercantile Company of Cornucopia, Wisconsin.

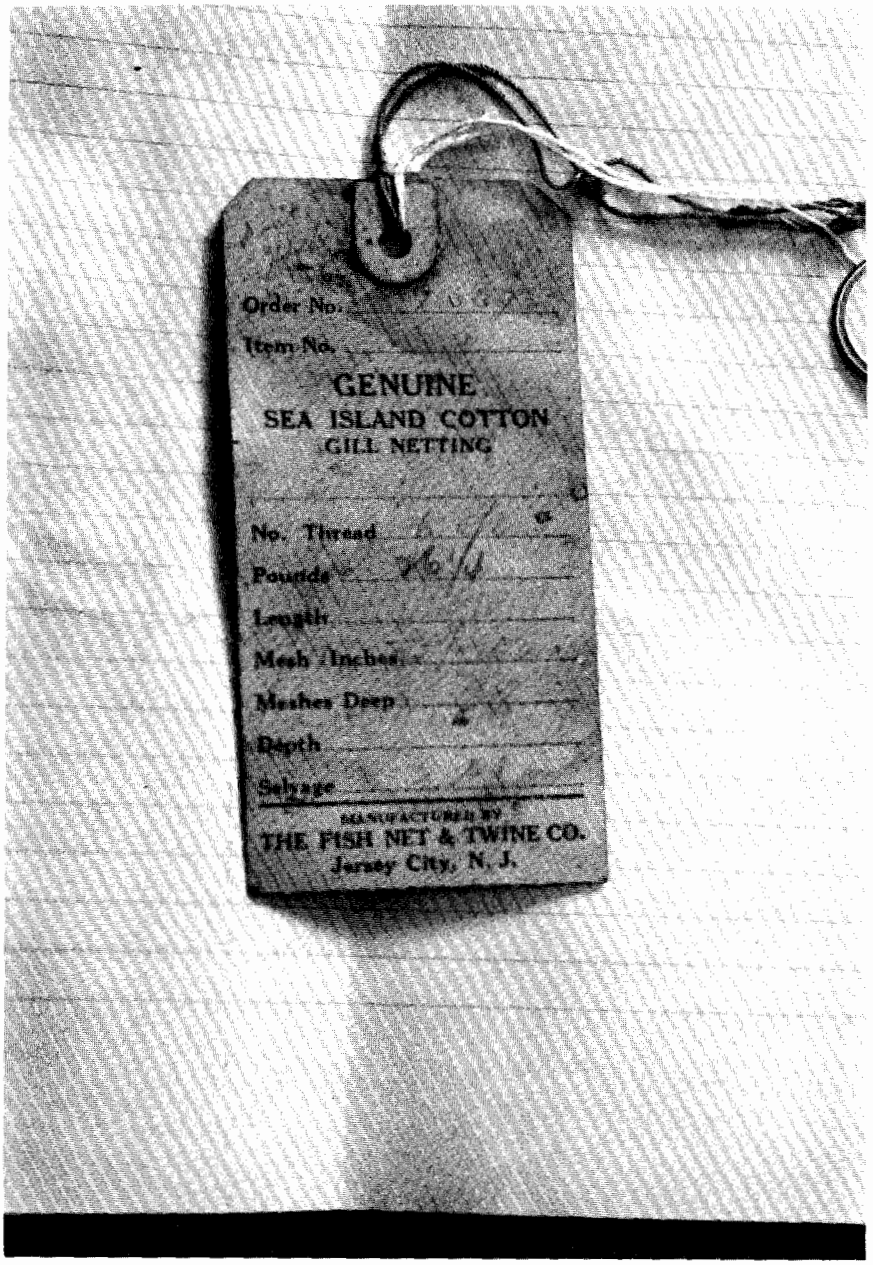


Figure 75. Hokenson Tag for Cotton Gill-nettting. The net in question was only 57½ inches deep.

Figure 76. Another Hokenson Net Tag from the 1930's, When Linen was Still Used in the Fishery.

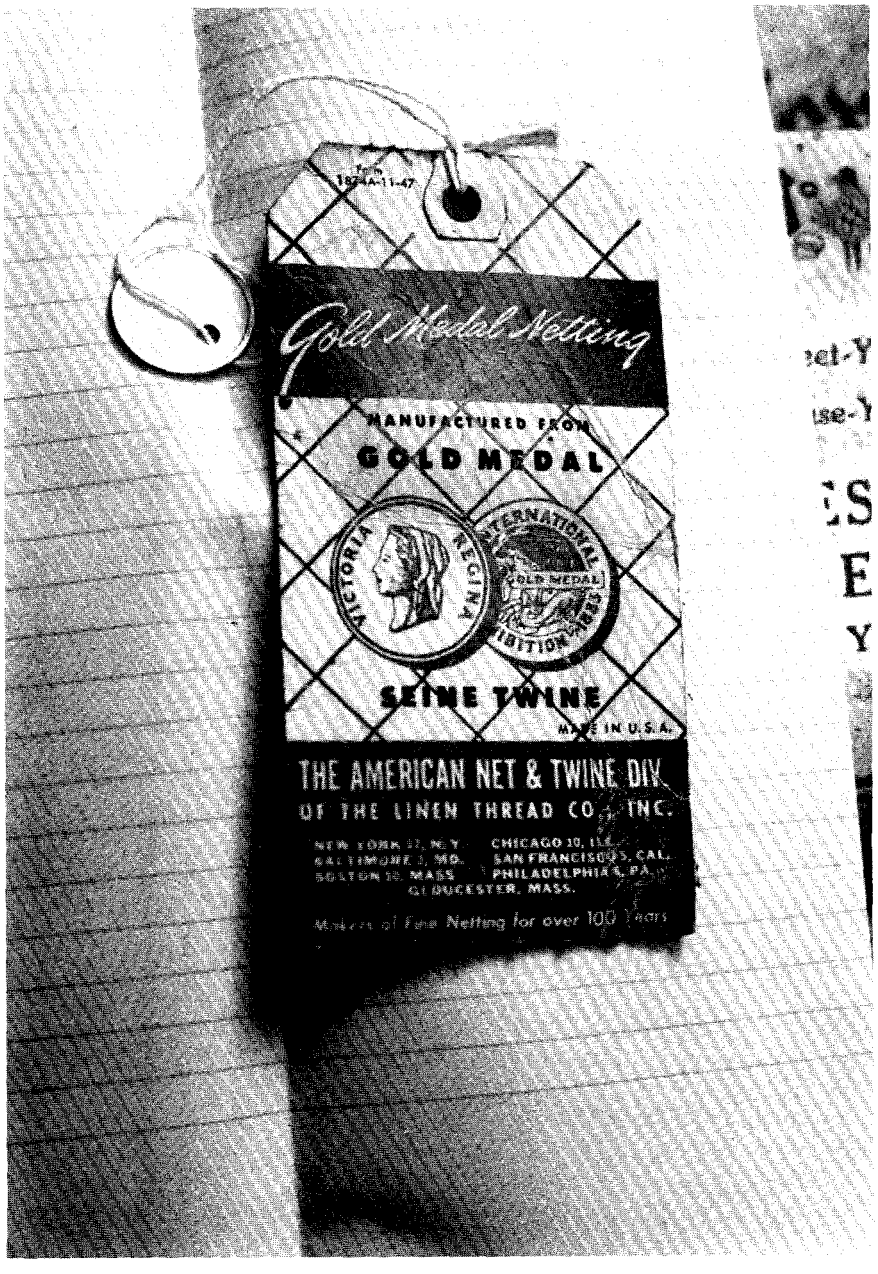


Figure 77. Hokenson Tag From Linen Netting.

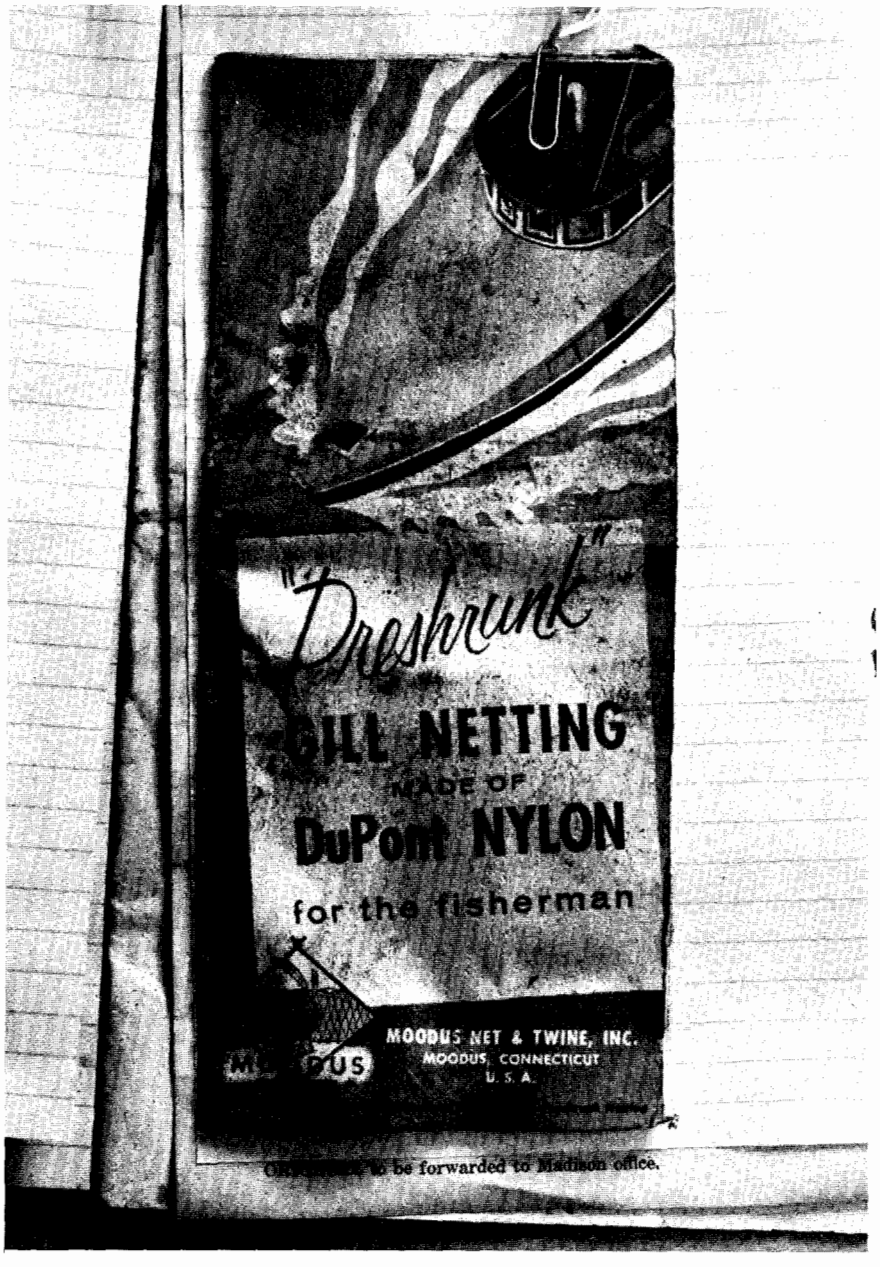


Figure 78. Gill-netting That Illustrates the Hokensons' Transition to Nylon Material.

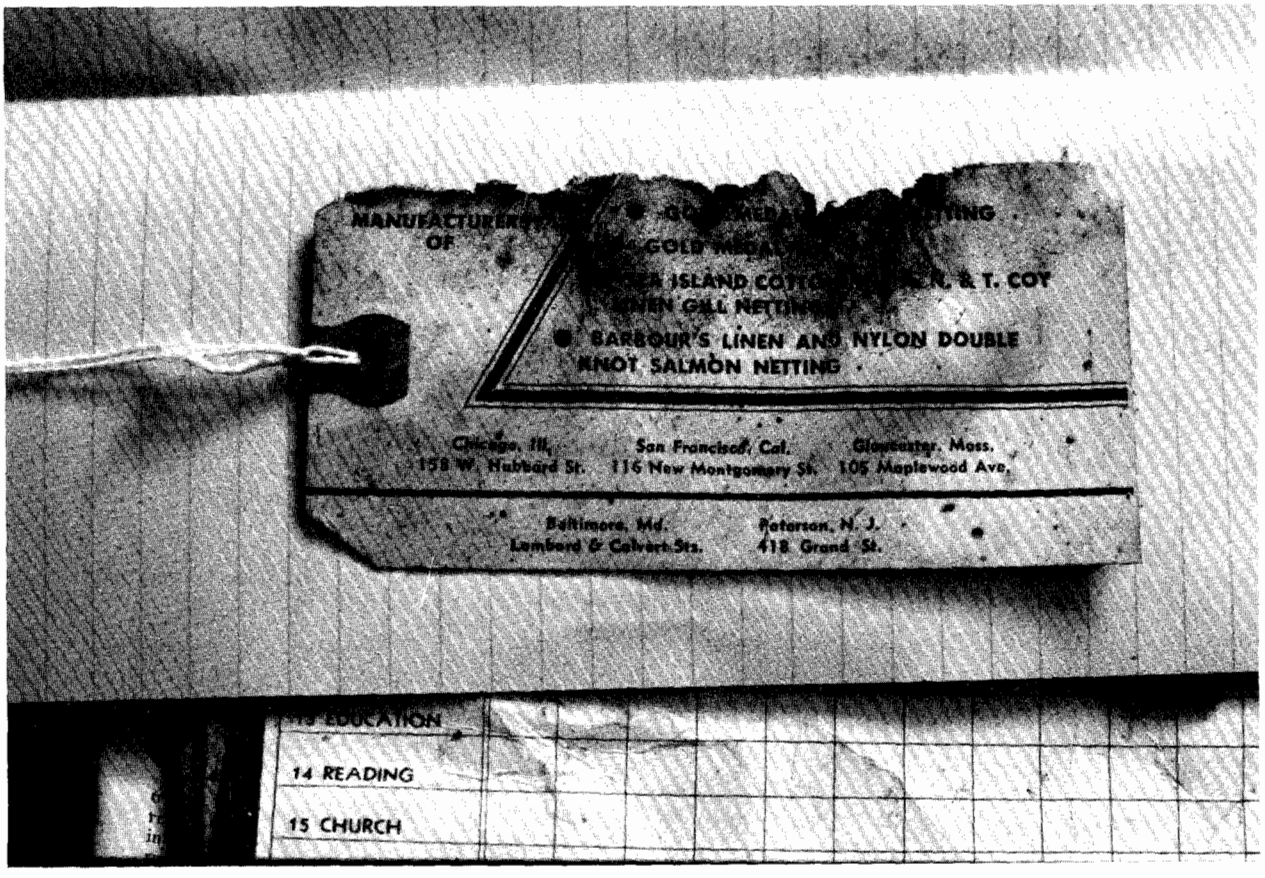
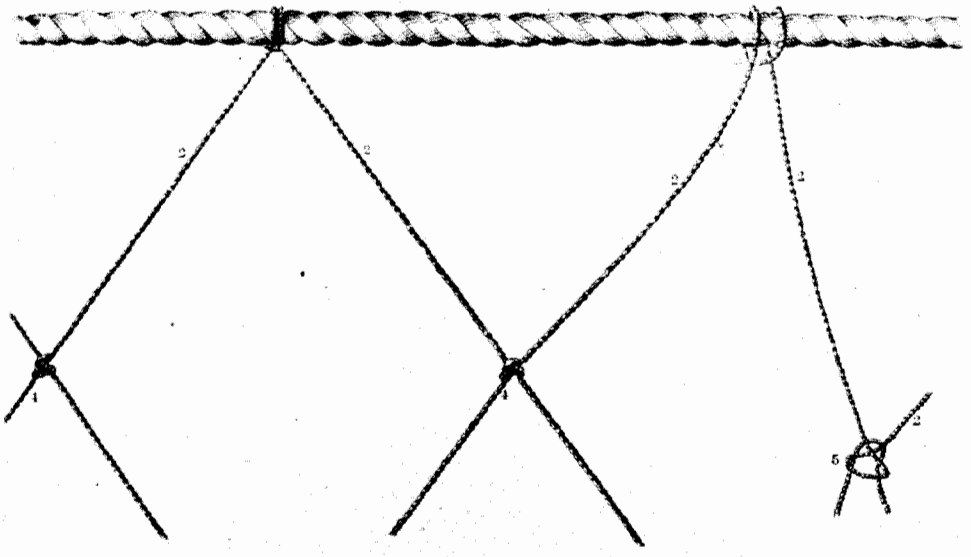


Figure 79. A Hokenson Netting Tag That Demonstrates the Transitional Era Between Cotton/linen and Nylon Nets.



THE GILL-NET COD FISHERY.

Method of hanging cod gill-nets. (Sect. v. vol. i. pp. 227, 228.)

1. Hanging rope or line. 2. Hanging twine. 3. Clove-hitch around the rope. 4. Upper part of the net meshes. 5. Open knot, showing how it is made.

Drawing by Capt. J. W. Collins.

Figure 80. Making a Gill-net From Scratch. Illustration from Fisheries 1887, Plate 38.

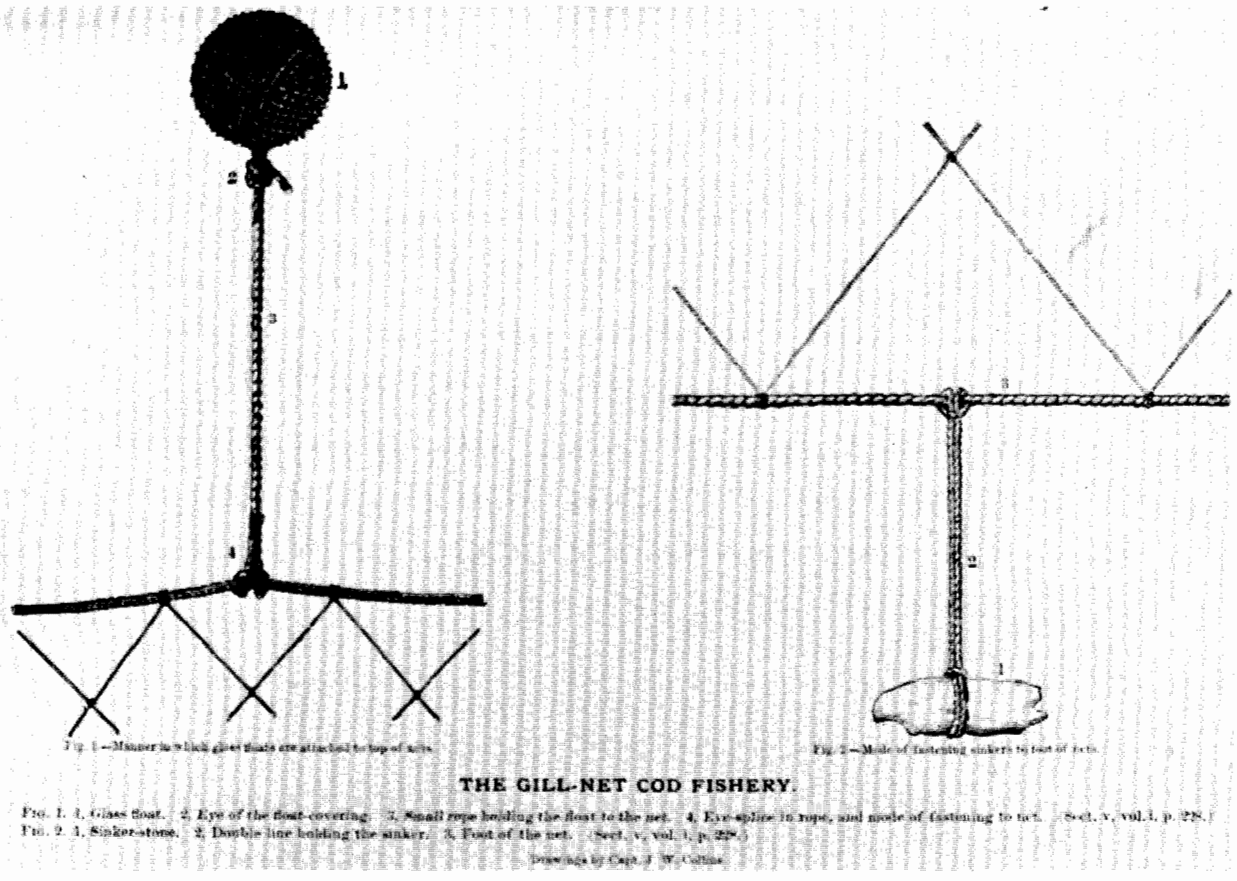


Figure 81. Primitive Gill-net Floats and Sinkers of the Nineteenth Century. Illustration from Fisheries 1887, Plate 38.

Figure 82. Hokensons' Homemade Cedar Floats. In right foreground are gill-net floats, right background has larger floats for supporting a pound-net leader. Also, note buoy made up of five small floats and a stick. The box at left has a mixture of large and small floats. Boxes located in southeast corner of Twine Shed (HS-01-138F), January 1979. Note half-barrels in upper left corner of picture.

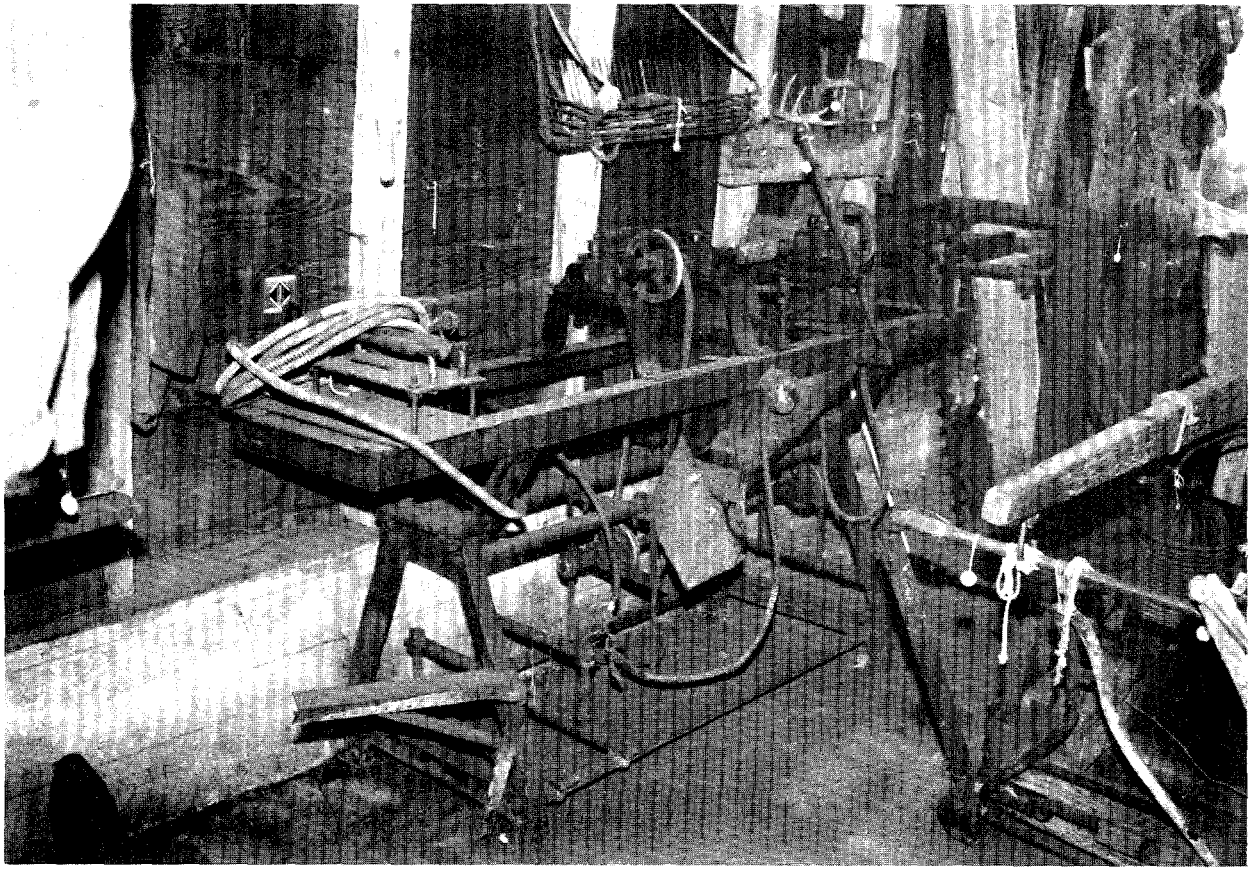


Figure 83. Hokensons' Wood Lathe Standing Along Center of West Wall of Twine Shed (HS-01-138F), January 1979. Note antlers above right side of lathe.

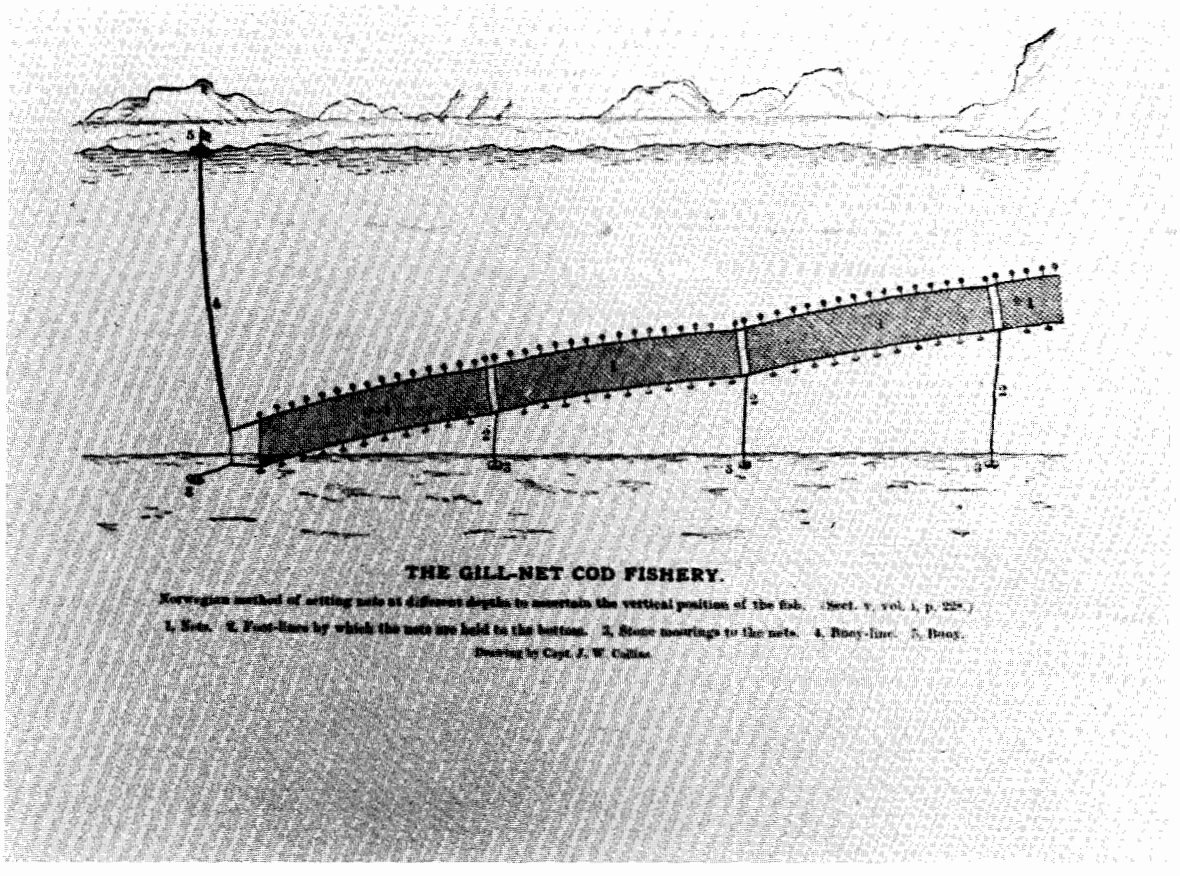


Figure 84. Diagram Showing How Gangs of Gill-net are Connected. Also illustrates a mode of hunting for a species of fish that lurks at an unknown depth. Illustration from Fisheries 1887, Plate 40.

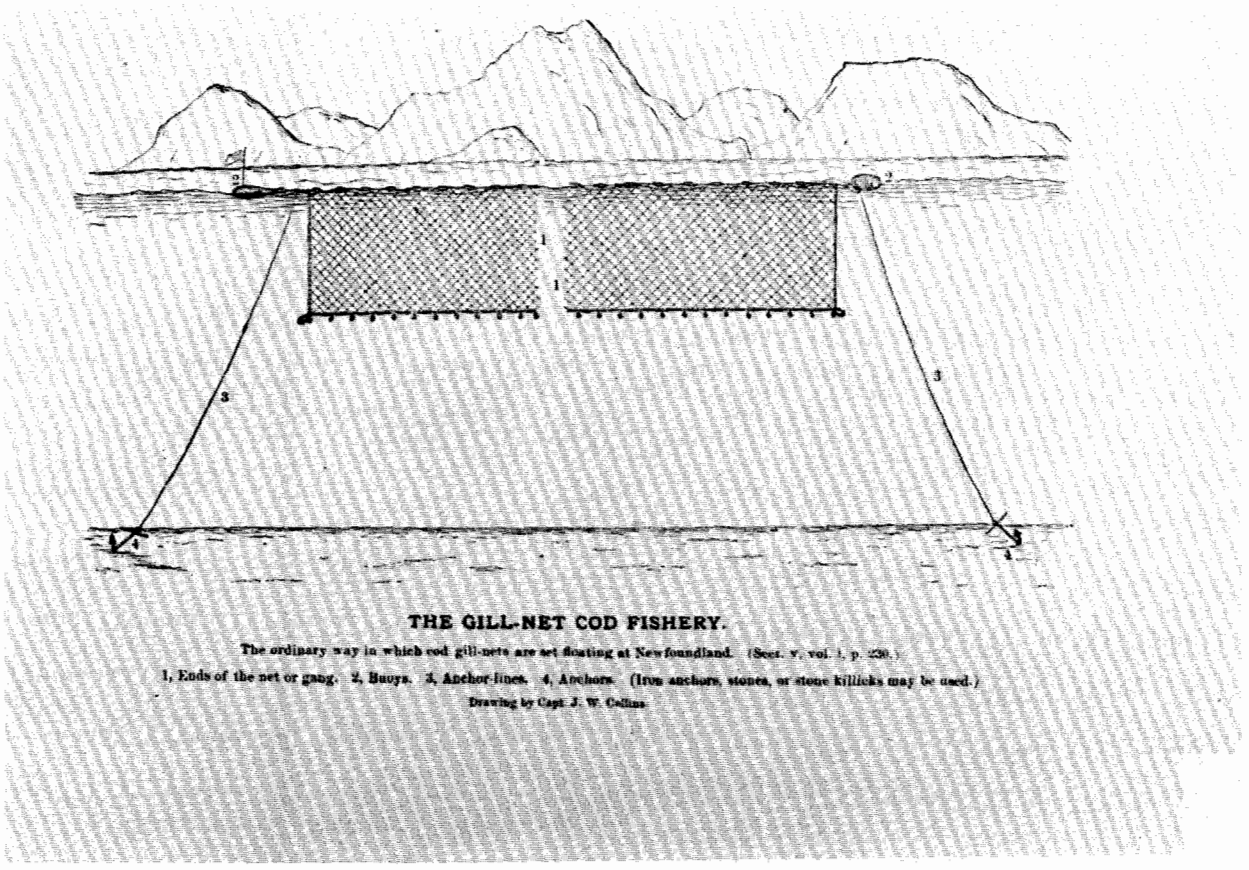


Figure 85. Both at the Beginning and End of the Herring Season, the Fish Congregate Near the Surface. Illustration from Fisheries 1887, Plate 43.

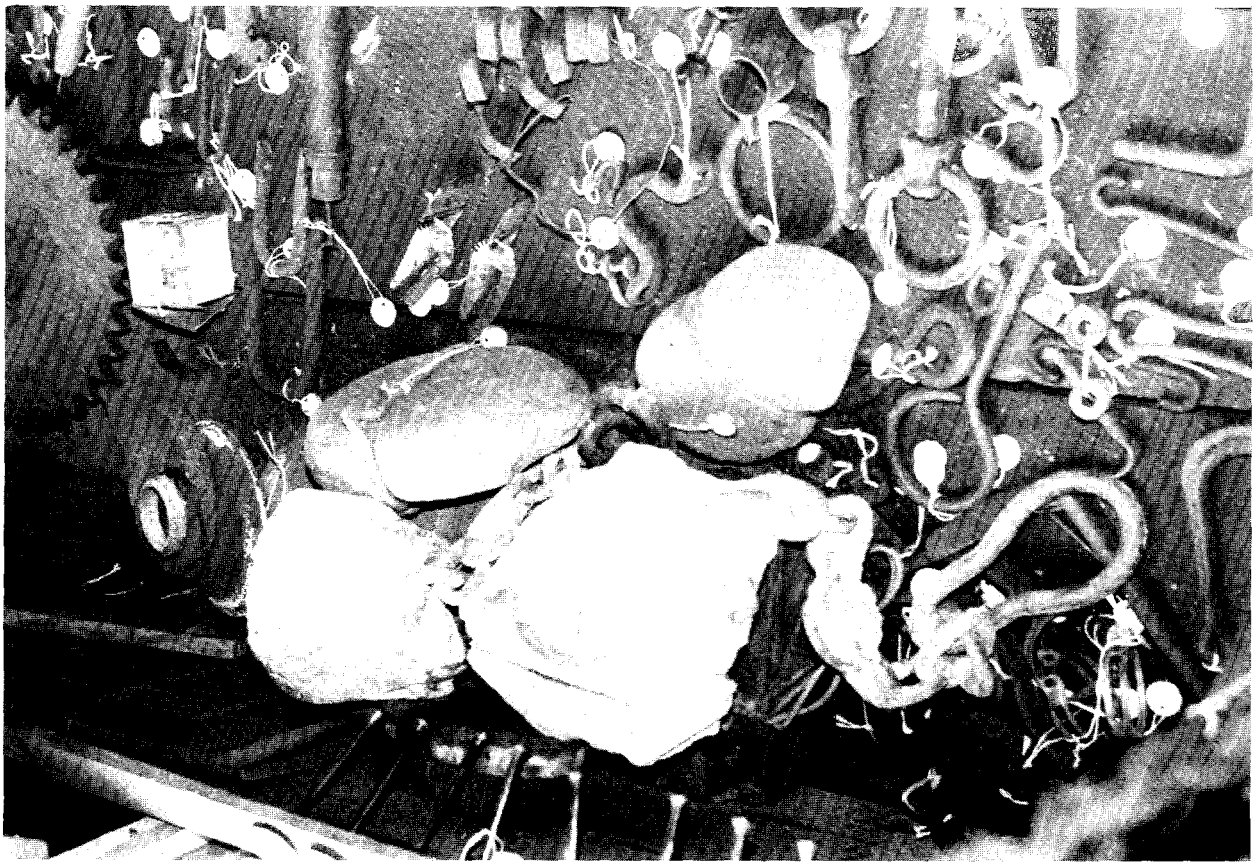


Figure 86. Samples of a Few Hokenson Gill-net Anchors at Center Photo. Near center of eastern workbench of Twine Shed (HS-01-138F), January 1979.

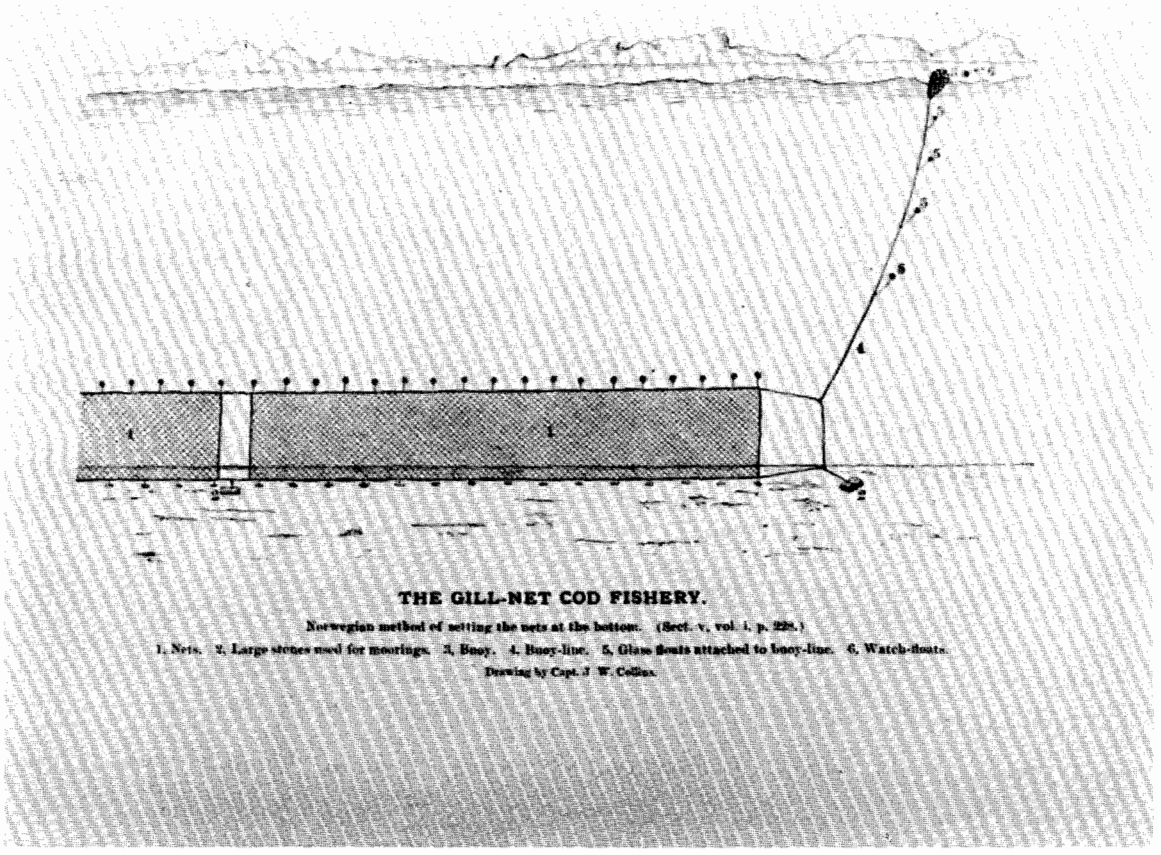
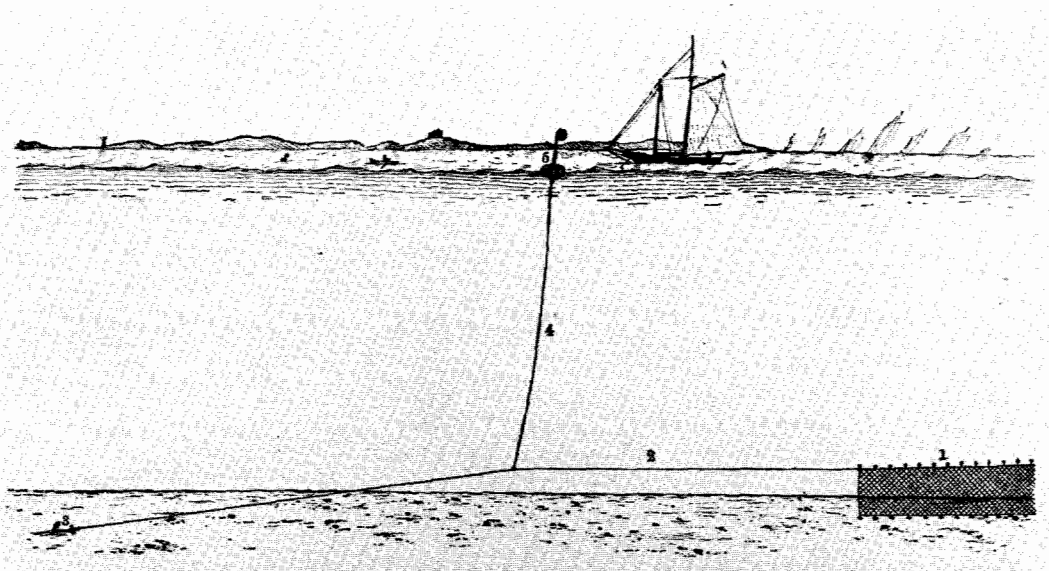


Figure 87. Norwegian Mode of Bottom Mooring For Gill-nets. Illustration from Fisheries 1887, Plate 39.



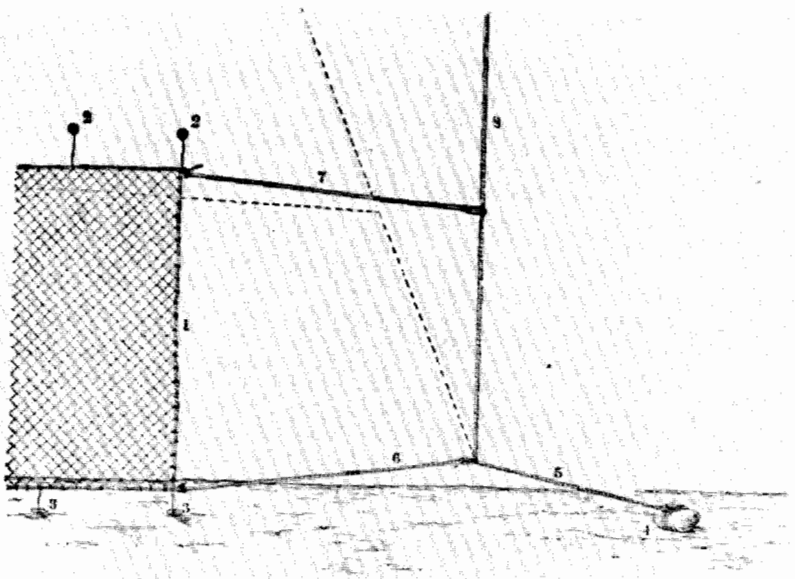
THE GILL-NET COD FISHERY.

Way in which cod gill-nets are set for underrunning in Ipswich Bay, Mass (Sect. v, vol. i, p. 232.)

1, End of the gang of nets. 2, Anchor-line, also called the "underrunning line." 3, Anchor. 4, Buoy-line. 5, Buoy.

Drawing by Capt. J. W. Collins.

Figure 88. A Massachusetts Mode of Bottom Mooring For Gill-nets. Illustration from Fisheries 1887, Plate 44.



THE GILL-NET COD FISHERY.

Manner in which the ends of a gang of nets are attached to the stone anchors and buoy-line in Norway; also showing the position of the glass floats and the sinkers. (Sect. v, vol. i, p. 259.)

1, Net. 2, Glass floats. 3, Sinkers. 4, Large stone anchor or mooring. 5, Anchor-line, called foot-line by the Norwegian fishermen. 6, Short rope, one end of which is bent to the lower corner of the net and the other to an eye of the buoy-line. 7, Short rope, one end having an eye splice in it through which the buoy-line passes, and the other end bent to the upper corner of the net. 8, Buoy-line. The dotted lines show the probable position of the end of the net, buoy-line, &c., when swept back by the current.

Drawing by Capt. J. W. Collins.

Figure 89. Detail of Norwegian Mooring Method For Gill-nets. Illustration from Fisheries 1887, Plate 41.

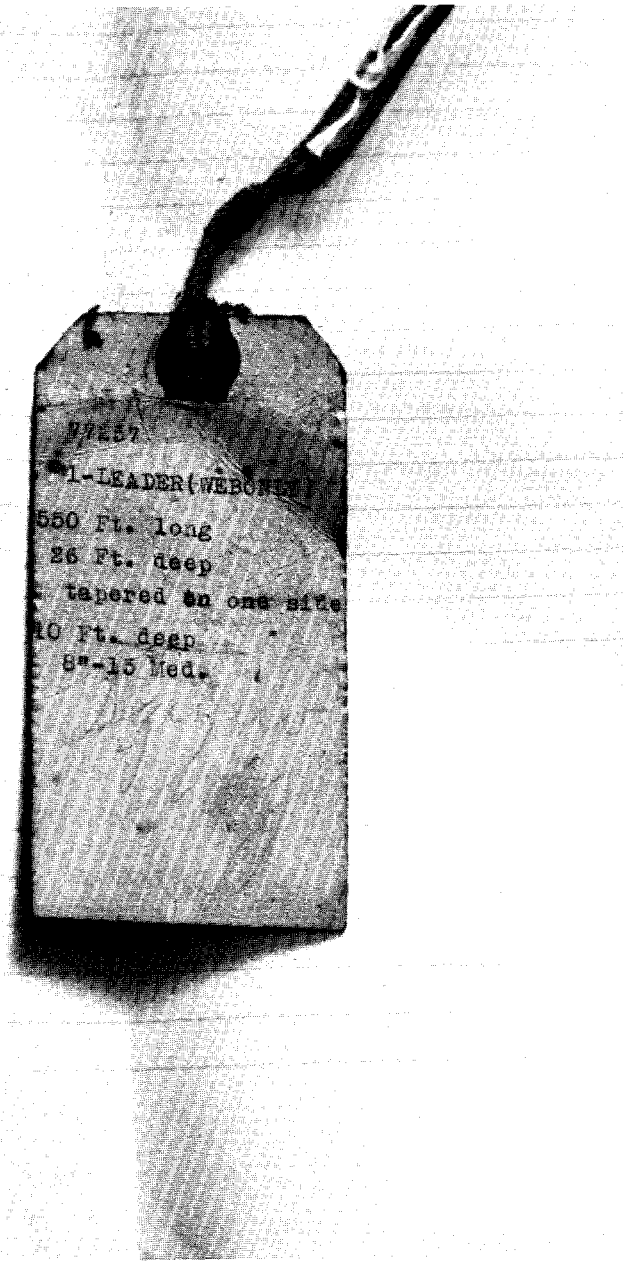


Figure 90. Hokenson Identification Tag For Pound-net Leader at Squaw Bay, About Eight Miles Southwest of Little Sand Bay.

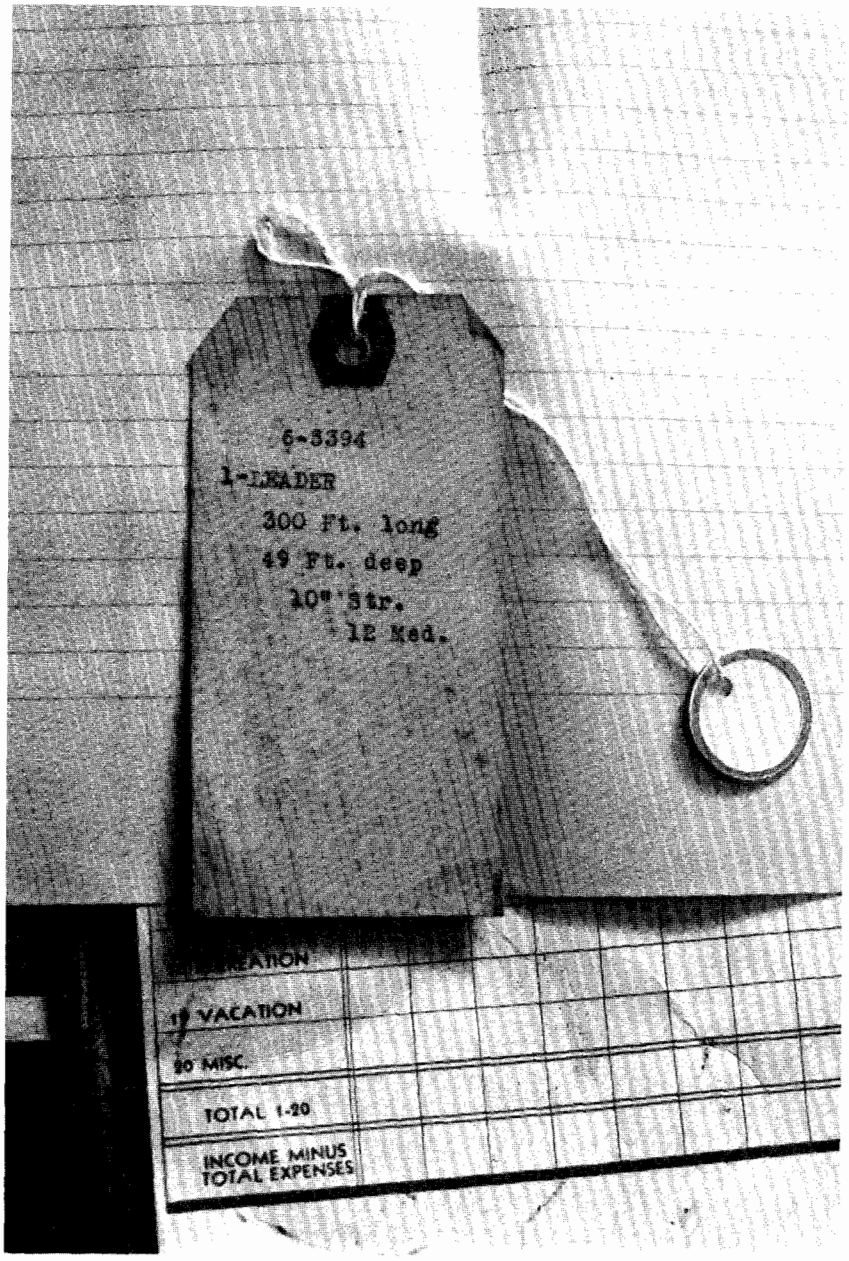


Figure 91. Another Hokenson Leader Tag.

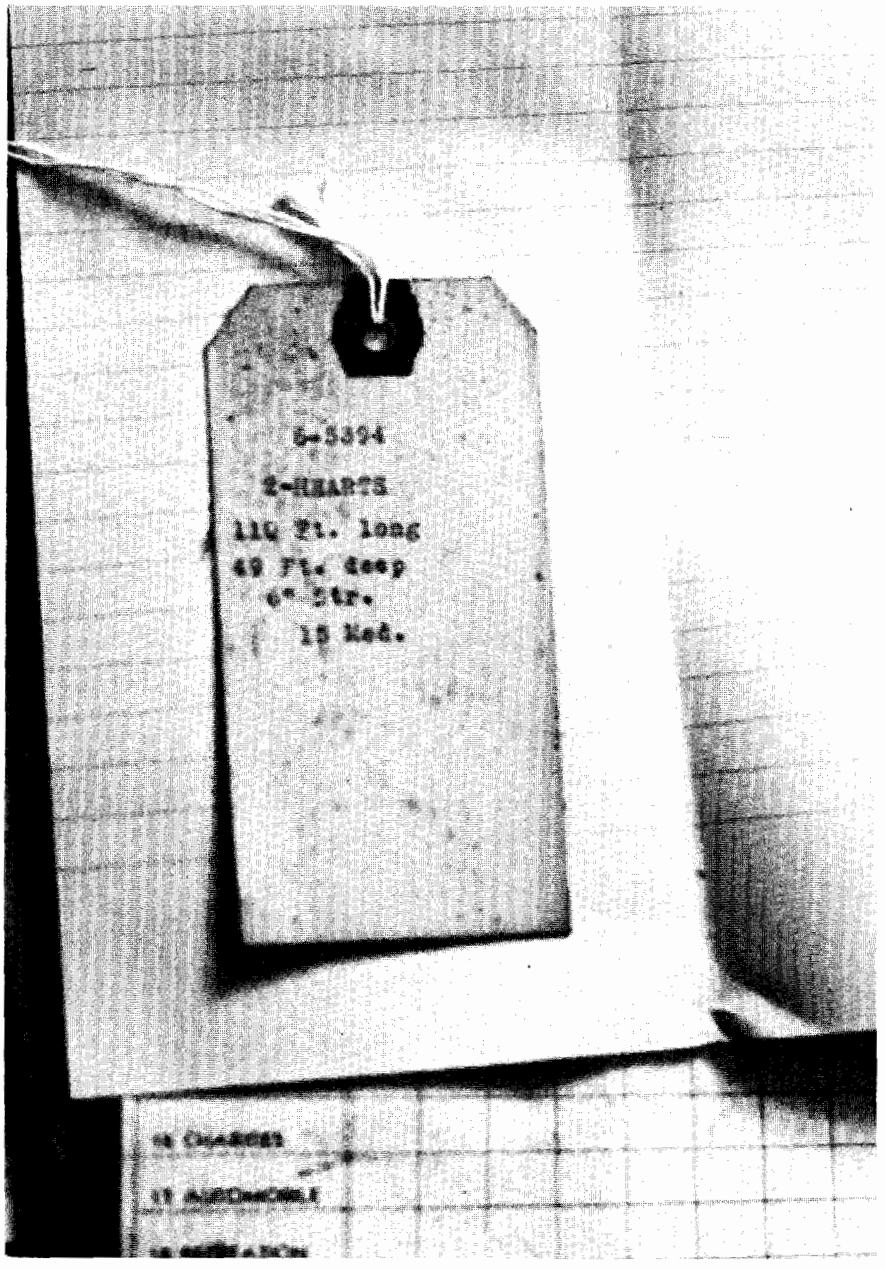


Figure 92. Hokenson Identification Tag For a Pair of Pound-net Hearts.

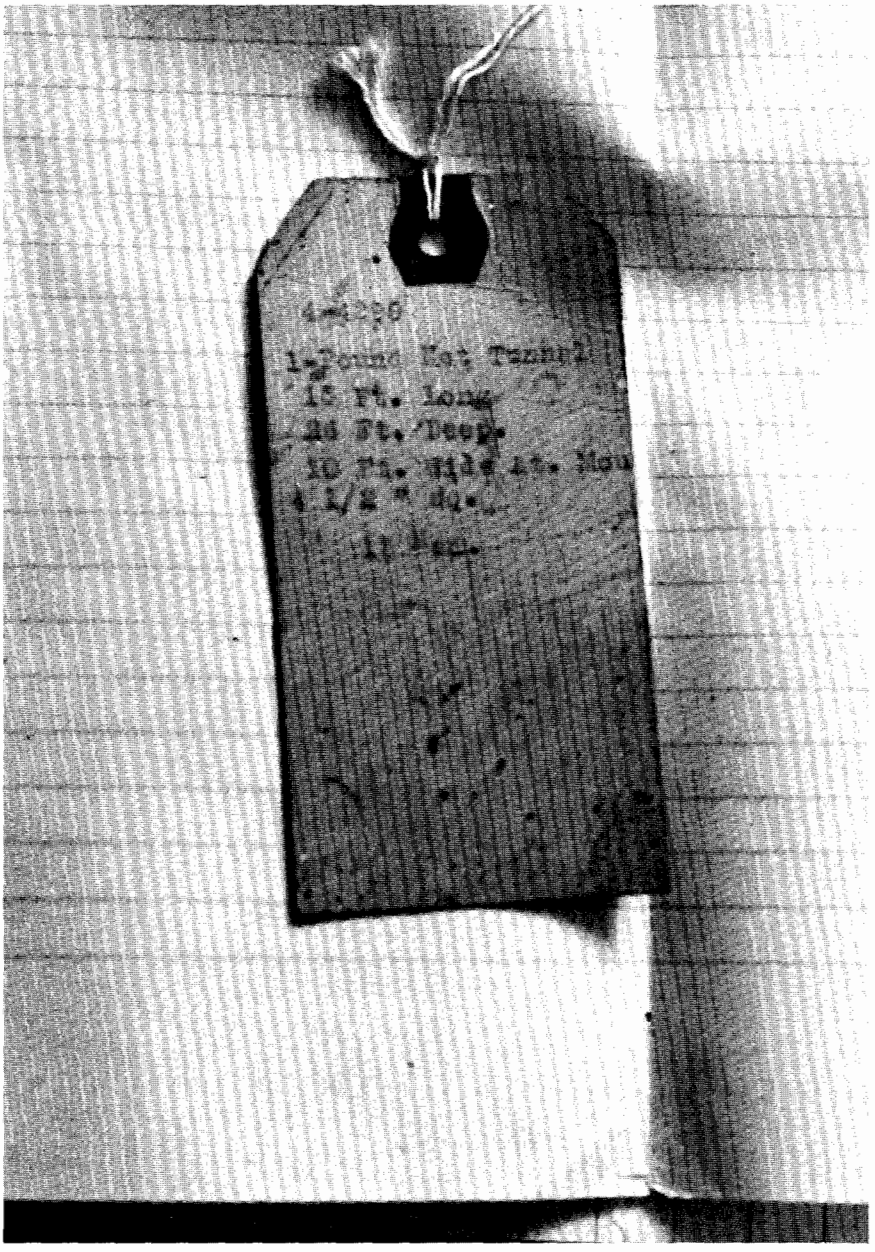


Figure 93. Hokenson Identification Tag For Pound-net Tunnel #4-4290.

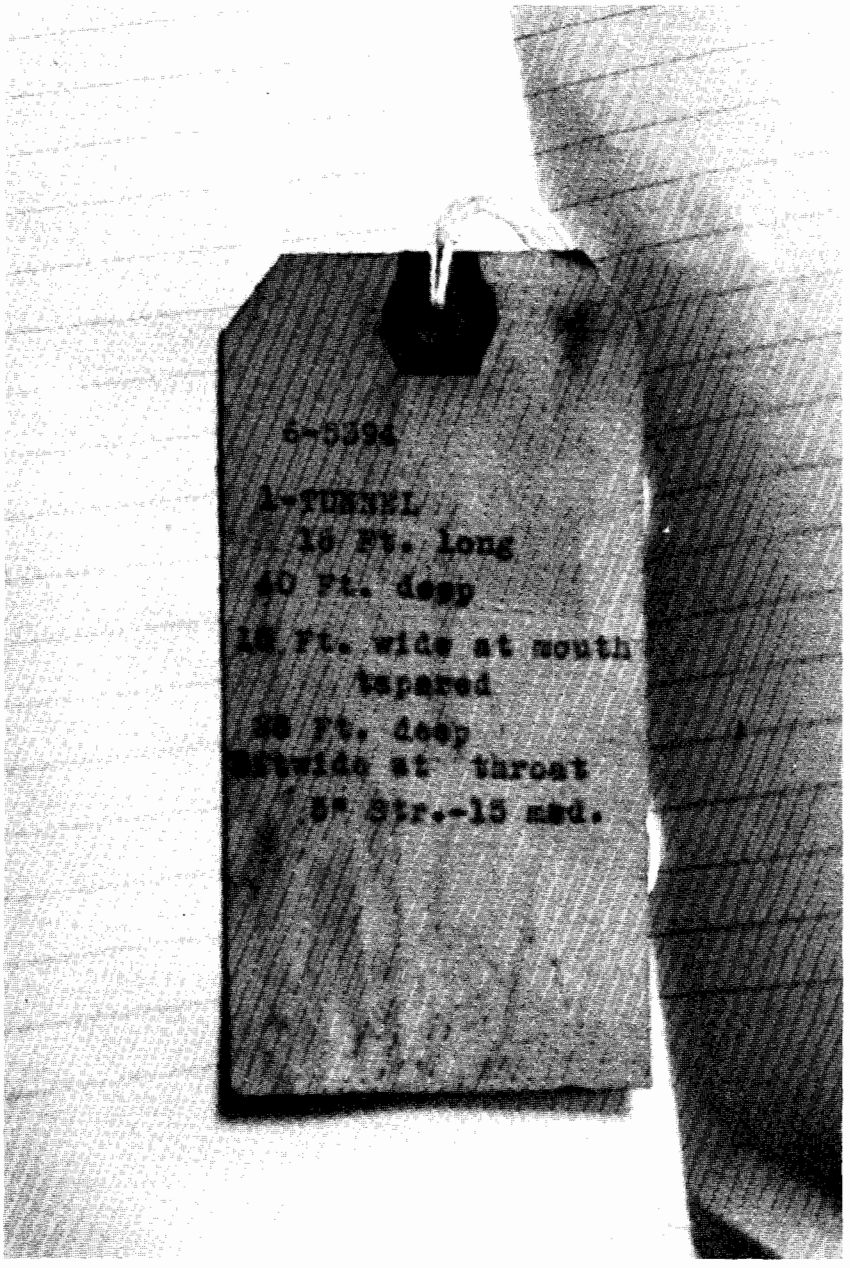


Figure 94. Hokenson Identification Tag For Pound-net Tunnel #6-5394.

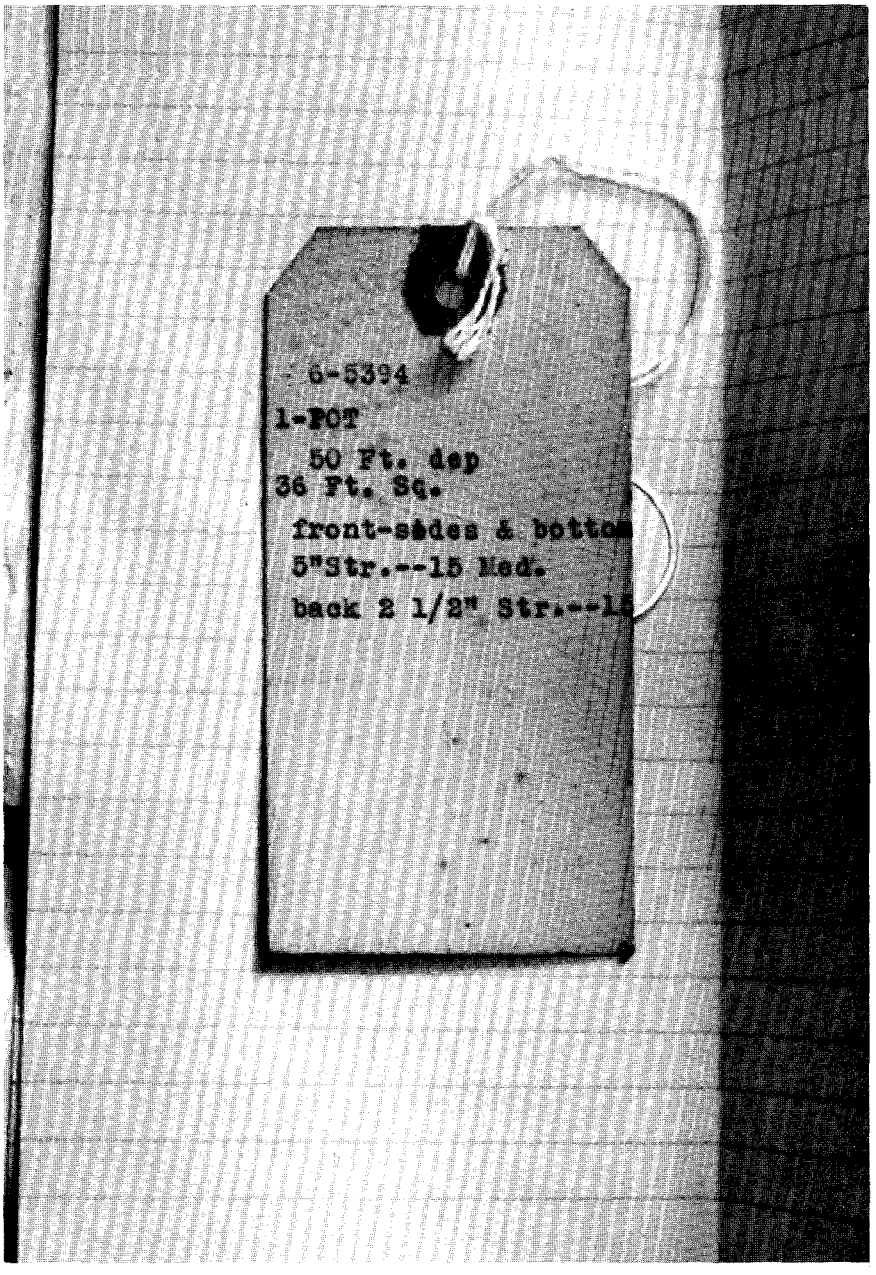


Figure 95. Hokenson Identification Tag For Pound-net Pot #6-5394.

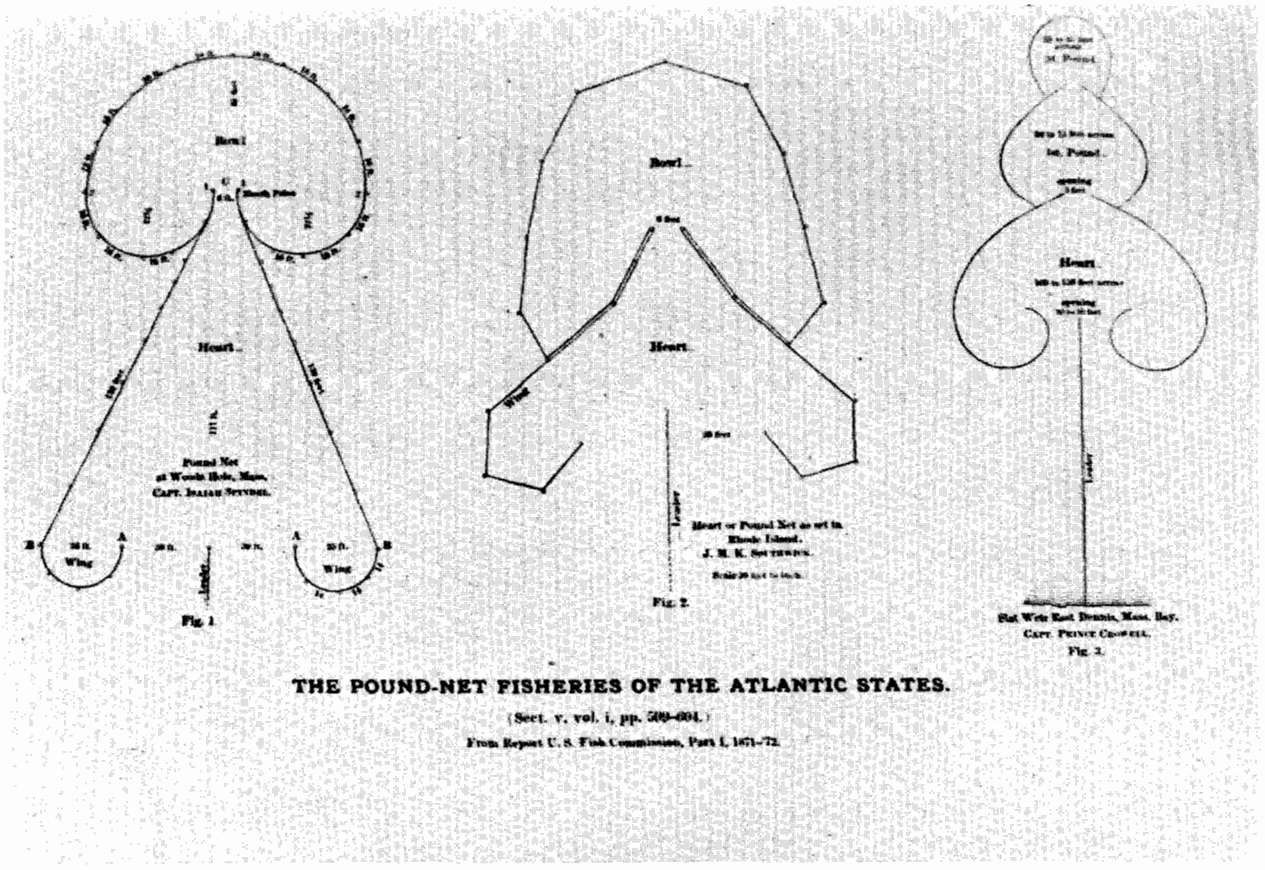
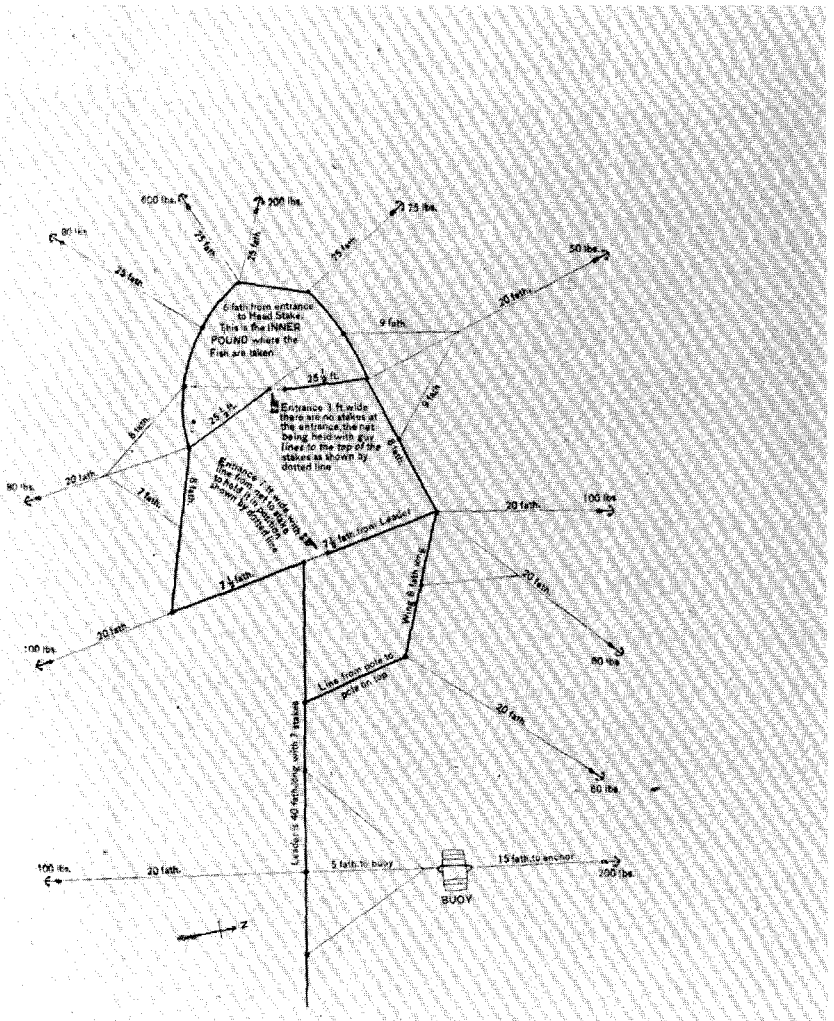


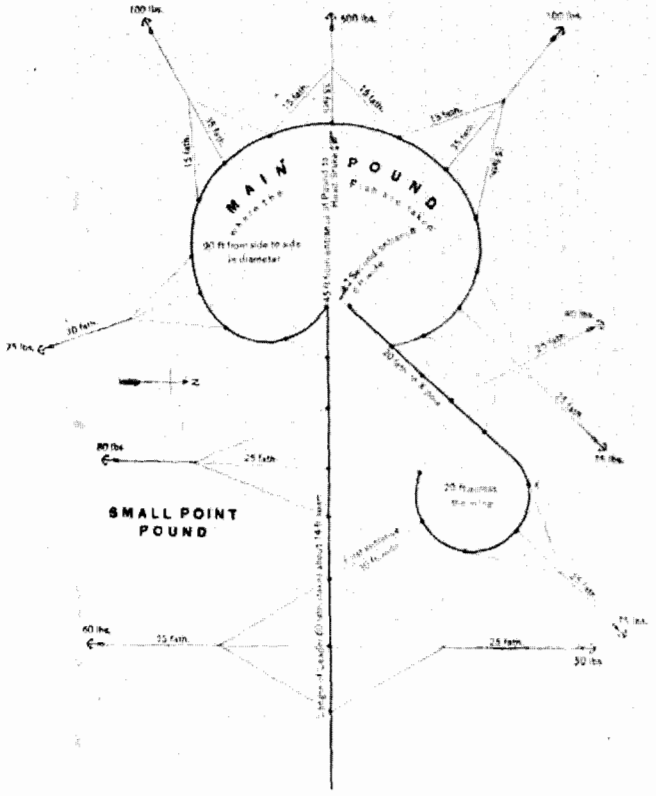
Figure 96. Three Different Styles of Atlantic Pound-nets. Illustrations from Fisheries 1887, Plate 152.



THE POUND-NET FISHERIES OF THE ATLANTIC STATES.

Pound-net at Bald Head, Me. (Sect. v, vol. i, p. 598.)

Figure 97. Unusual Atlantic Pound-net Without a True Heart or Tunnel. Illustration from Fisheries 1887, Plate 150.



THE POUND-NET FISHERIES OF THE ATLANTIC STATES.

Pound-net at Small Point, Me. (Sect. v, vol. i, p. 798.)

Figure 98. Atlantic Pound-net With Only One Heart and No True Tunnel. Illustration from Fisheries 1887, Plate 151.

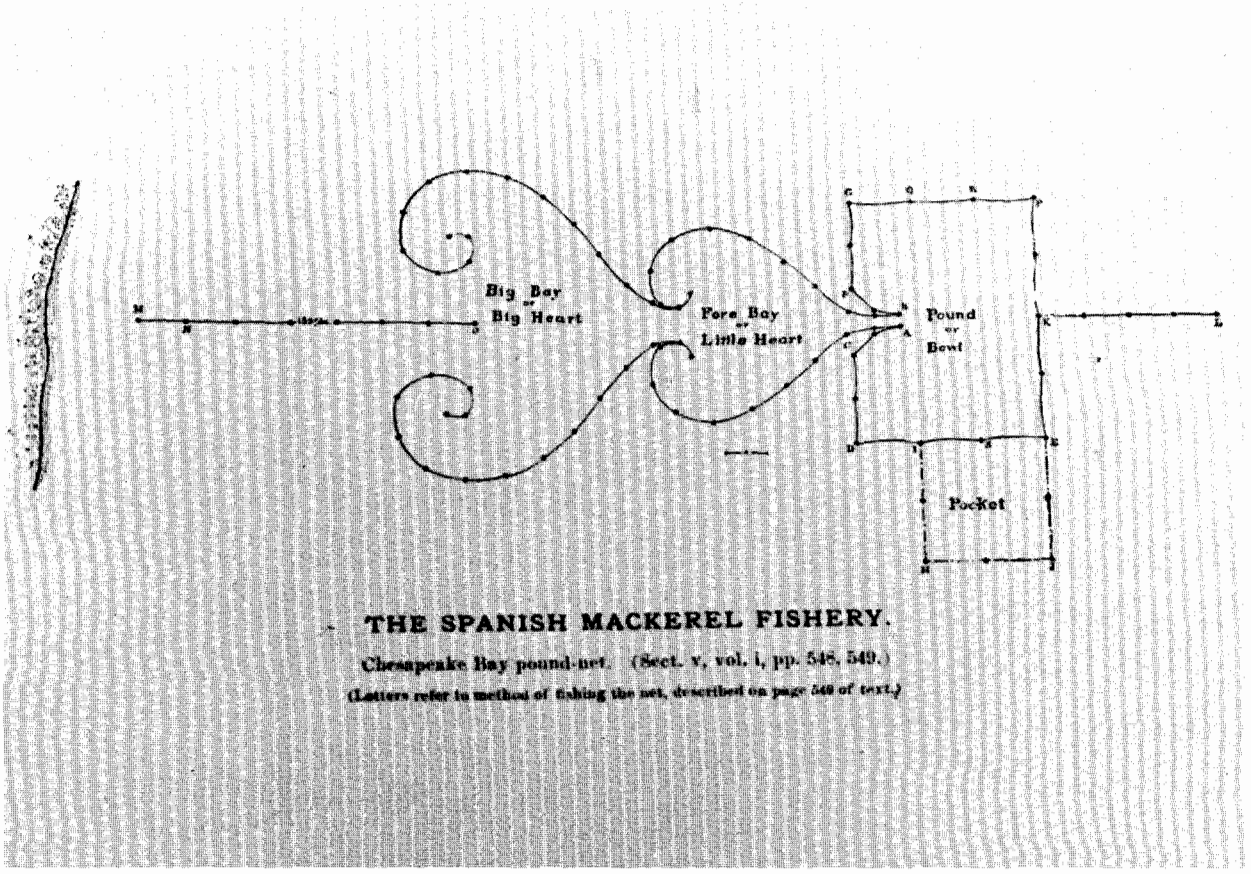


Figure 99. A Chesapeake Pound-net With a Side Pocket For Conserving Fish. Illustration from Fisheries 1887, Plate 148.

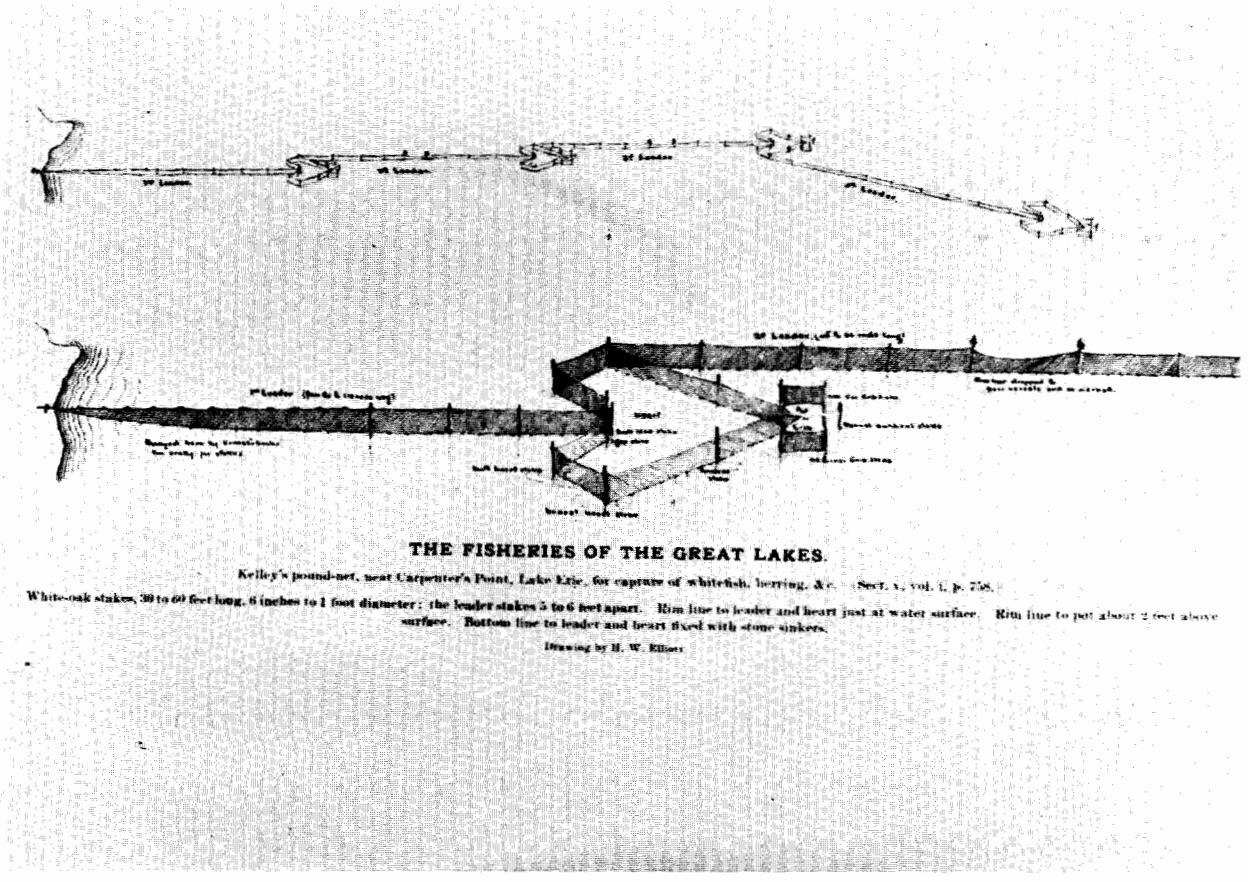


Figure 100. Lake Erie Pound-net Set in a Series of Four. Illustration from Fisheries 1887, Plate 170.

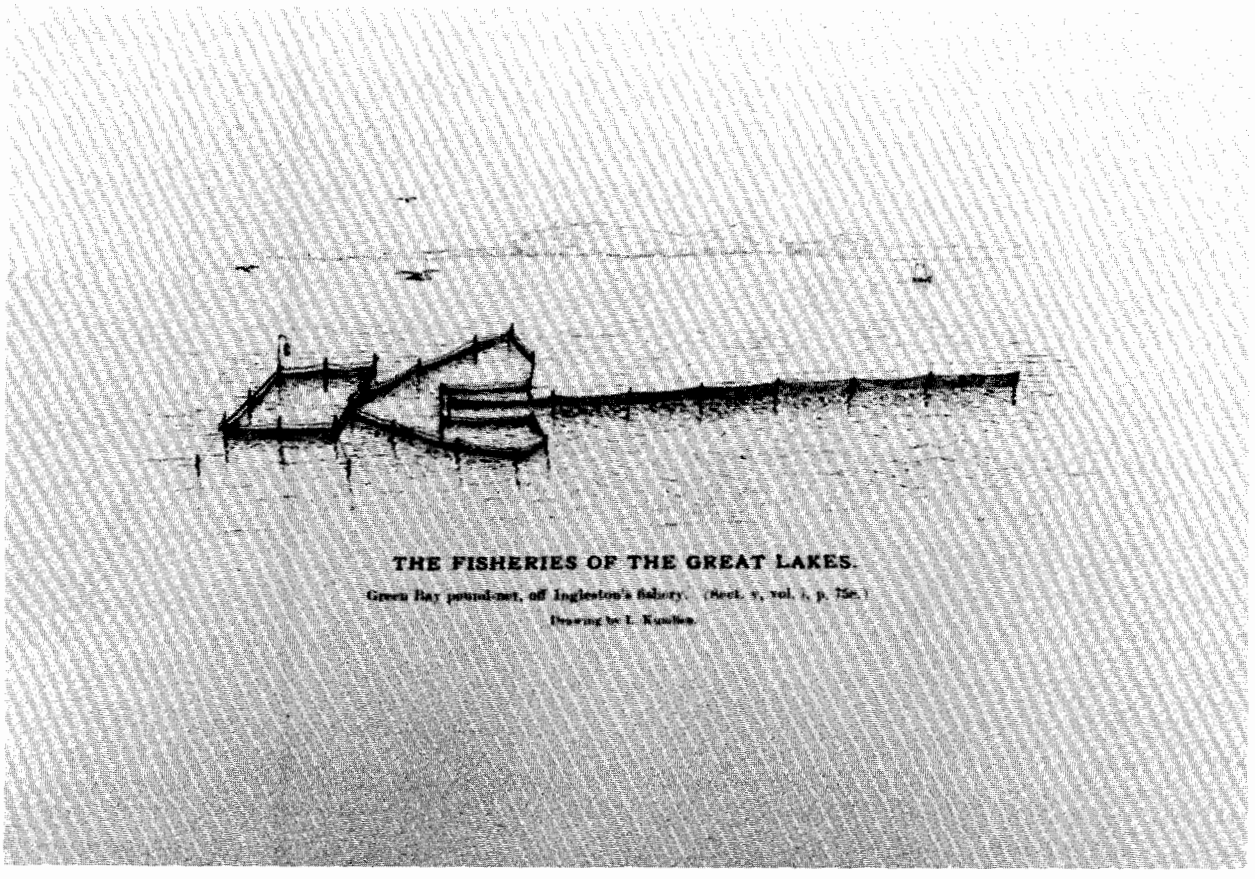
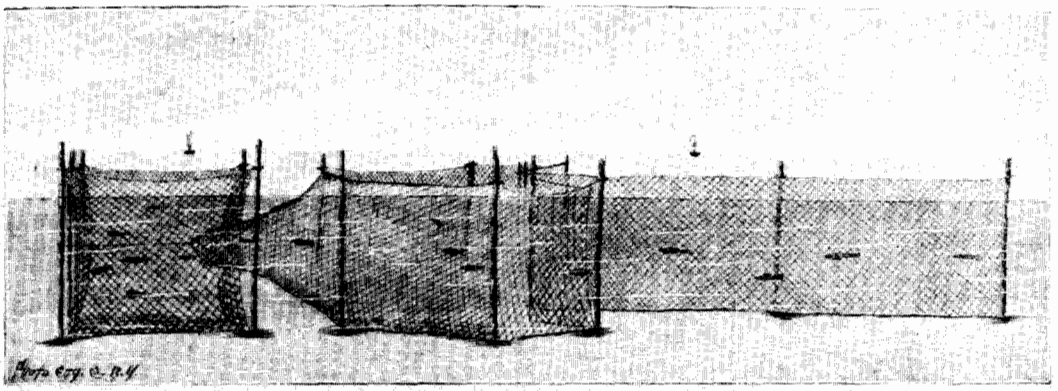


Figure 101. Lake Michigan Pound-net. Each pound-net demonstrates the variability in the number of stakes required for mooring. Illustration from Fisheries 1887, Plate 172.



THE FISHERIES OF THE GREAT LAKES.

Pound-net at Detroit River. (Sect. v. vol. i, p. 758.)

From sketch by L. Kimlien.

Figure 102. Side View of a Great Lakes Pound-net. Illustration from Fisheries 1887, Plate 175.

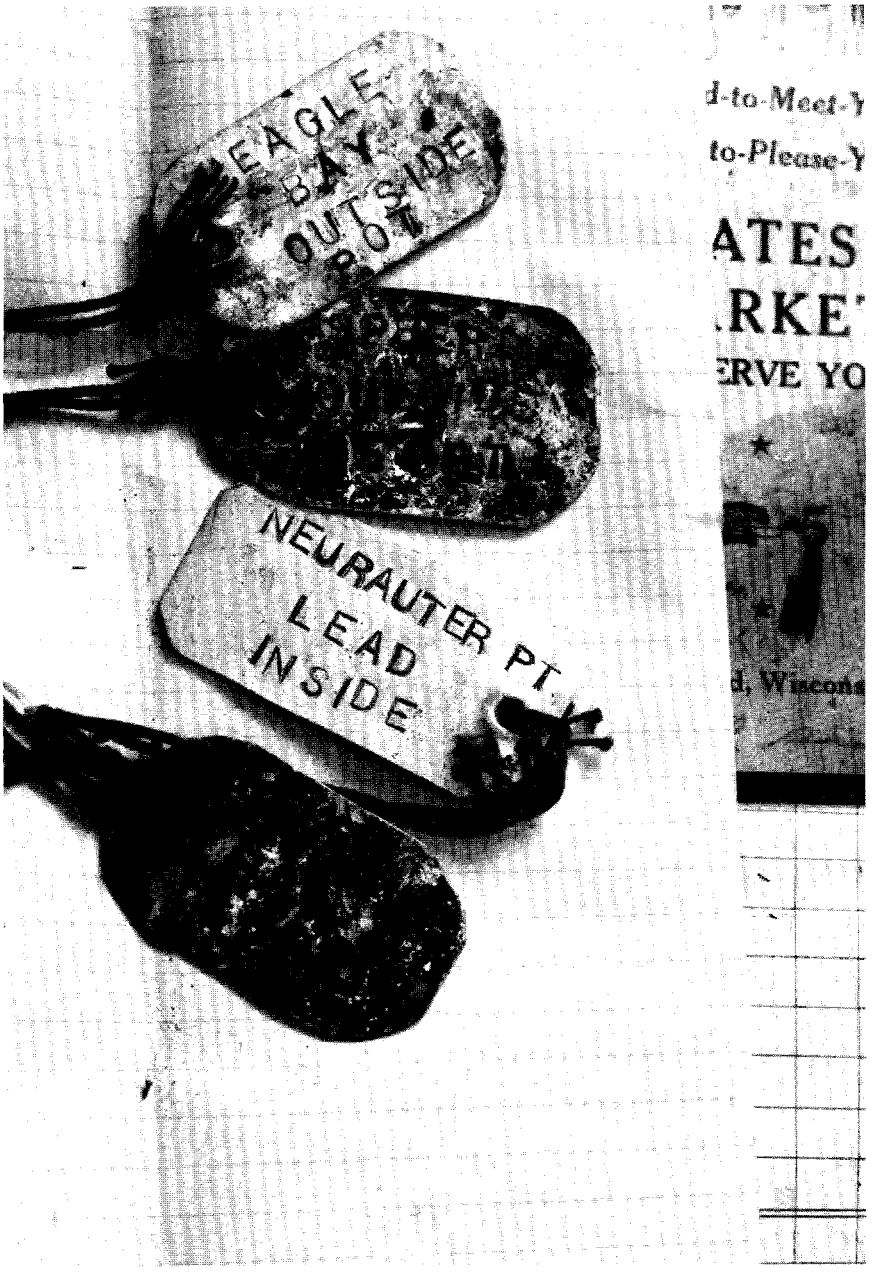


Figure 103. Hokensons Metal Tags For Identifying Pound-net Components in Storage.

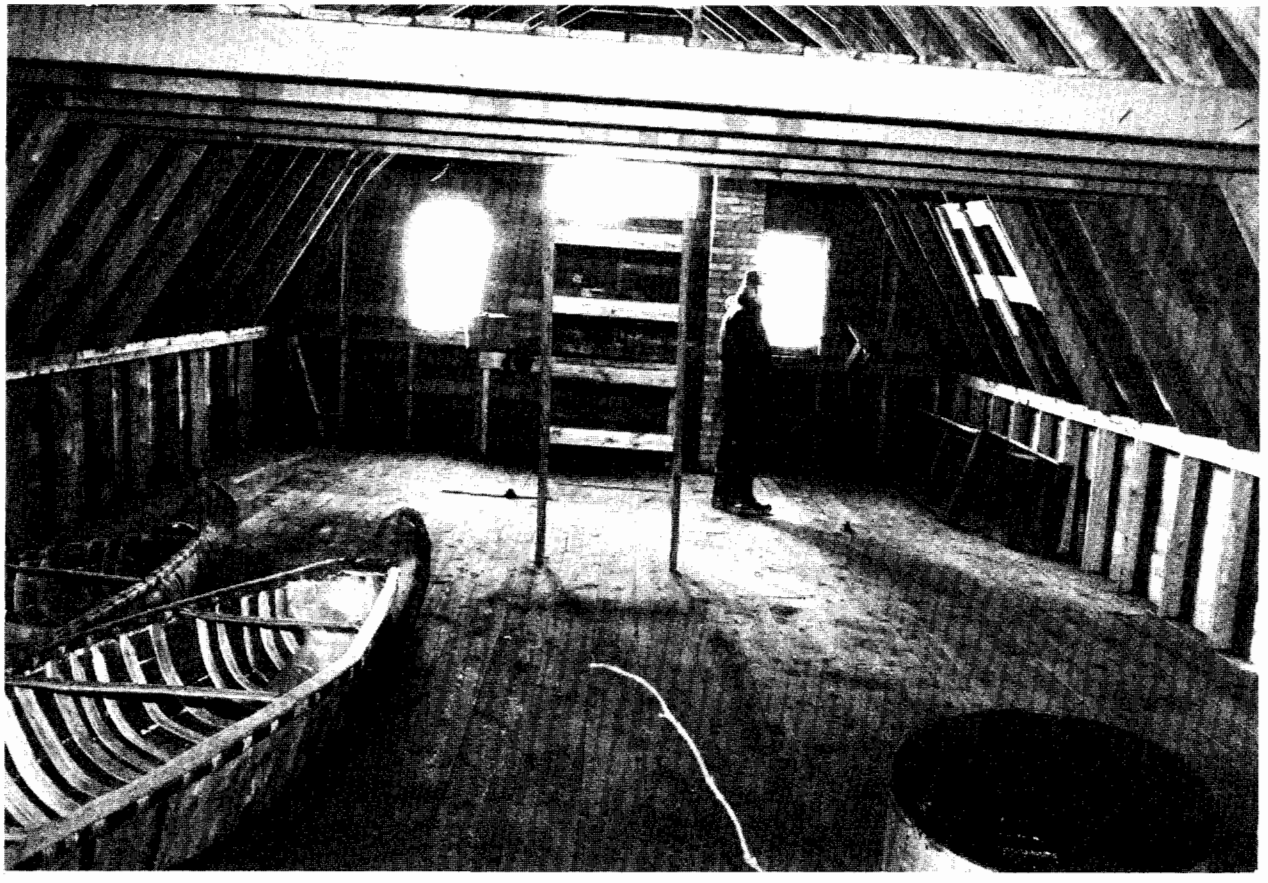


Figure 104. South End of Loft in Twine Shed (HS-01-138F), January 1979. Storage space for pound-net components.

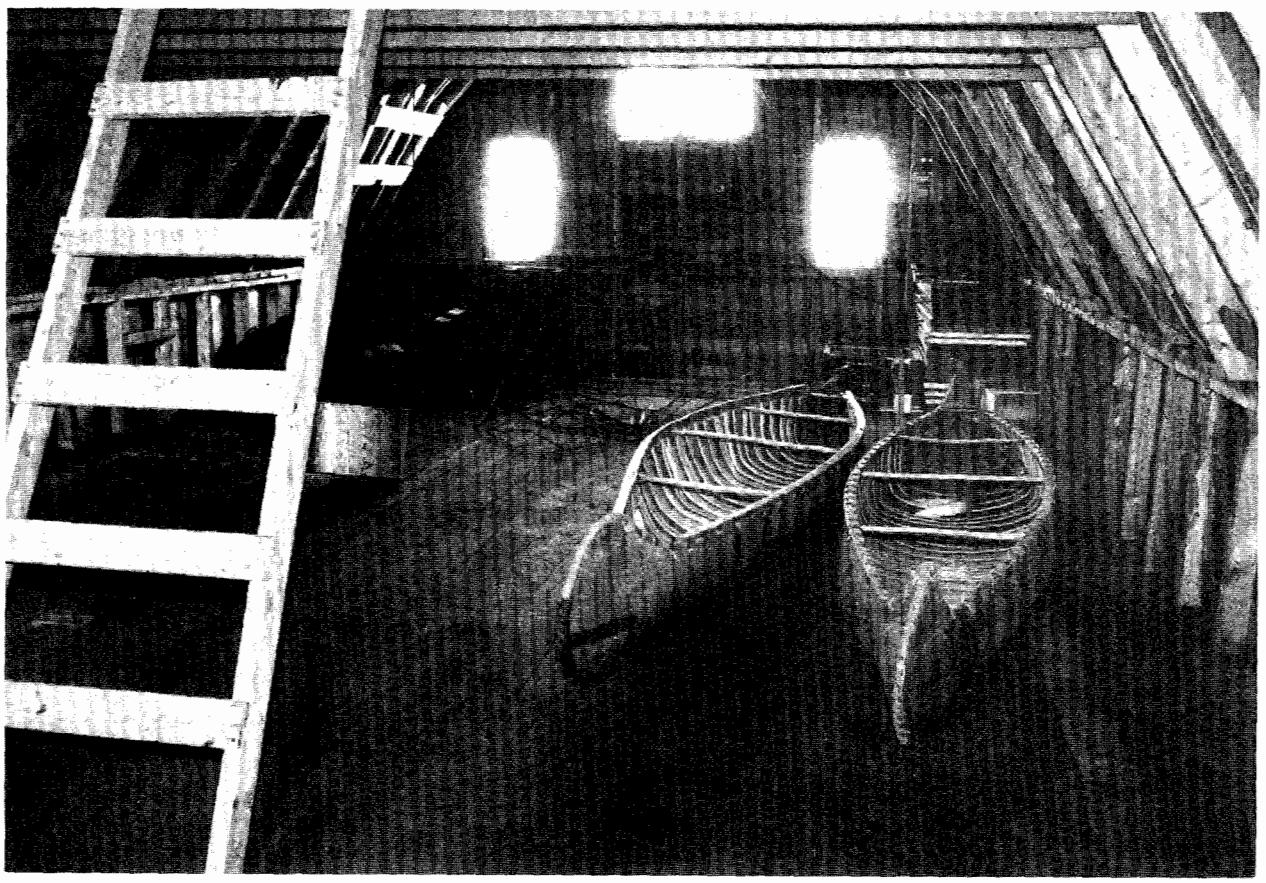


Figure 105. North End of Loft in Twine Shed (HS-01-138F), January 1979. Storage space for pound-net components.

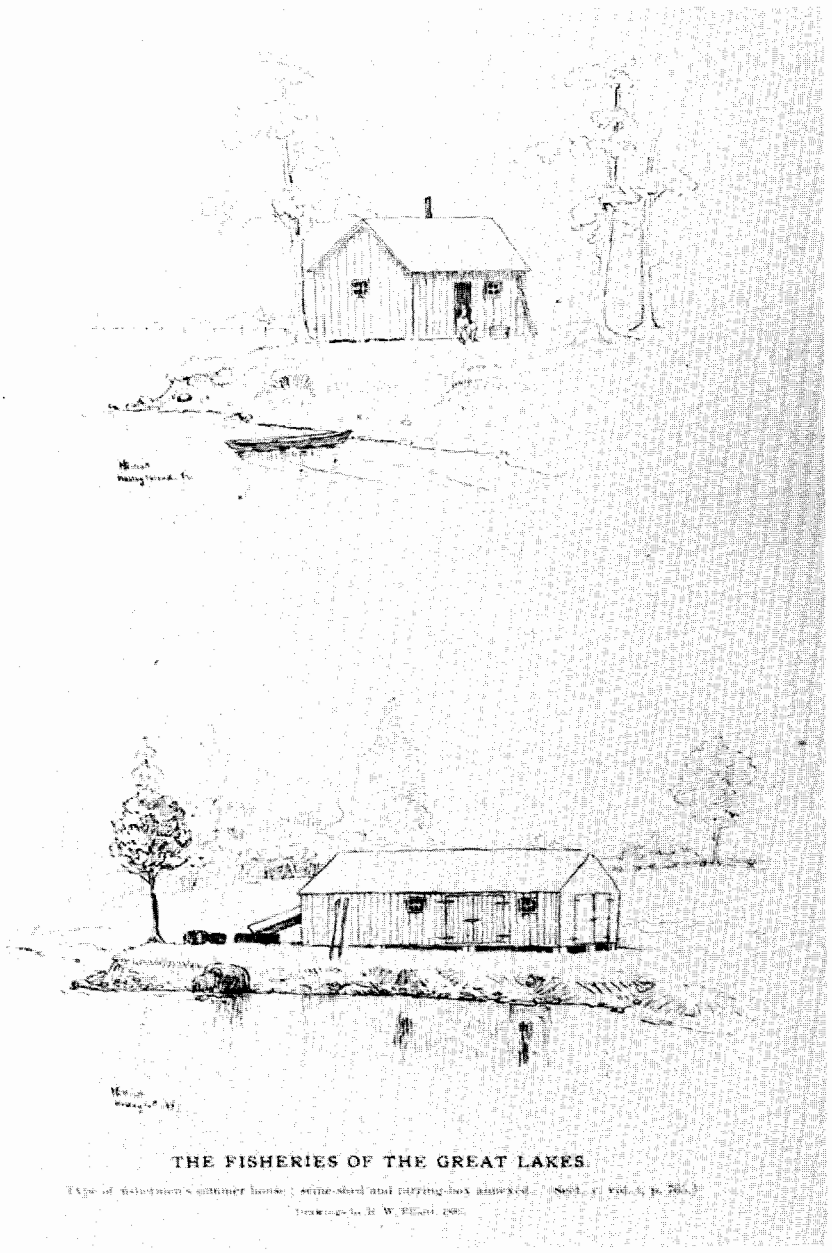


Figure 106. A Nineteenth Century Twine Shed. Note shute leading from loft down into tarring box. Illustration from Fisheries 1887, Plate 179.

Figure 107. One of the Hokenson Brothers' Blue Denim Jackets, Jan. 1979.

Figure 108. Left to right: Leo, Roy, and Eskel Hokenson on the Dock at Little Sand Bay c. 1950. Fish house (HS-01-138A) in background. This same photo was used for the October 1953 article in the Wisconsin REA News.

Figure 109. Roy and Eskel Hokenson Cleaning Lake Trout, Date Unknown. Note special covering on Roy's right forearm to protect against spattering.

Figure 110. Robert and Leo Hokenson Servicing a Pound-net, c. 1950. Note bib-overalls and caps.

Figure 111. Left to right: Roy, Eskel, and Leo Hokenson in the Pound-boat, c. 1950. The jackets and caps hint at chilly weather.

Figure 112. Atlantic Fishermen Completely Outfitted in Oilskins or Sou'westers. Illustration derived from page 237 of The Book of Fishes, (Washington: National Geographic Society, 1924).

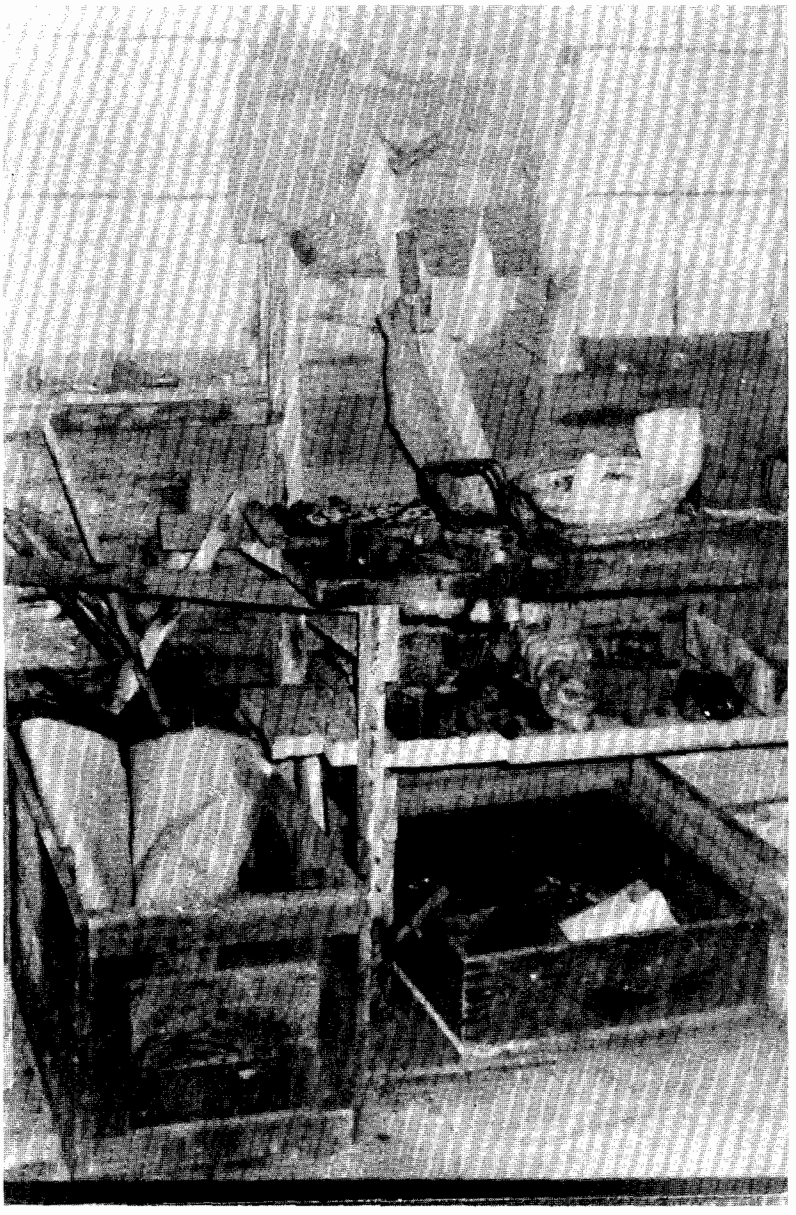


Figure 113. Northern End of Eastern Workbench in Twine Shed (HS-01-138F) September 1978. Note canvas knapsack by left window.

Figure 114. Hokensons' Heavy Homemade Anchors For Mooring Ends of a Herring Gill-net. Center floor of Twine Shed (HS-01-138F) January 1979.

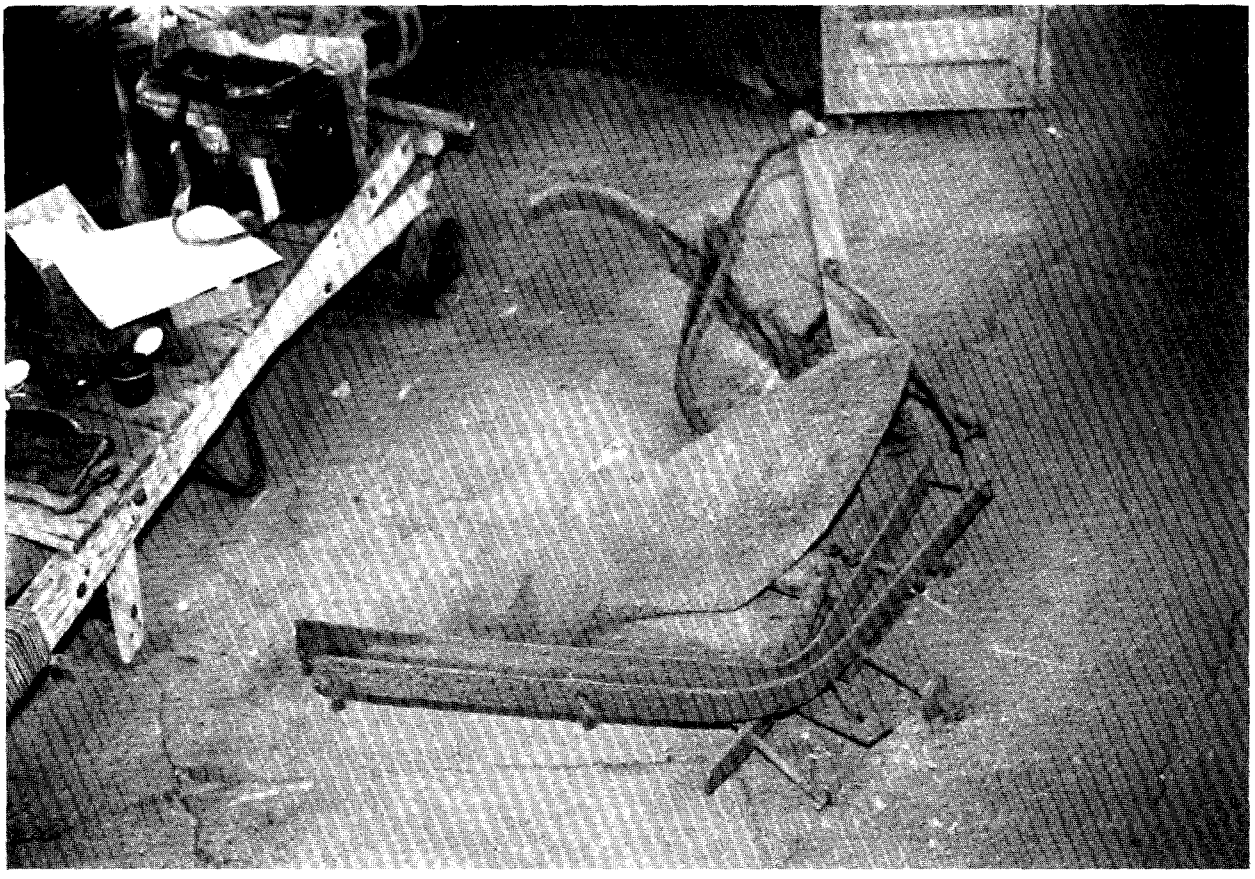


Figure 115. Plow Remnants at Center Floor of Twine Shed (HS-01-138F) January 1979.

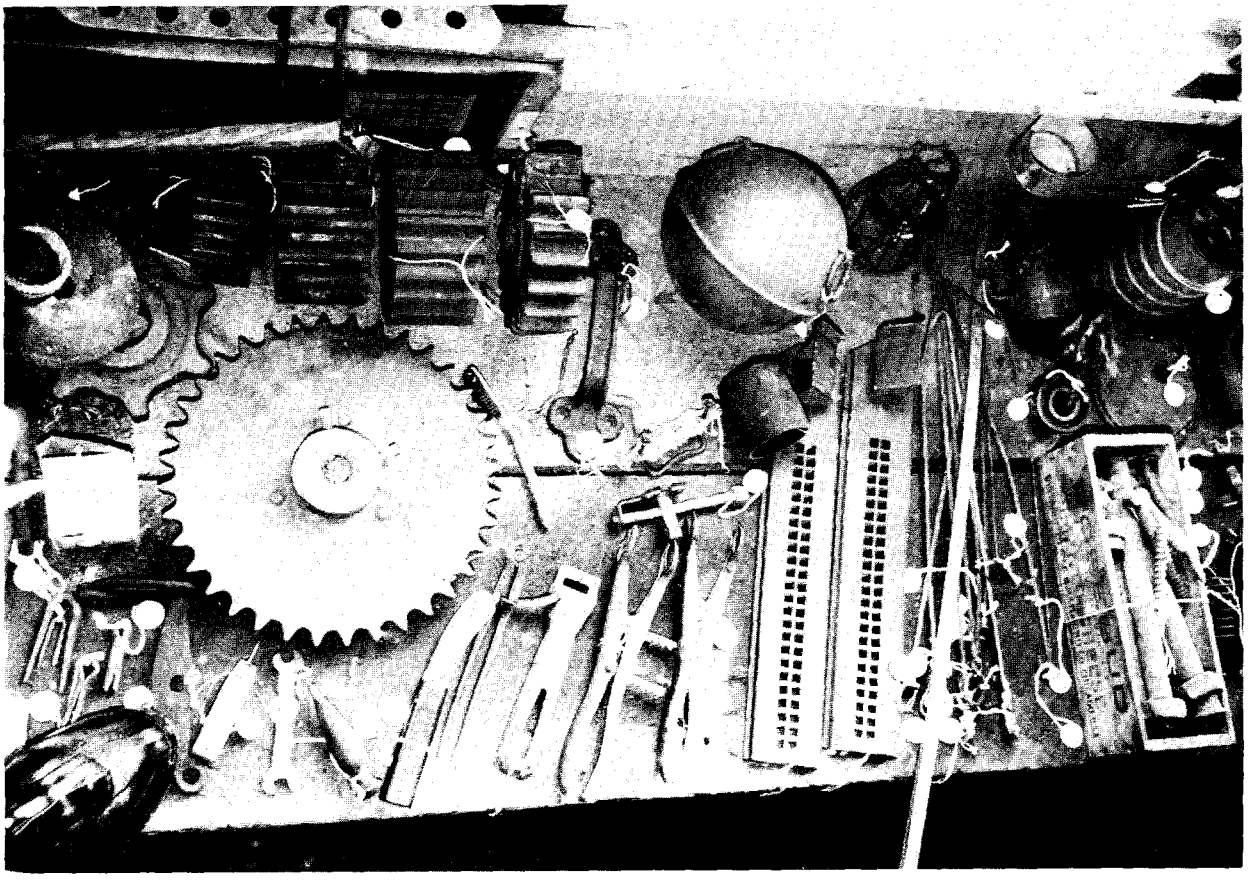


Figure 116. Gear Wheels, Wrenches, and Miscellaneous Artifacts at Center of Eastern Workbench in Twine Shed (HS-01-138F) January 1979.

Figure 117. Center of Lower Level of Eastern Workbench in Twine Shed (HS-01-138F) January 1979. Note spikes and metal bars, also docking cleat at upper right.

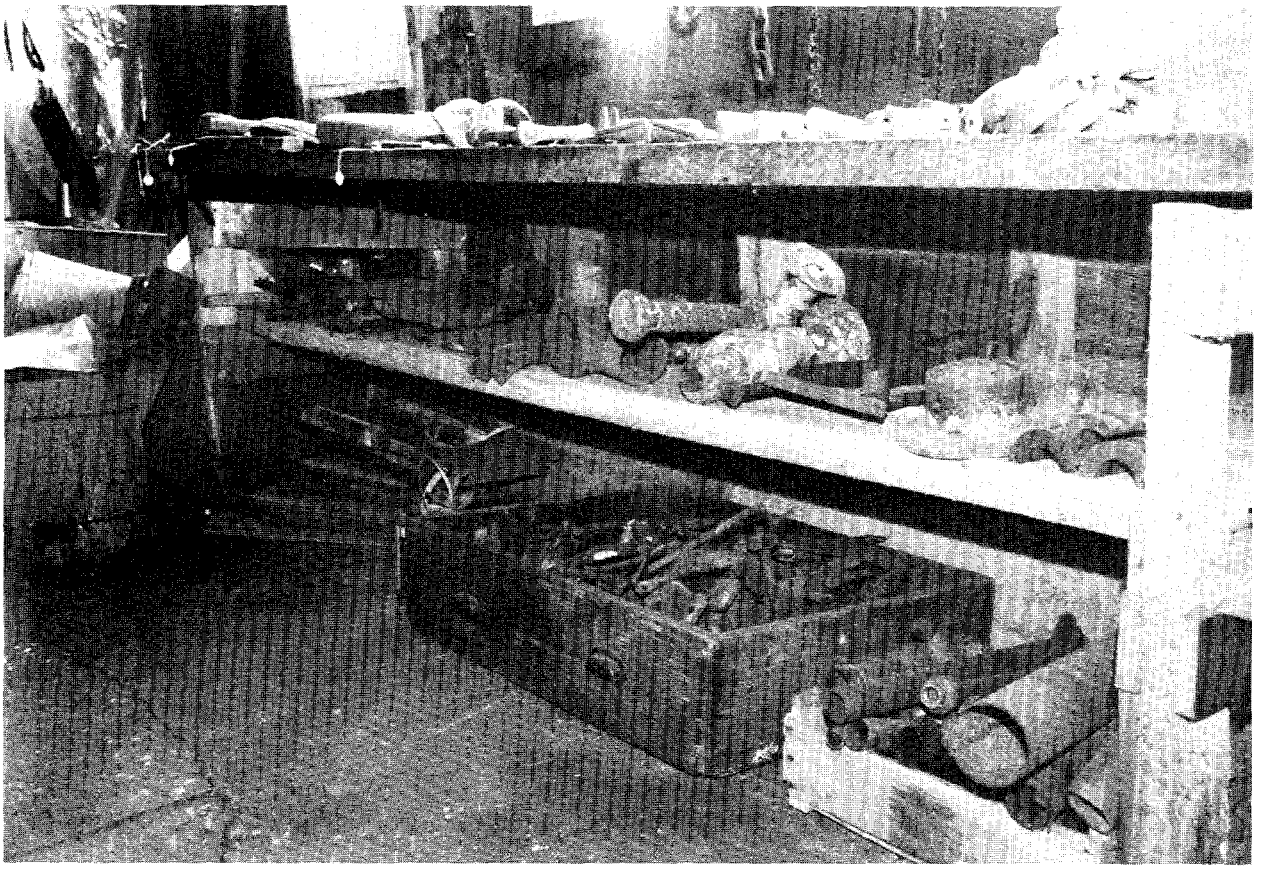


Figure 118. Northern End of Lower Levels to Eastern Workbench of Twine Shed (HS-01-138F), January 1979. Note various types of pipe and heavy metal parts.

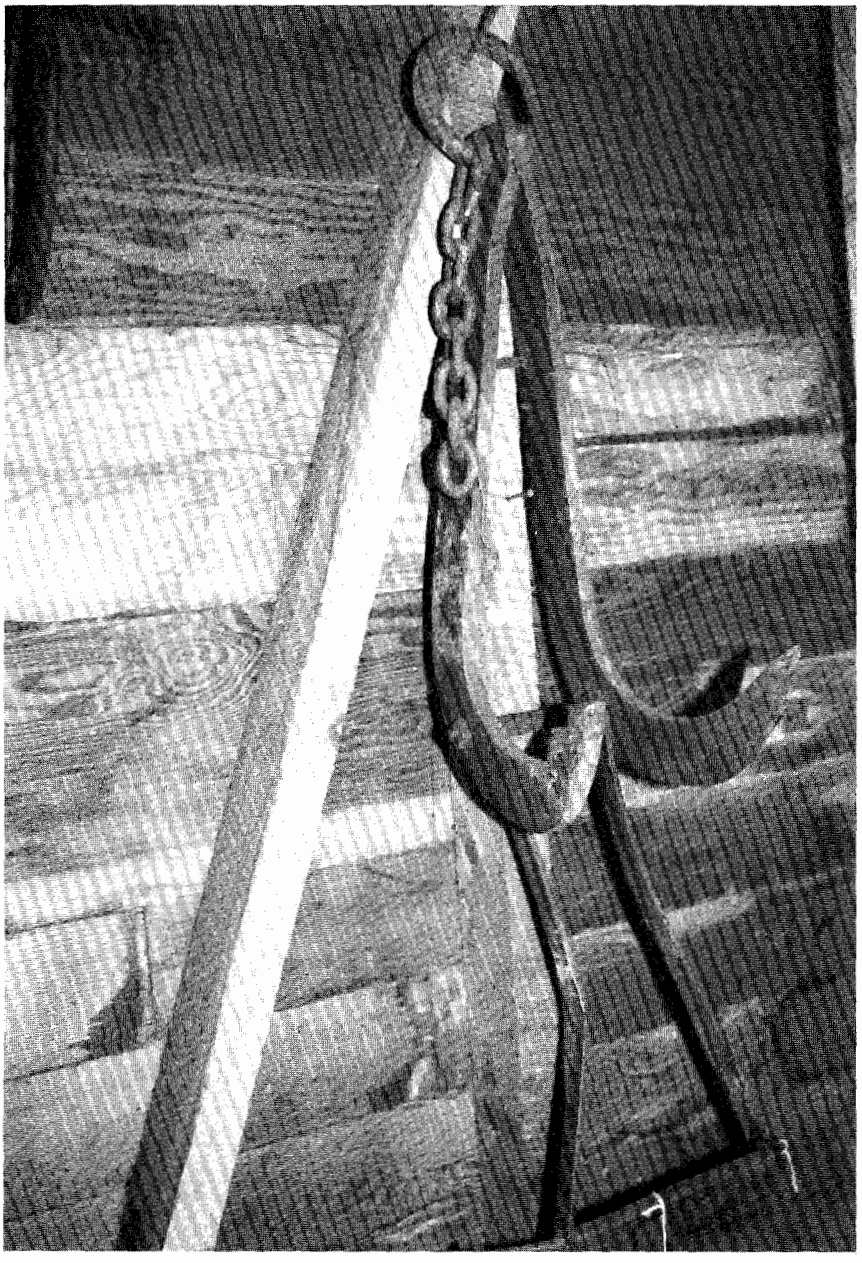


Figure 119. Devil's Claw or Part of Boat Carriage? Hanging on western wall of Twine Shed (HS-01-138F), January 1979.

Figure 120. Northern End of Western Workbench in Twine Shed (HS-01-138F) January 1979. Empty containers, wood preservatives, lubricants, anti-freeze, paints, light fixtures, and, at right, on bench, the fuel reservoir and filament of an old Coleman lantern.

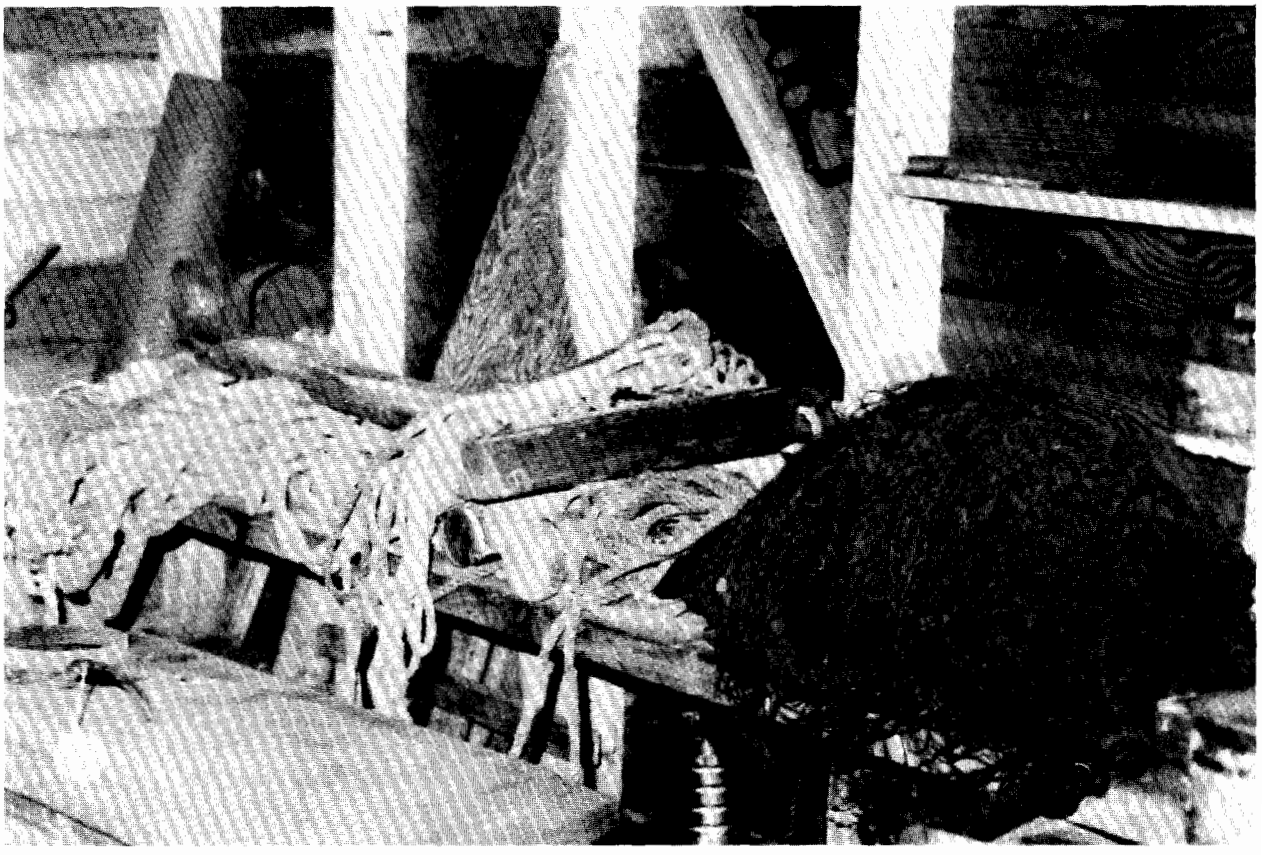


Figure 121. Southwest Corner of Twine Shed (HS-01-138F), September 1978. Odd pieces of mooring line with homemade wooden floats,. a net remnant, and several pieces of stovepipe directly in the corner.

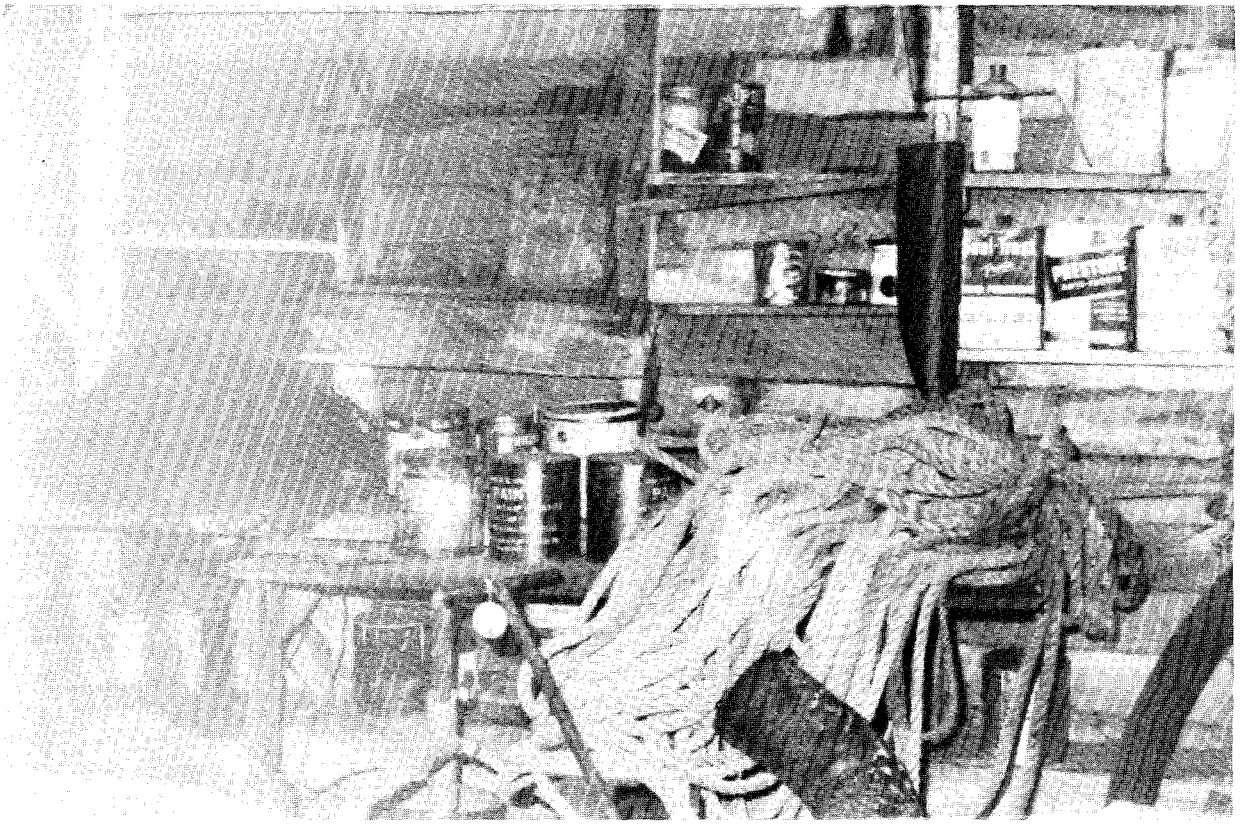


Figure 122. End of Western Workbench in Twine Shed (HS-01-138F) September 1978. Length of heavy rope, net remnant, paints, preservatives, anti-freeze, cattle fly-spray, and some empty containers. Note stovepipe elbow in right foreground and curved wooden floatlike artifact hanging above it on the wall.

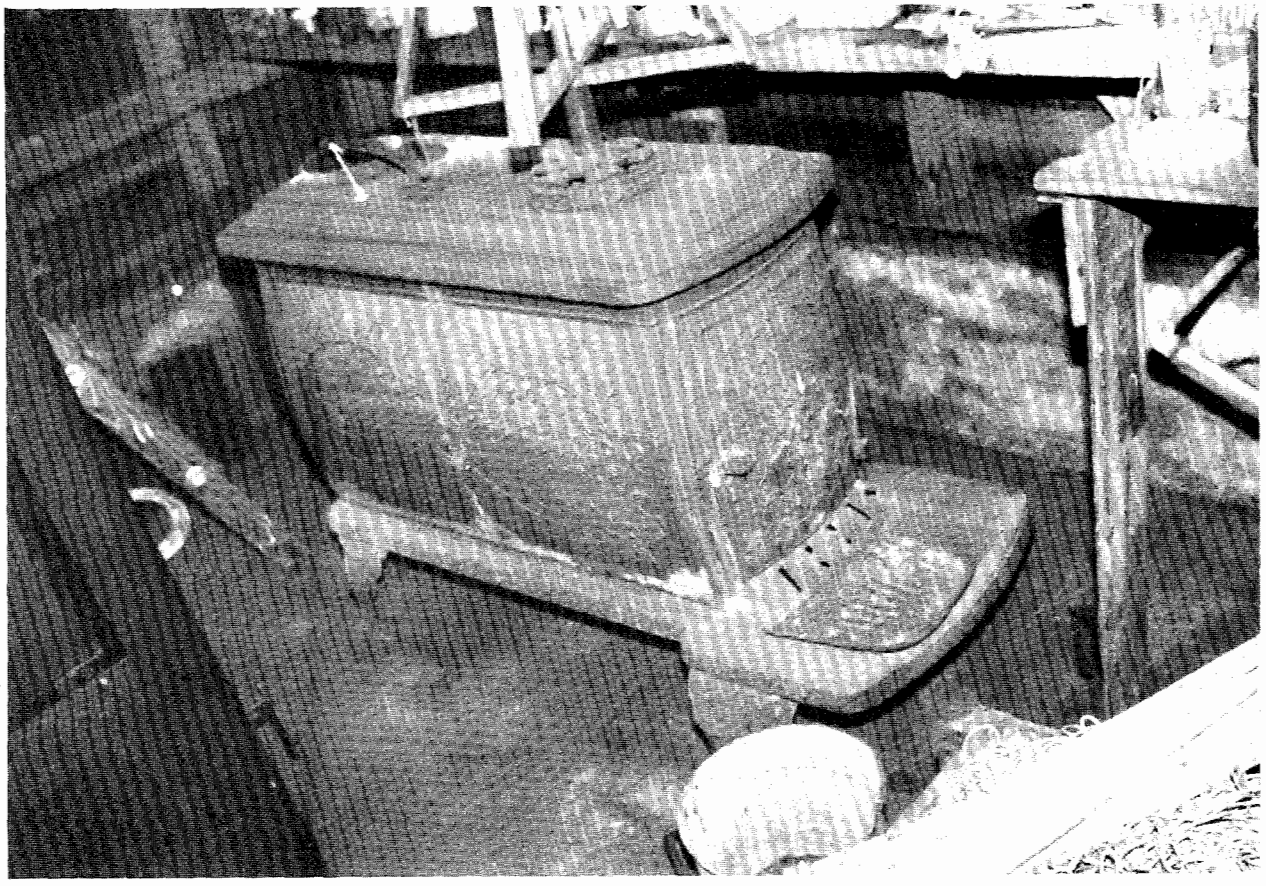


Figure 123. Cooking Stove in Southwest Corner of Twine Shed, (HS-01-138F), January 1979. This stove originally served in the Ice House (HS-01-138B) during the 1930's.

Figure 124. Southwest Corner of Twine Shed (HS-01-138F) January 1979. Lard can, paint cans, preservatives, homemade wooden floats and several lengths of line. Note spindle-like wooden frame at right.

Figure 125. Center of Western Workbench in Twine Shed (HS-01-138F) January 1979. Empty containers, paints, preservatives, anti-freeze, a few lengths of line and several homemade wooden floats.

Figure 126. Twine Shed (HS-01-138F), From the Northwest, September 1978. Note the absence of windows along the southern half of the west wall.

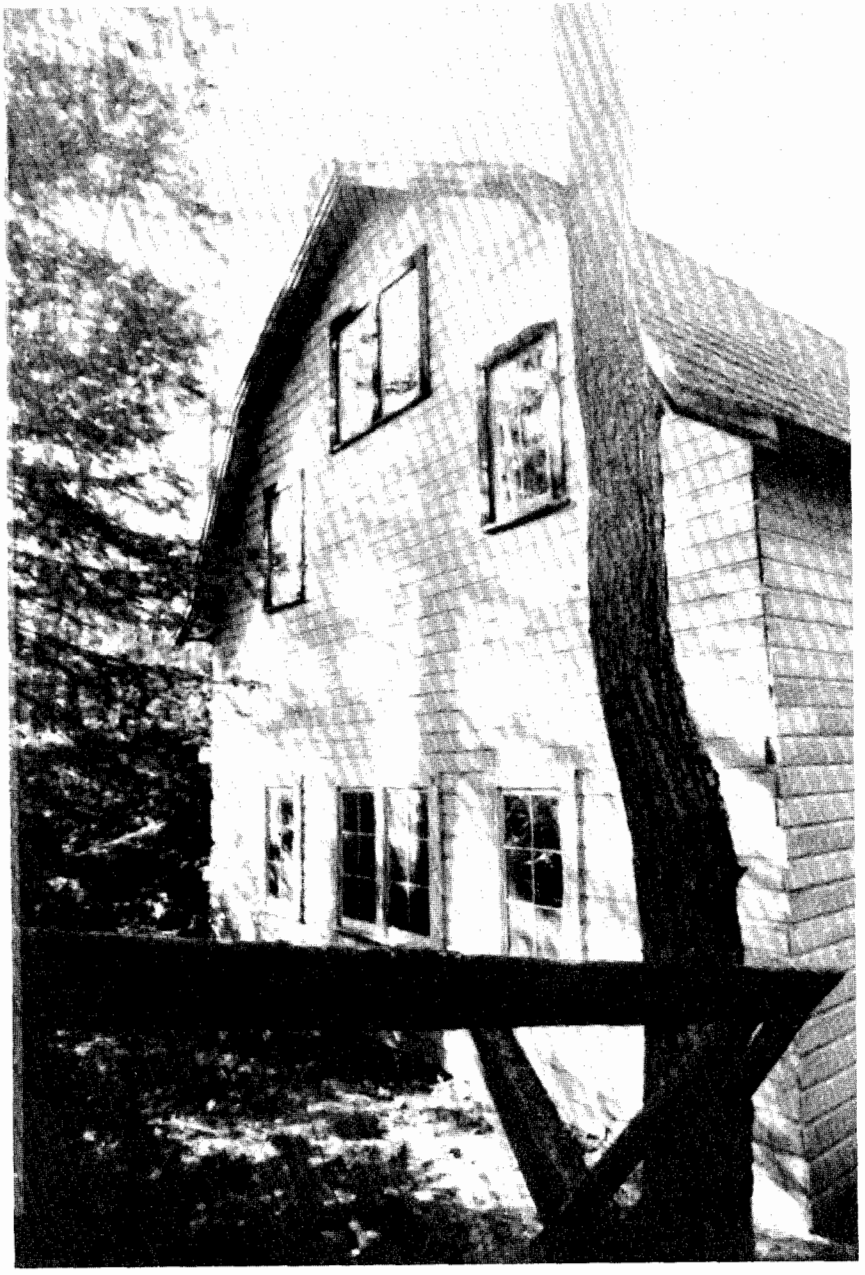


Figure 127. South Wall of the Twine Shed (HS-01-138F) September 1978. Note the generous placement of windows both on ground level and loft.

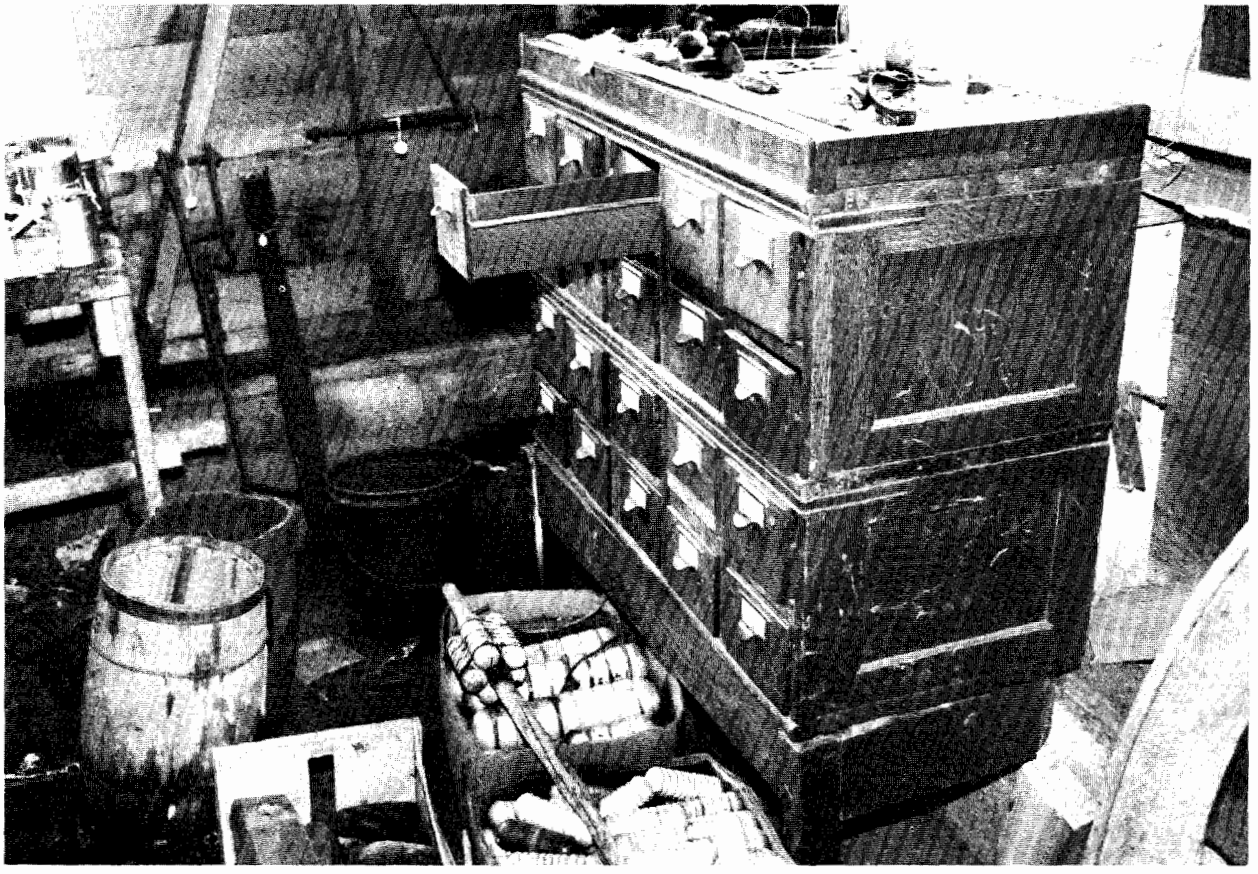


Figure 128. Southeast Corner of Twine Shed (HS-01-138F). Note two half-barrels at left and file cabinet at right.

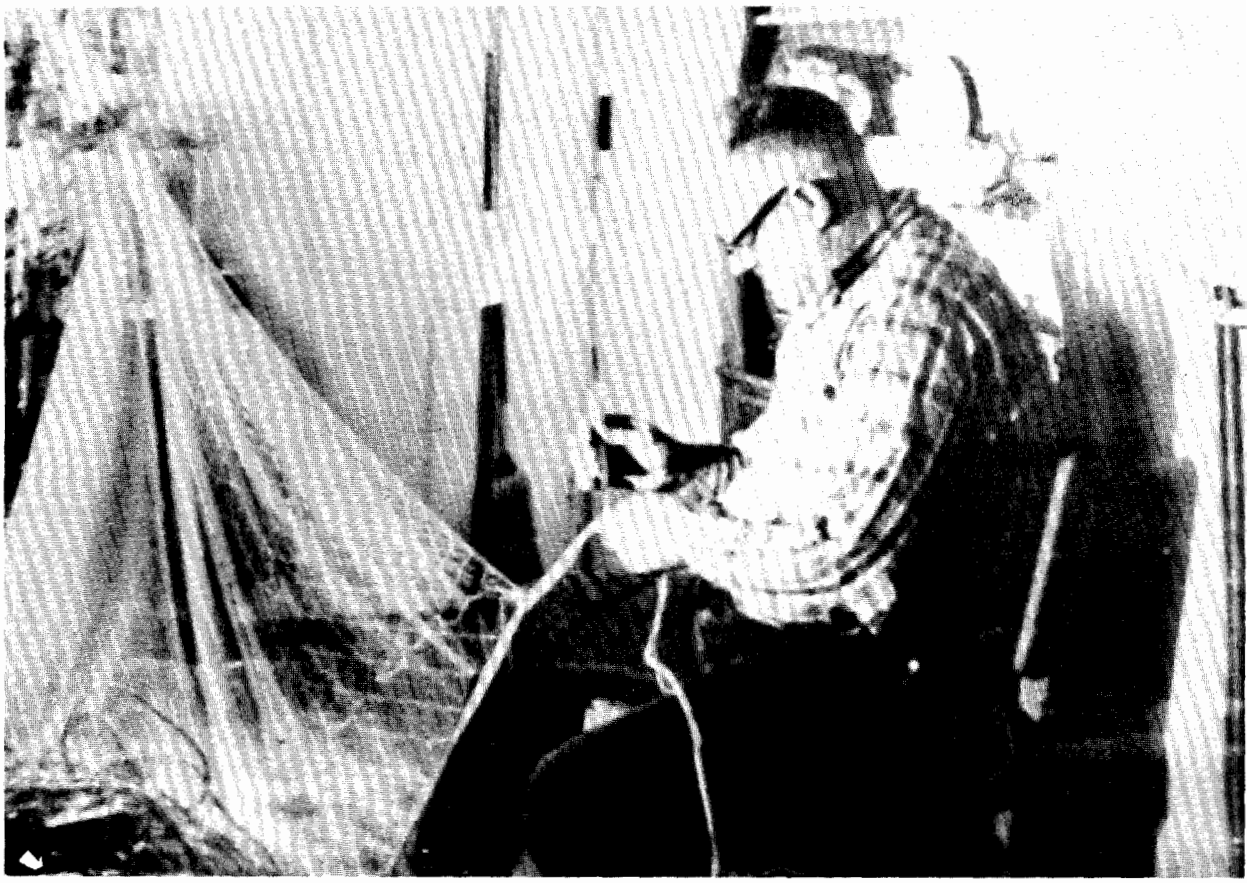
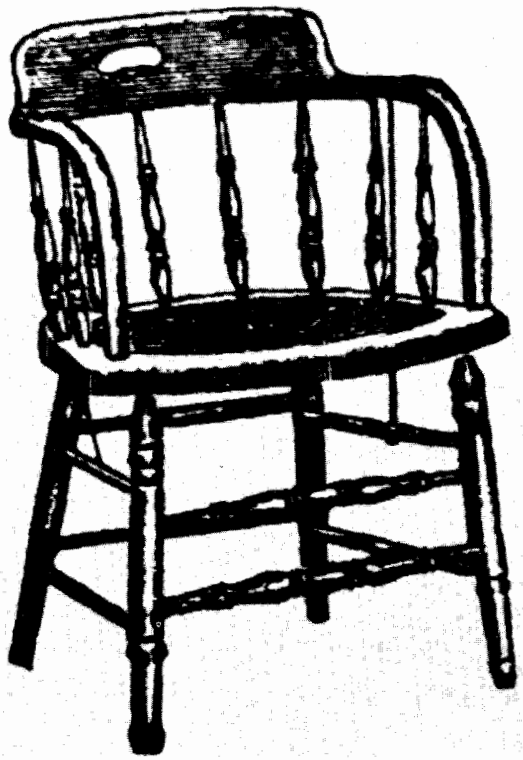
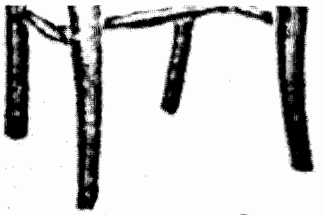


Figure 129. Mel Erickson of Bayfield Mending Gill-nets. Mr. Erickson's son, John, presently bases his fishing boat at the Hokenson dock at Little Sand Bay. Photo courtesy of the Bayfield County Historical Society.

No. 1R38 Leather Seat.
Price, each..... 2.95





Our $1.50 University Chair.

No. 1R200 This Chair is thoroughly well made from very fine selected oak. The back and arms are extra well braced by means of iron rods passing through the seat. The chair is decidedly comfortable, and after being once used is considered an absolute necessity. Wood seat, perfectly finished.

Our special price $1.50

Bentwood Chair

Comfortable, serviceable, sturdy. Will answer every home need. Also in demand for halls, cafeterias and any place a strong chair is needed. Back legs and back posts are one continuous tapered piece. Back legs steel braced to circular frame. All parts screwed. Seat, 16 in. diameter. Ht. of back, 18½ in. Made of solid oak, finished golden, or hardwood in mahogany or walnut finish. Shipping weight, 9 pounds.

1K80—Golden gloss ..$3.55
Mahogany finish....$3.60
Walnut finish..... 3.65

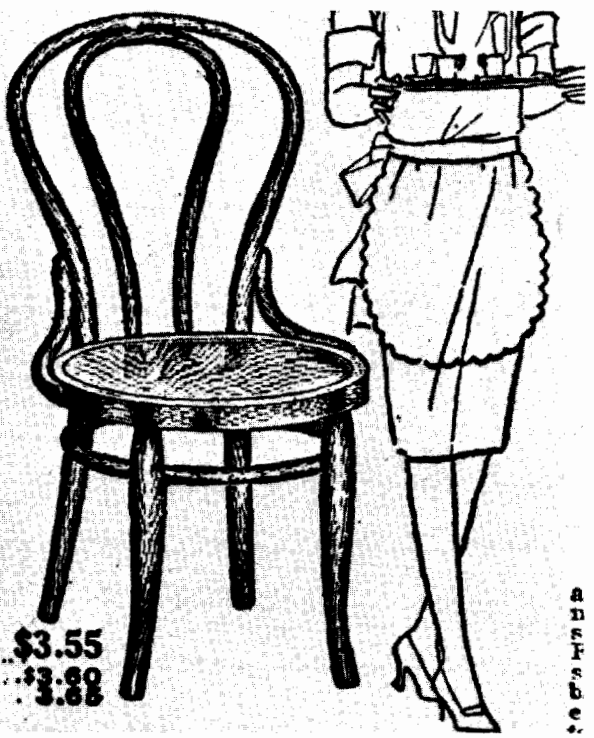


Figure 130. Two Popular Chair Types Over Several Generations. Top: Illustration from 1902 Edition of The Sears Roebuck Catalogue (New York: Bounty Books 1969), 746. Bottom: Illustrations from 1927 Edition of the Sears Roebuck Catalogue (New York: Bounty Books 1970), 848.

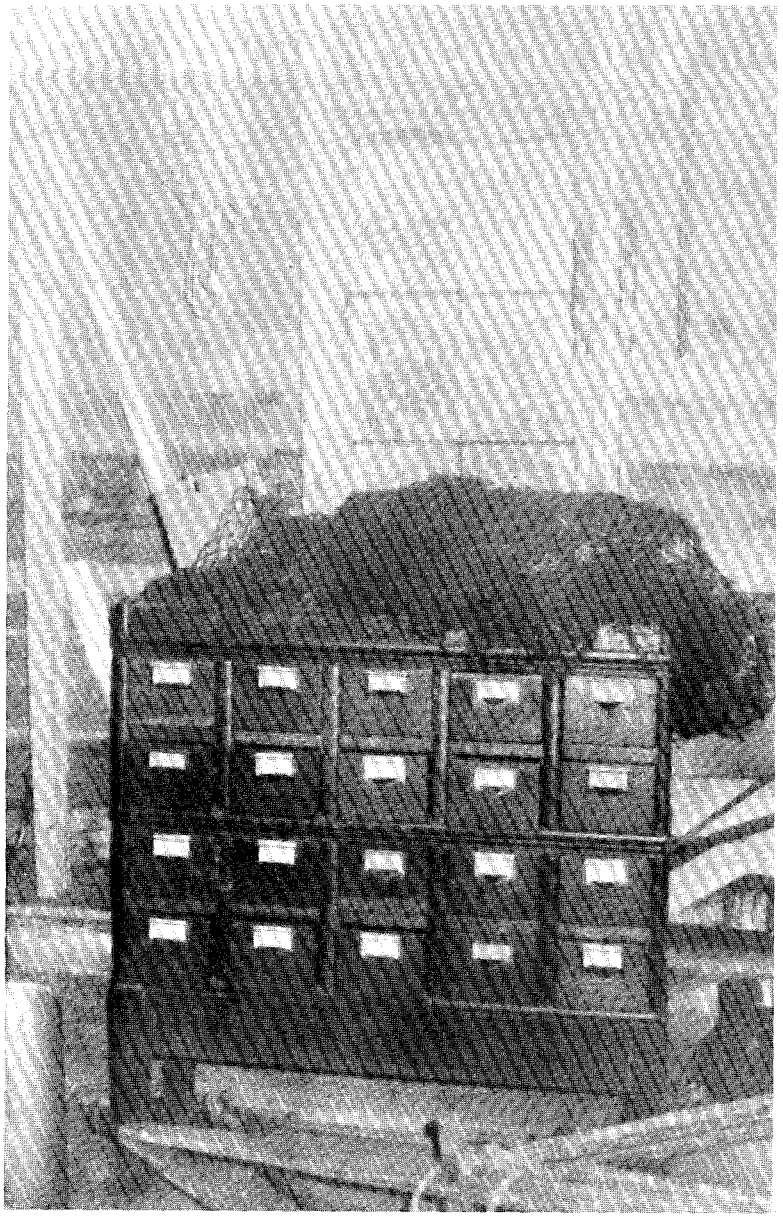


Figure 131. File Cabinet in Southwest Corner of Twine Shed (HS-01-138F) September 1978.

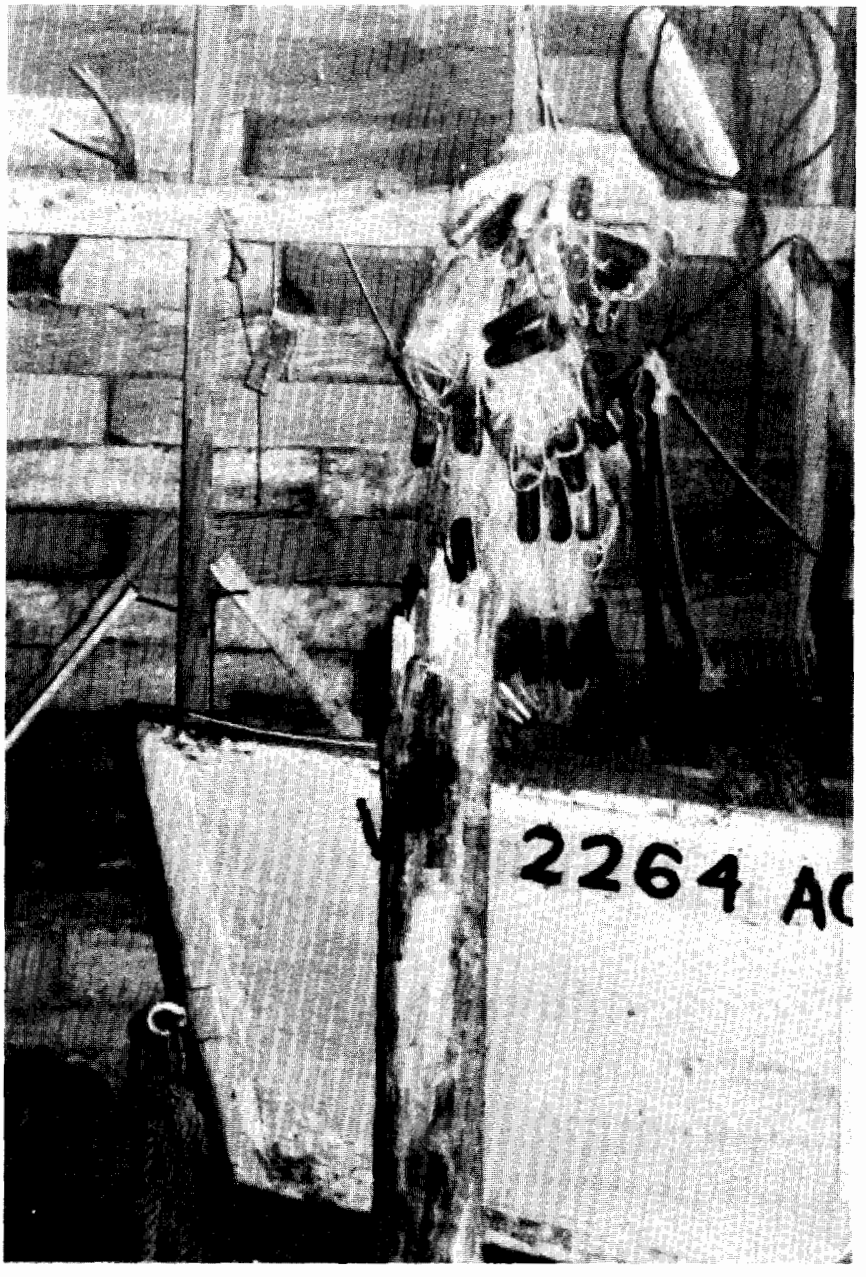


Figure 132. Northwest Quadrant of Twine Shed (HS-01-138F) September 1978. Discarded gill-net at center, animal trap at upper right, half of drag-rake at right center, prow of pound boat at bottom. Part of antler visible at upper left.

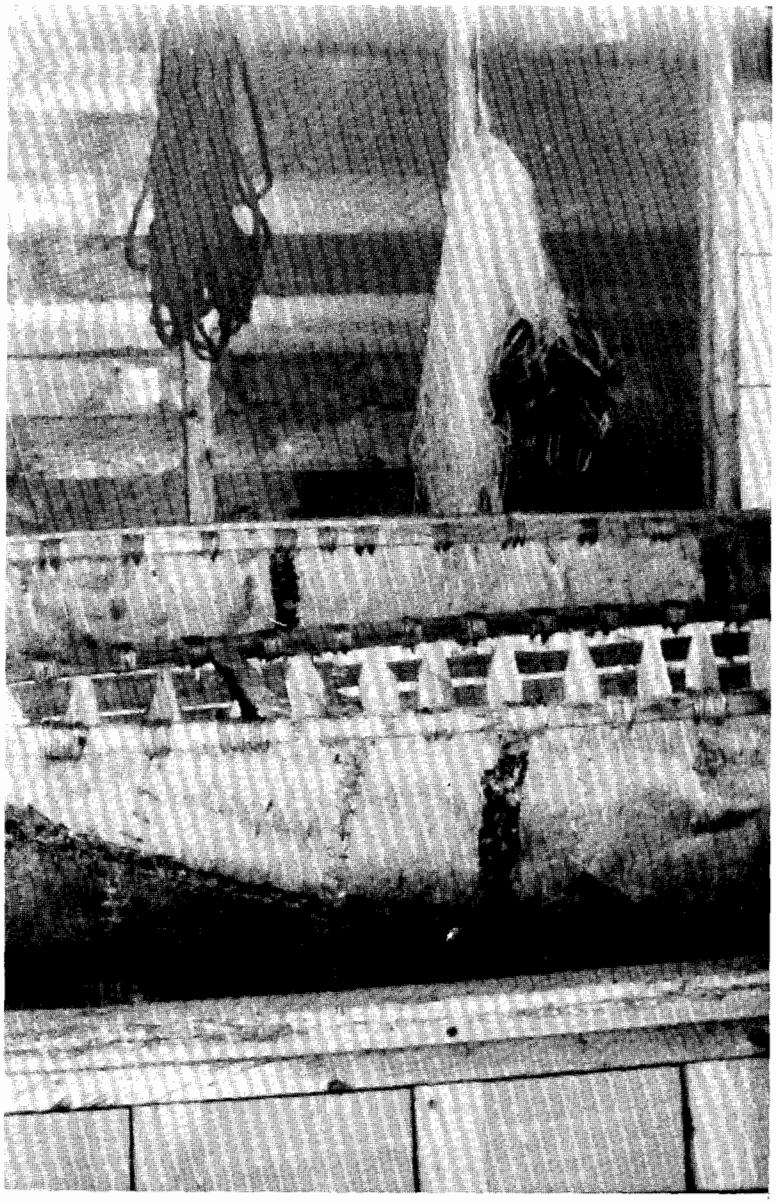


Figure 133. Northwest Quadrant of Twine Shed (HS-01-138F) September 1978. Discarded gill-net on wall at right, a length of line to the left and a portion of two Chippewa birch-bark canoes at center.

Figure 134. Hokenson Fish Box Holding Edging Twine For Gill-nets. Southwest corner of Twine Shed (HS-01-138F) January 1979.

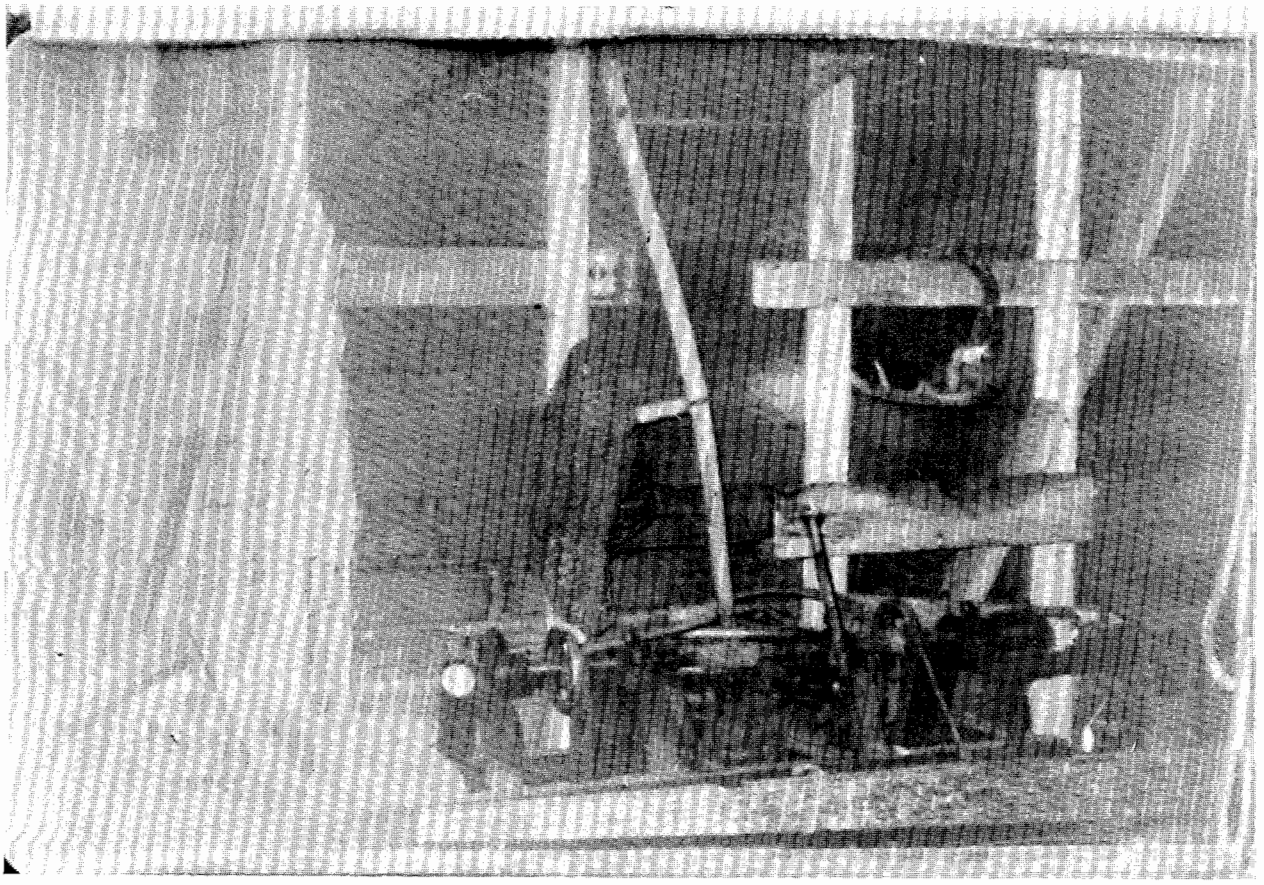


Figure 135. Center of Western Wall of Twine Shed (HS-01-138F) Above Wood Lathe, September 1978. Note scythe at center, antlers to the right, pieces of discarded netting to left.

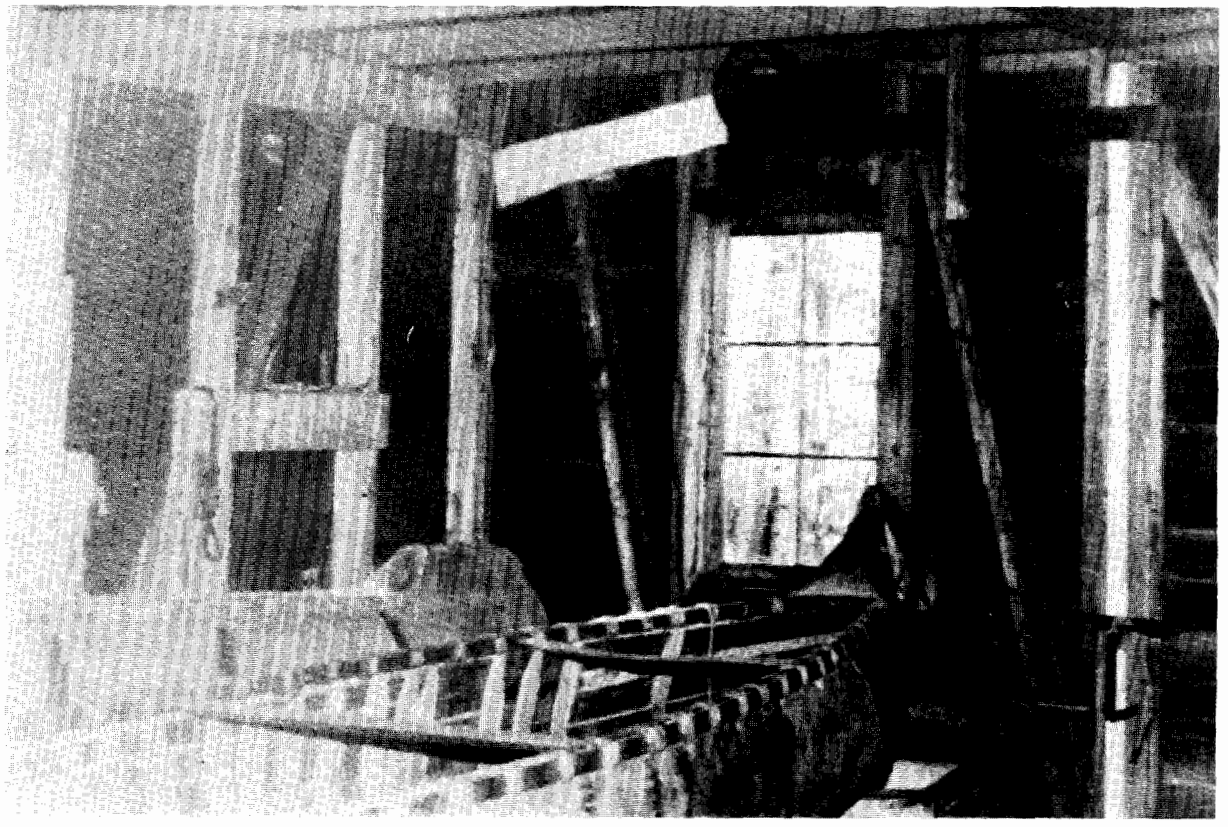


Figure 136. Northwest Corner of Twine Shed (HS-01-138F) September 1978. Small antler sits on horizontal beam at left center. Two Chippewa birchbark canoes in left foreground.

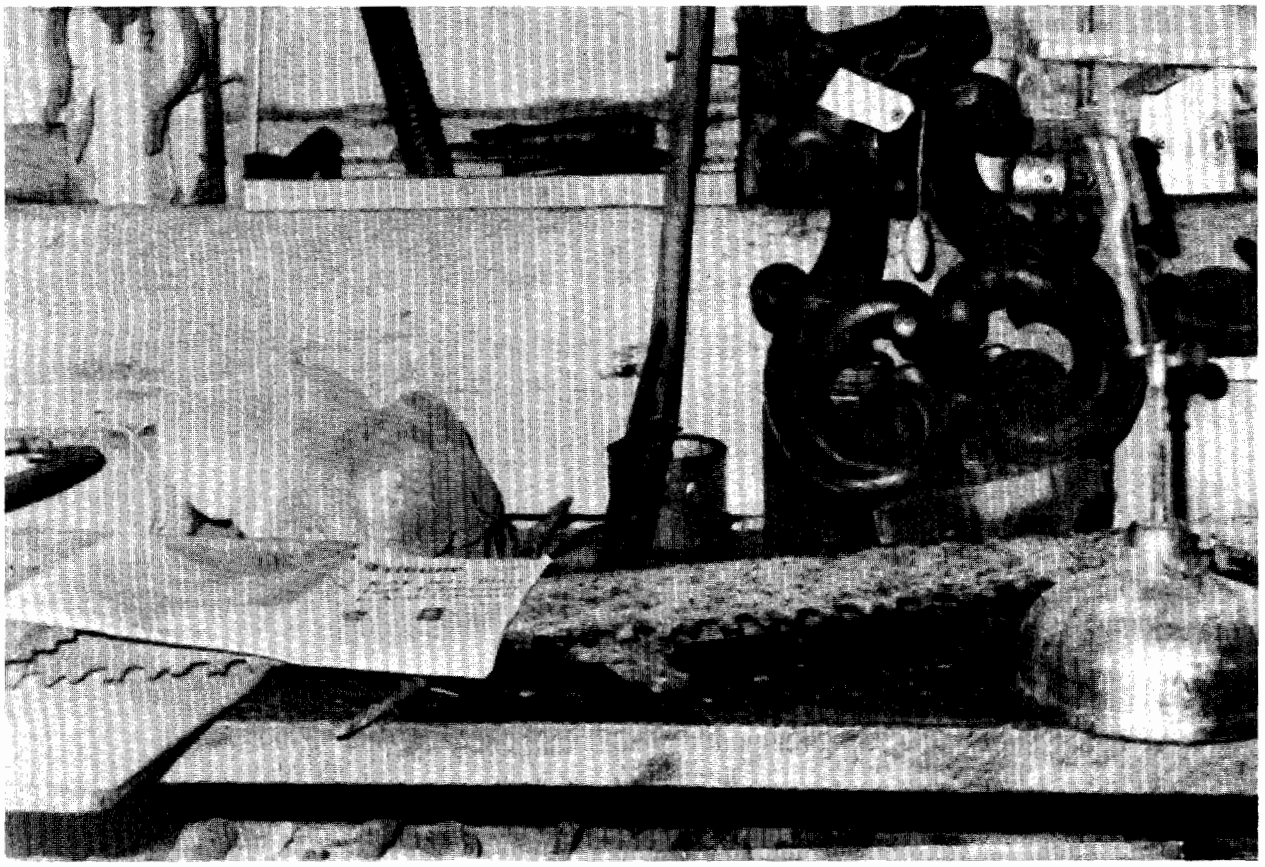


Figure 137. Western Workbench in Twine Shed (HS-01-138F) September 1978. Note fancy chair-back at right, old Coleman lantern in right foreground, ice saw on bench, homemade anchors at left.

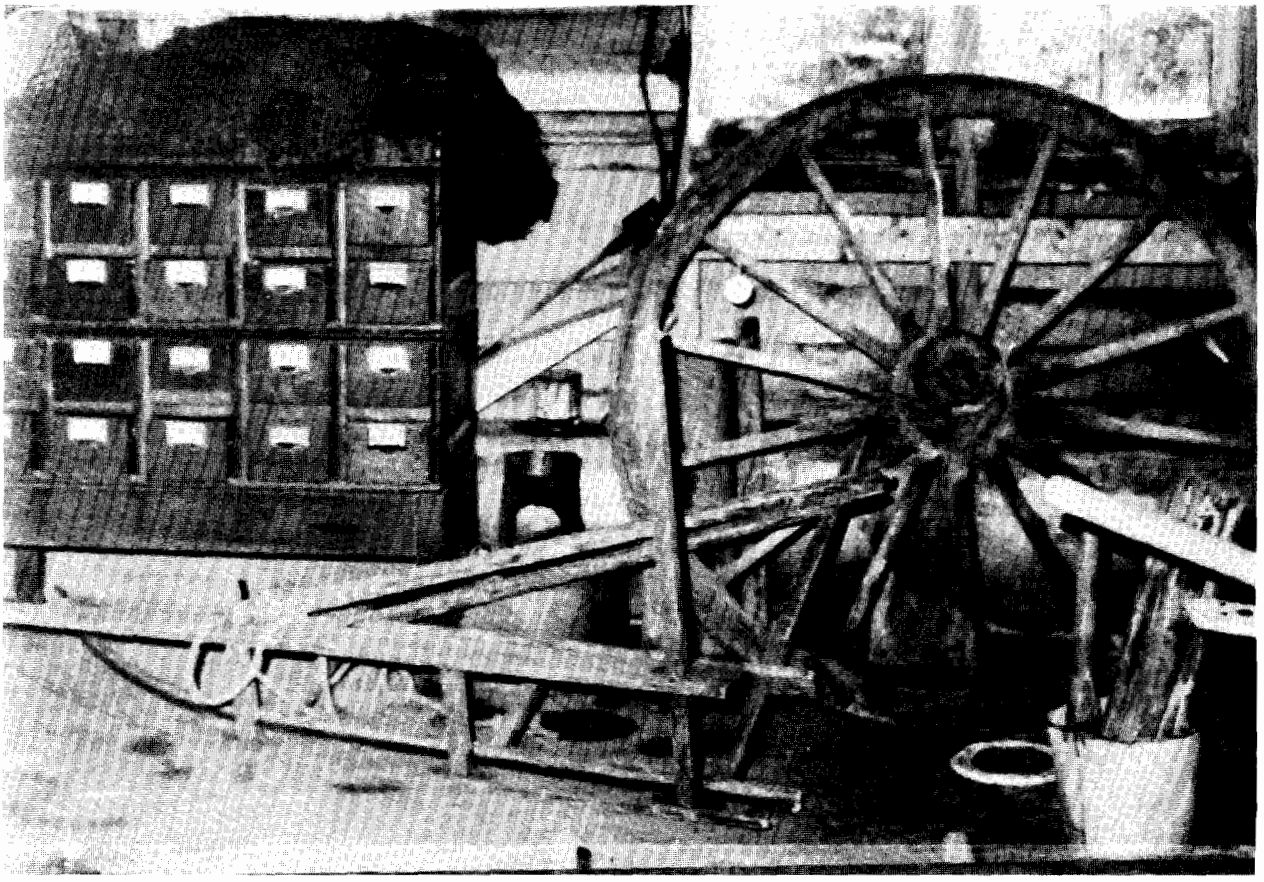


Figure 138. Southeast Quadrant of Twine Shed (HS-01-138F) September 1978. Large wagon wheel at right, sled-like frame on floor at left, file cabinet in corner.

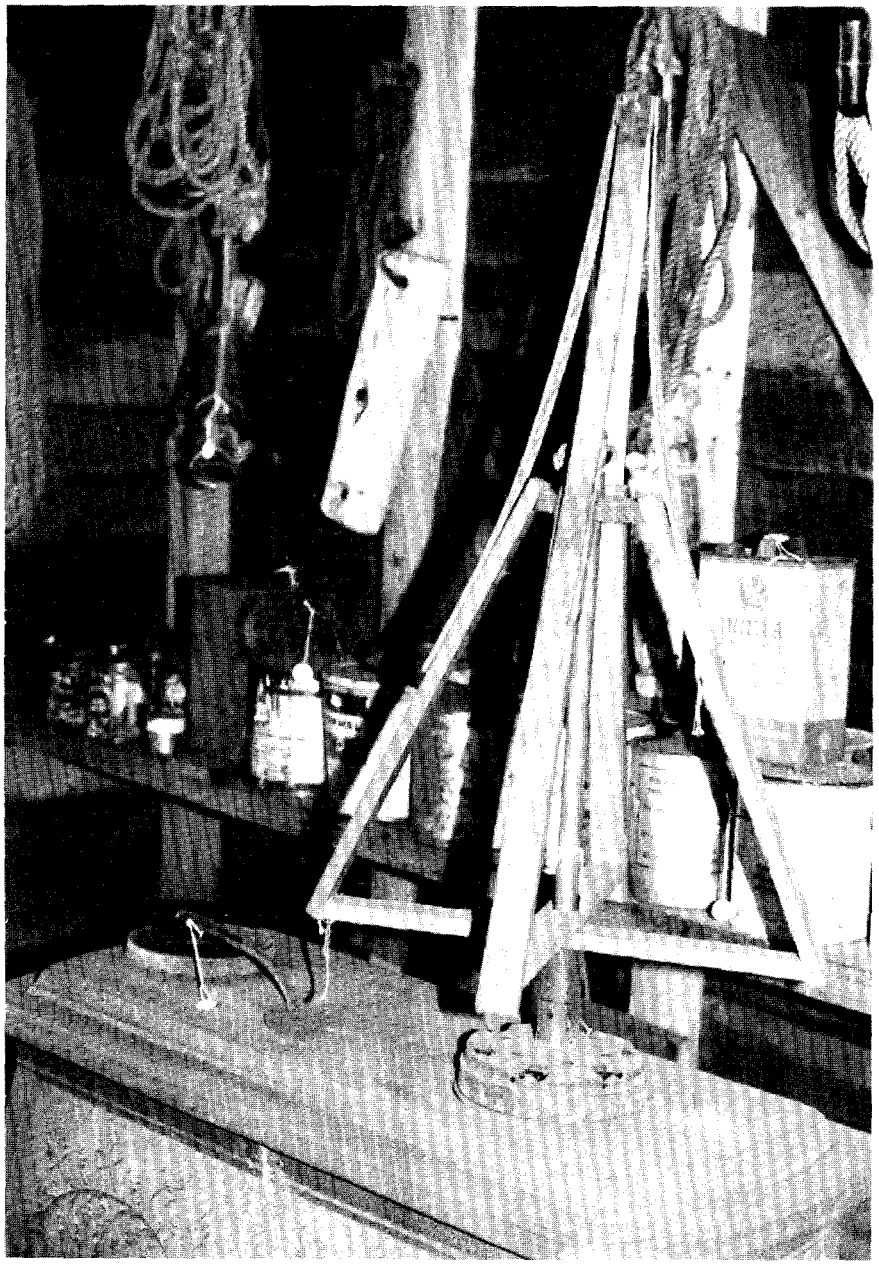


Figure 139. Wooden Frame Resembling a Twine Spindle Atop Cook Stove in Southwest Corner of Twine Shed (HS-01-138F) January 1979. Note homemade floats, and line hanging on the wall.

Figure 140. Bicycle Type Chains Hanging on West Wall of Twine Shed (HS-01-138F) September 1979. Firewood in foreground.

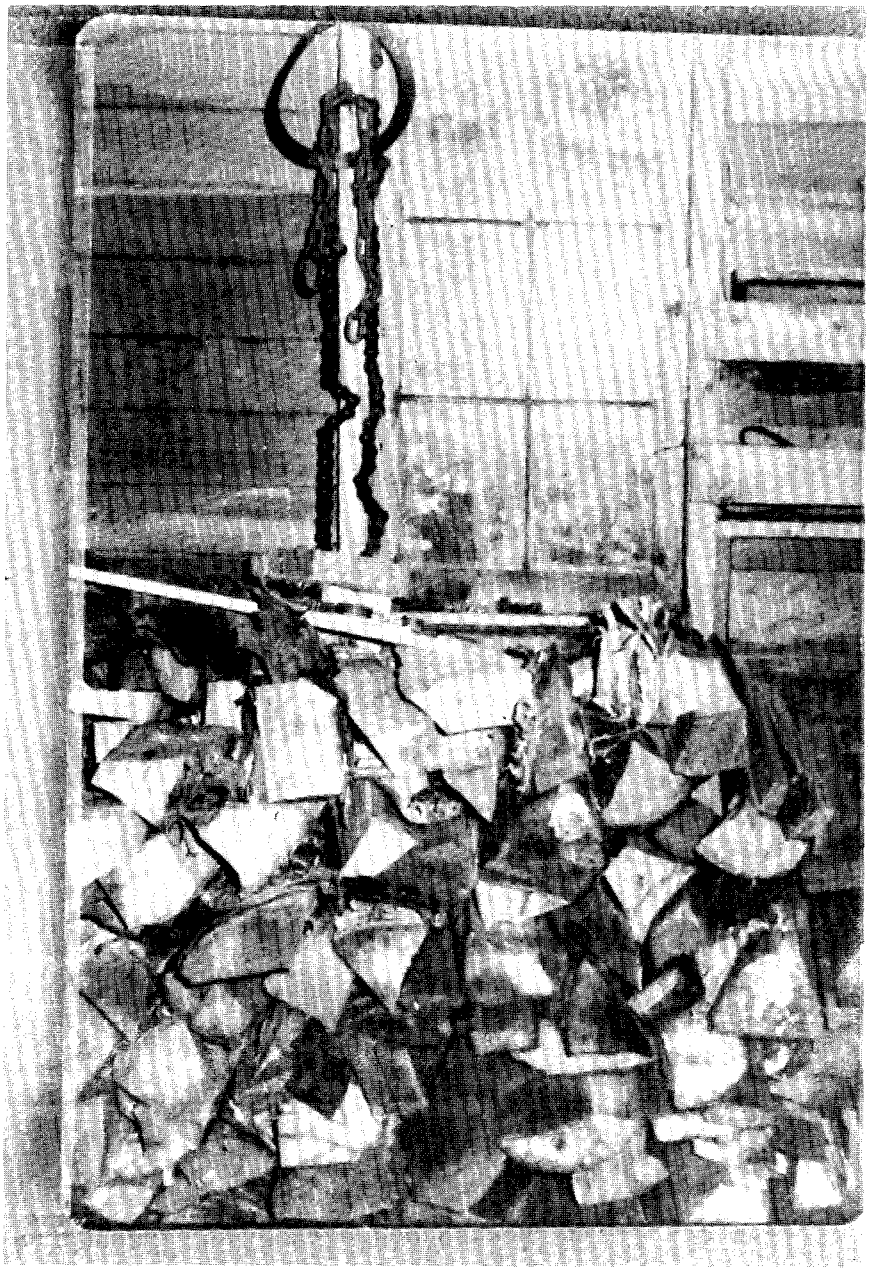
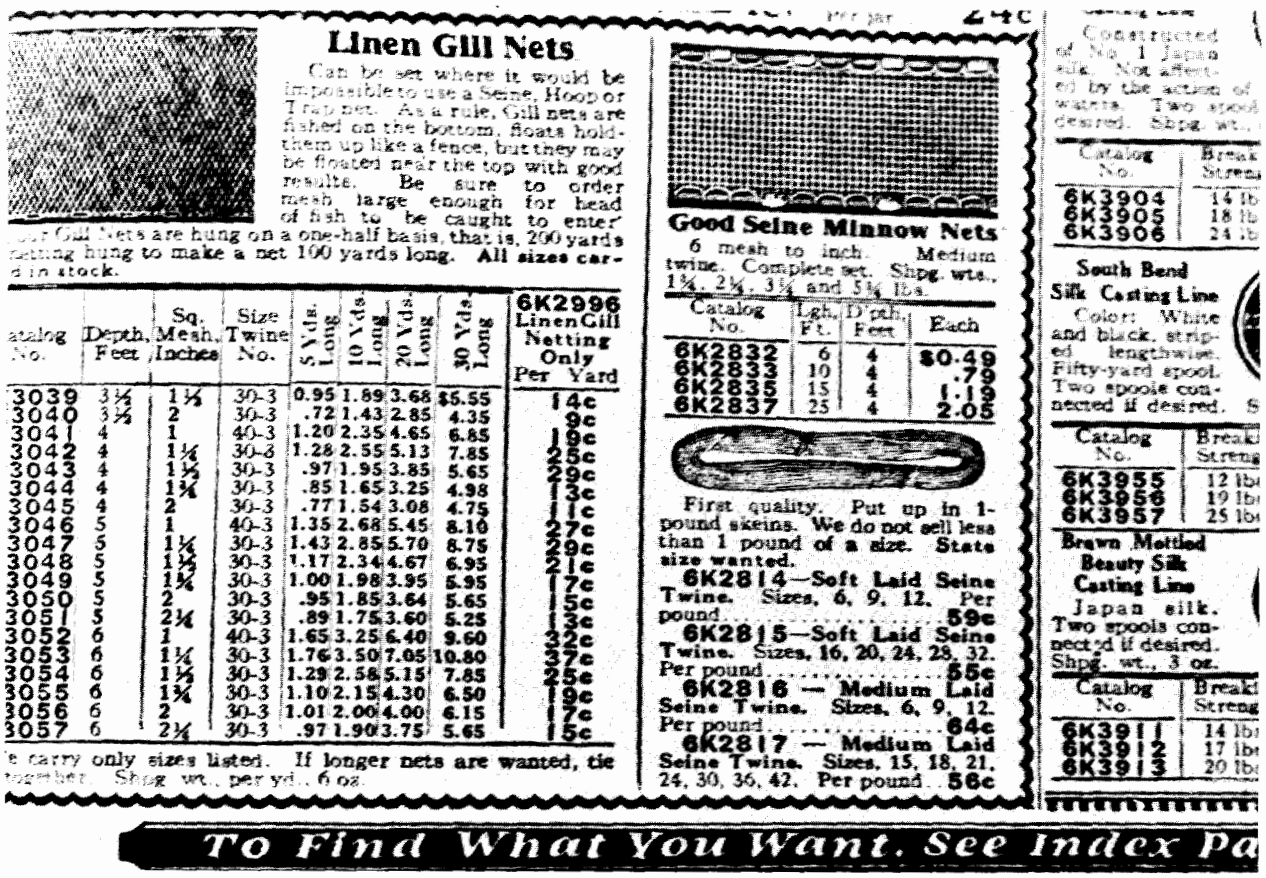


Figure 141. Link Chain and Bicycle Type Chain Hanging to Left of Window in Northwest Quadrant of Twine Shed (HS-01-138F) September 1978. Firewood in foreground.



Linen Gill Nets

Can be set where it would be impossible to use a Seine, Hoop or Trap net. As a rule, Gill nets are fished on the bottom, floats holding them up like a fence, but they may be floated near the top with good results. Be sure to order mesh large enough for head of fish to be caught to enter. Gill Nets are hung on a one-half basis, that is, 200 yards netting hung to make a net 100 yards long. **All sizes carried in stock.**

Catalog No.	Depth, Feet	Sq. Mesh, Inches	Size Twine No.	5 Yds. Long	10 Yds. Long	20 Yds. Long	30 Yds. Long	6K2996 Linen Gill Netting Only Per Yard
3039	3½	1½	30-3	0.95	1.89	3.68	$5.55	14c
3040	3½	2	30-3	.72	1.43	2.85	4.35	9c
3041	4	1	40-3	1.20	2.35	4.65	6.85	19c
3042	4	1¼	30-3	1.28	2.55	5.13	7.85	25c
3043	4	1½	30-3	.97	1.95	3.85	5.65	29c
3044	4	1¾	30-3	.85	1.65	3.25	4.98	13c
3045	4	2	30-3	.77	1.54	3.08	4.75	11c
3046	5	1	40-3	1.35	2.68	5.45	8.10	27c
3047	5	1¼	30-3	1.43	2.85	5.70	8.75	29c
3048	5	1½	30-3	1.17	2.34	4.67	6.95	21c
3049	5	1¾	30-3	1.00	1.98	3.95	5.95	17c
3050	5	2	30-3	.95	1.85	3.64	5.65	15c
3051	5	2¼	30-3	.89	1.75	3.60	5.25	13c
3052	6	1	40-3	1.65	3.25	6.40	9.60	32c
3053	6	1¼	30-3	1.76	3.50	7.05	10.80	37c
3054	6	1½	30-3	1.29	2.58	5.15	7.85	25c
3055	6	1¾	30-3	1.10	2.15	4.30	6.50	19c
3056	6	2	30-3	1.01	2.00	4.00	6.15	17c
3057	6	2¼	30-3	.97	1.90	3.75	5.65	15c

We carry only sizes listed. If longer nets are wanted, tie together. Shpg. wt., per yd., 6 oz.

Good Seine Minnow Nets

6 mesh to inch. Medium twine. Complete set. Shpg. wts., 1¾, 2¼, 3¼ and 5¼ lbs.

Catalog No.	Lgh. Ft.	D'pth, Feet	Each
6K2832	6	4	$0.49
6K2833	10	4	.79
6K2835	15	4	1.19
6K2837	25	4	2.05

First quality. Put up in 1-pound skeins. We do not sell less than 1 pound of a size. **State size wanted.**

6K2814—Soft Laid Seine Twine. Sizes, 6, 9, 12. Per pound **59c**

6K2815—Soft Laid Seine Twine. Sizes, 16, 20, 24, 28, 32. Per pound **55c**

6K2816 — Medium Laid Seine Twine. Sizes, 6, 9, 12. Per pound **64c**

6K2817 — Medium Laid Seine Twine. Sizes, 15, 18, 21, 24, 30, 36, 42. Per pound .. **58c**

Constructed of No. 1 Japan silk. Not affected by the action of waters. Two spools desired. Shpg. wt.,

Catalog No.	Break Strena
6K3904	14 lb
6K3905	18 lb
6K3906	24 lb

South Bend Silk Casting Line

Color: White and black, striped lengthwise. Fifty-yard spool. Two spools connected if desired.

Catalog No.	Breaki Streng
6K3955	12 lb
6K3956	19 lb
6K3957	25 lb

Brown Mottled Beauty Silk Casting Line

Japan silk. Two spools connected if desired. Shpg. wt., 3 oz.

Catalog No.	Breaki Streng
6K3911	14 lb
6K3912	17 lb
6K3913	20 lb

To Find What You Want, See Index Pa

Figure 142. In 1927 Sears Even Advised Fishermen How to Set and Put Together Gill-nets. 1927 Edition of The Sears, Roebuck Catalogue (New York: Bounty Books, 1970), p. 515; hereafter cited as 1927 Sears Catalogue.

Figure 143. Sears Sold Kegs That Could Have Been Used For Shipping Salted Herring; But the Hokensons Either Bought Their Half-barrels From a Cooperage Firm in Bayfield or Duluth. 1927 Sears Catalogue. p. 968.

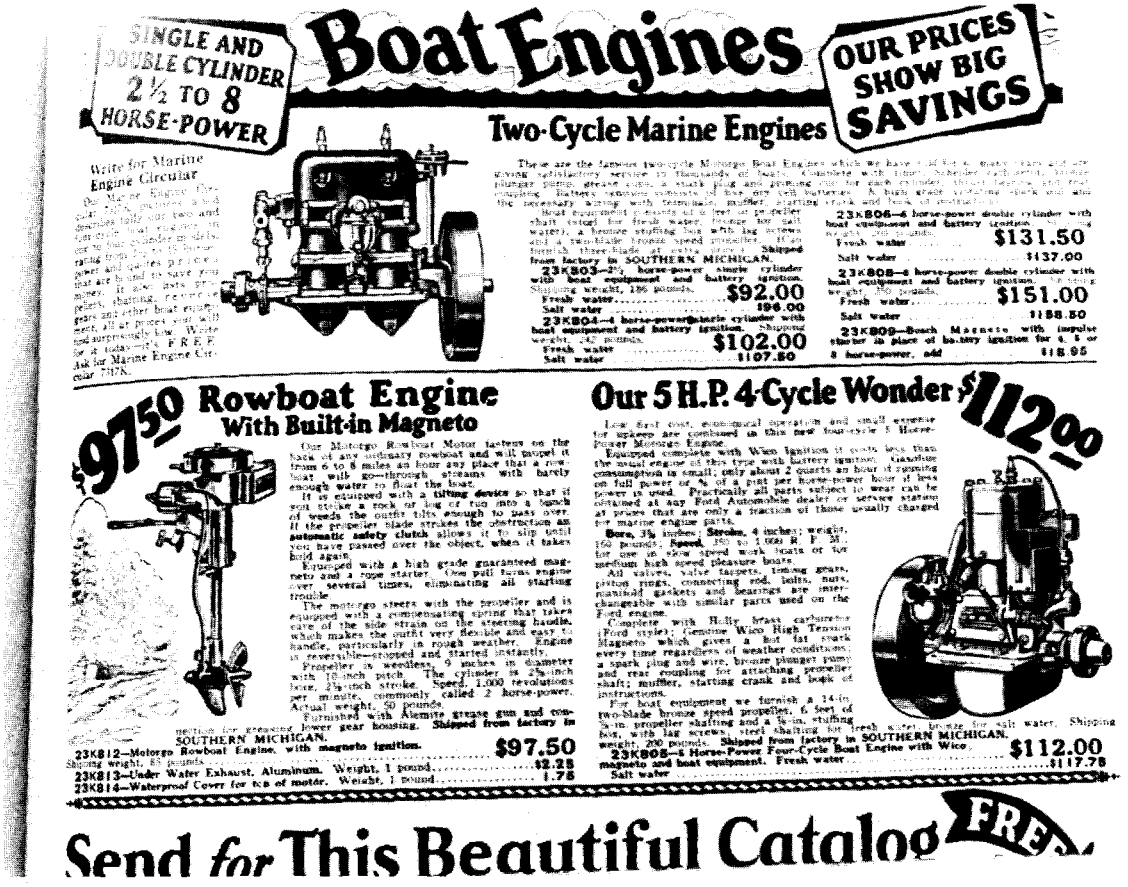
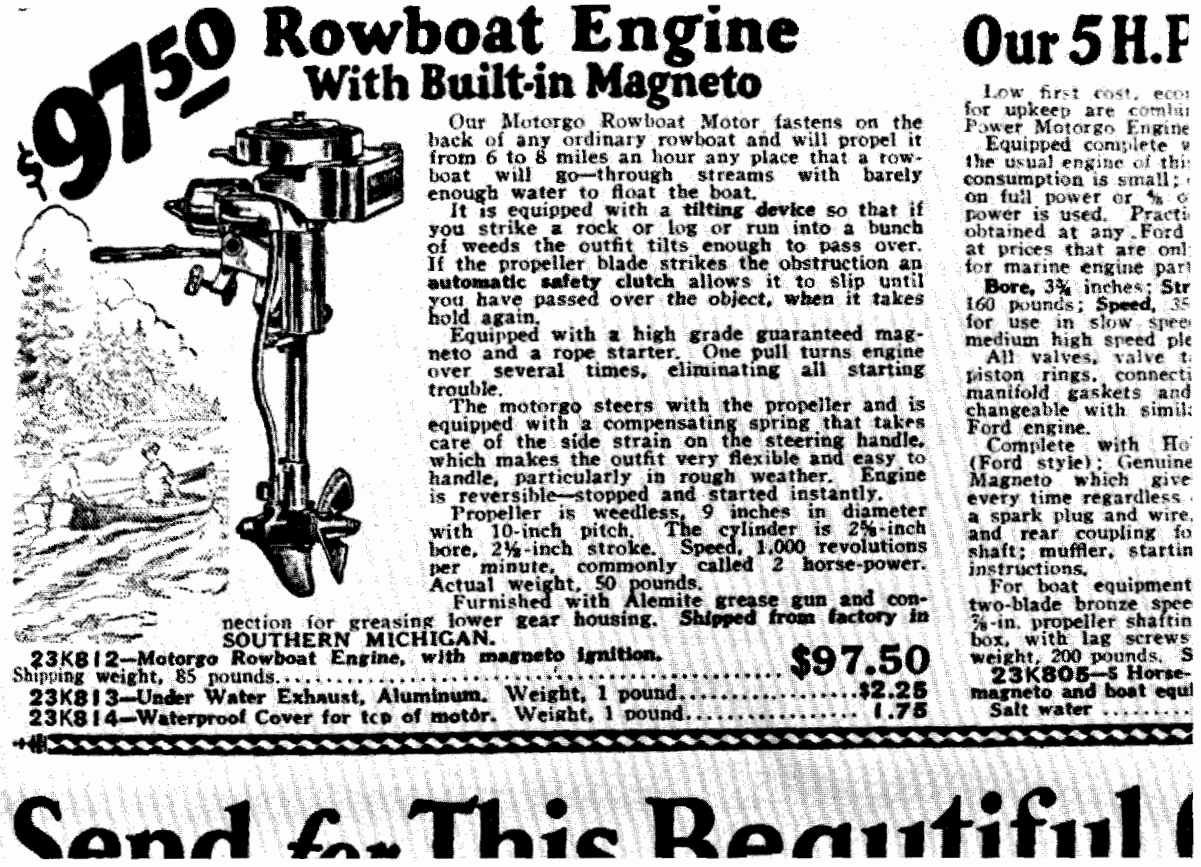


Figure 144. A Sampling of Marine Engines Available in 1927. 1927 Sears Catalogue, p. 1045.



$97.50 Rowboat Engine
With Built-in Magneto

Our Motorgo Rowboat Motor fastens on the back of any ordinary rowboat and will propel it from 6 to 8 miles an hour any place that a rowboat will go—through streams with barely enough water to float the boat.

It is equipped with a **tilting device** so that if you strike a rock or log or run into a bunch of weeds the outfit tilts enough to pass over. If the propeller blade strikes the obstruction an **automatic safety clutch** allows it to slip until you have passed over the object, when it takes hold again.

Equipped with a high grade guaranteed magneto and a rope starter. One pull turns engine over several times, eliminating all starting trouble.

The motorgo steers with the propeller and is equipped with a compensating spring that takes care of the side strain on the steering handle, which makes the outfit very flexible and easy to handle, particularly in rough weather. Engine is reversible—stopped and started instantly.

Propeller is weedless, 9 inches in diameter with 10-inch pitch. The cylinder is 2⅝-inch bore, 2½-inch stroke. Speed, 1,000 revolutions per minute, commonly called 2 horse-power. Actual weight, 50 pounds.

Furnished with Alemite grease gun and connection for greasing lower gear housing. **Shipped from factory in SOUTHERN MICHIGAN.**

23K812—Motorgo Rowboat Engine, with magneto ignition. Shipping weight, 85 pounds..... **$97.50**
23K813—Under Water Exhaust, Aluminum. Weight, 1 pound..... **$2.25**
23K814—Waterproof Cover for top of motor. Weight, 1 pound..... **1.75**

Our 5 H.P

Low first cost, eco for upkeep are combi Power Motorgo Engine

Equipped complete w the usual engine of thi consumption is small; on full power or ⅝ o power is used. Practi obtained at any Ford at prices that are onl for marine engine par

Bore, 3⅜ inches; Str 160 pounds; **Speed,** 3 for use in slow spee medium high speed pl

All valves, valve t piston rings, connecti manifold gaskets and changeable with simil Ford engine.

Complete with Ho (Ford style); Genuine Magneto which give every time regardless a spark plug and wire, and rear coupling fo shaft; muffler, startin instructions.

For boat equipment two-blade bronze spee ⅞-in. propeller shaftin box, with lag screws weight, 200 pounds. S

23K805—5 Horse- magneto and boat equ
Salt water .....

Send for This Beautiful

Figure 145. Note the Resemblance of This Outboard Engine to the 1922 Evinrude in Figures 20 and 21. The horsepower was the same. 1927 Sears Catalogue, p. 1045.

Figure 146. A Stoneware Laundry Tub Resembling This One Might Have Been a Type the Hokensons Used for Rinsing Herring in the Fish Cleaning Process in the Fish House (HS-01-138A). 1927 Sears Catalogue, p. 1010.

Figure 147. The 1927 Sears Gas Lantern Closely Resembles the Remnants of Hokenson Lantern Shown in Figure 137 Supra. 1927 Sears Catalogue. p. 514.

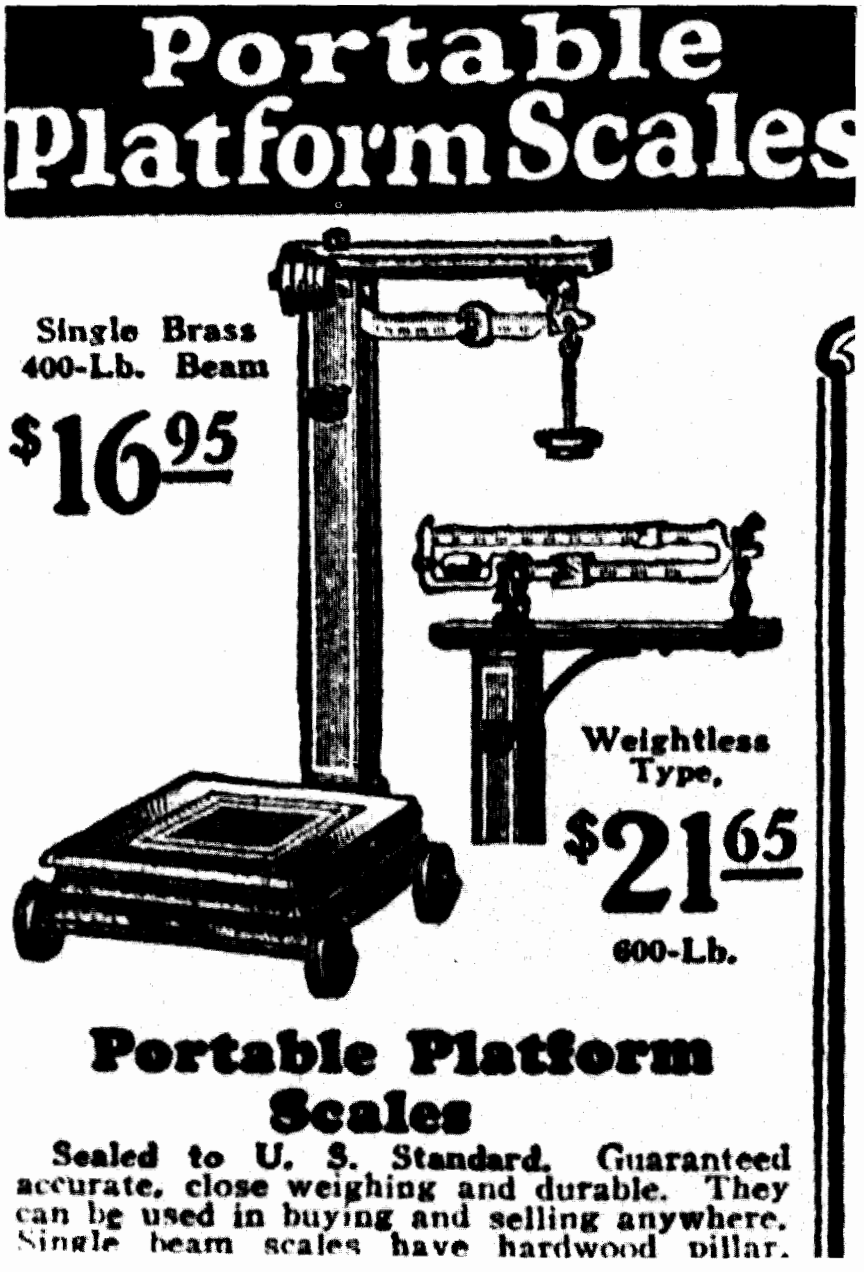


Figure 148. There are Analogies Between This 1927 Sears Scale and the Hokenson Scale Shown in Figure 59 Supra. 1927 Sears Catalogue, p. 1076.

Figure 149. The Hokenson Modification of Their Ford Model A Roadster Into a Pickup Truck May Have Resembled This Sears Kit. 1927 Sears Catalogue, p. 481.

Extraordinary Low Prices

ONLY $6.65 TO $14.65 According to Size

Durable Cast Iron Wood Burning Box Stove

For Cooking, Heating and Baking

Figure 150. Analogies of This Sears Stove to the Hokenson Stove in Figure 123 are Quite Close. 1927 Sears Catalogue, p. 937.

Figure 151. This Sears Illustration From 1927 Shows That the Hokenson Brothers Did Not Have to Limit Themselves to Woolen Union Suits in Wintertime, as Cotton Was Available at a Low Price. 1927 Sears Catalogue, p. 285.

Figure 152. Other Examples of the Type of Caps the Hokenson Brothers Found So Congenial. 1927 Sears Catalogue, p. 413.

Figure 153. Sample of a 1927 Flannel Shirt That Would Have Been Useful Out on Lake Superior. 1927 Sears Catalogue, p. 430.

Figure 154. A Sample Work Shoe From 1927. 1927 Sears Catalogue, p. 320.

Figure 155. Denim Bib Overalls of a Type So Popular With the Hokenson Brothers, as Shown on Them in Figure 108 Supra, and Elsewhere. 1927 Sears Catalogue, p. 389.

Figure 156. Foul Weather Gear was Not Sold Only to Commerical Fishermen in 1927. 1927 Sears Catalogue, p. 408.

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