



III. ALASKA'S LIFE LINES

EARLY TRANSPORTATION SYSTEMS

Visionaries long recognized the need to strengthen Alaska's connection to the Lower 48. Early attempts to establish this link ranged from the idealistic to the grandiose. During the late 19th century, for example, some Americans urged the construction of a railroad that would cross not only Canada and Alaska but also the Bering Strait to Siberia. William Gilpin, an ardent expansionist and the first territorial governor of Colorado, labeled this idea the "Cosmopolitan Railway." In 1890, Gilpin predicted that such a line would move the world toward a global civilization. To his mind, "the grand scheme of a Cosmopolitan Railway," represented "another link in the great chain of progress, which is slowly, but surely, uniting in one race, one language, and one brotherhood all the peoples of the earth."¹ Although Gilpin's dream of a world railroad was never realized, his idea inspired similar 20th-century efforts to connect Alaska to the

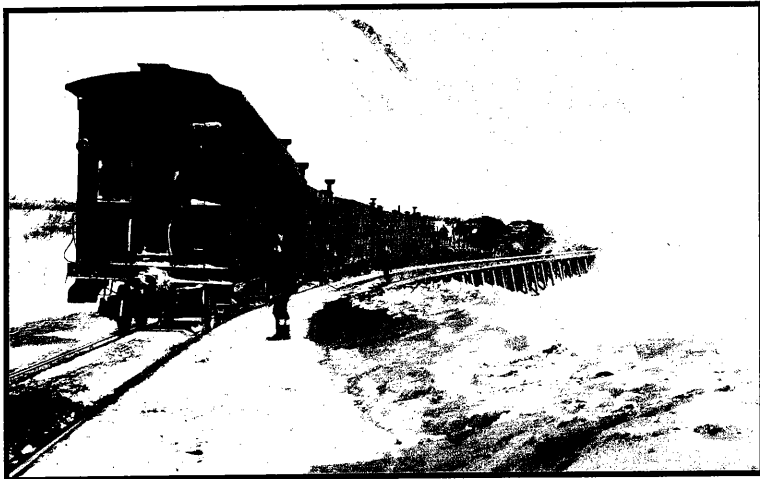
The history of the North American frontier in many ways is a history of transportation. ... Due to the severe climate, the rugged terrain, the long distances between settlements in the North, and the lack of both trails and reliable information, the problem of transportation in Alaska and the Yukon looms as large in the region's history and literature as in any part of North America. The isolation of Interior Alaska and the Yukon Valley from the outside world and the challenge of northern transportation is reflected in the regional slang that has come down from gold rush days when Yukon miners called crossing the mountain passes to the interior "going inside." To this day Alaskans and Yukoners leaving the North speak of "going outside."

... Terrence Cole, "Klondike Contraptions: Inventions in Transportation," *The Northern Review*, summer/winter, 1989, p. 118.

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During the early 20th century, the Alaska Central Railroad was one of the short-mileage lines that served the Territory. Extending north from Seward, it featured broad-gauge tracks. The Alaska Railroad, completed in 1923, served as the principal connection between the Interior and the Lower 48.



Lower 48 and to Europe. The distinctive environment of the Far North, however, often hampered attempts to establish a transportation system in Alaska.

During the early 20th century, the Alaska Railroad, completed in 1923, served as the principal connection — or life line — between the Alaskan interior and the Lower 48. From its southern terminal at Seward, a deep water, year-round port on Resurrection Bay, the Alaska Railroad extended 475 miles north to Fairbanks, deep into the interior. This government-owned rail line also served Anchorage, Alaska's largest city, located 115 miles north of Seward. This southern section of the line crossed mountainous terrain, characterized by heavy snows in winter. The Alaska Railroad helped open the coal fields of the interior, and by the early 1940s, it had expanded into a major industry in Anchorage, supporting a terminal, repair shops, and a roundhouse.² When the United States mobilized for defense in the Far North in 1940, the War Department depended on the Alaska Railroad to carry the men, equipment, and supplies to build major garrisons at Fort Richardson, near Anchorage, and Ladd Field, outside Fairbanks. Throughout the early 20th century, it remained Alaska's only all-surface route from the coast into the interior. Even by the 1940s, few improvements had been made to the rail line.³

During the early 20th century, goods moving northward to Alaska were shipped along the Inside Passage. Accordingly, the Corps focused on improving harbors and coastal navigation in the southeastern region, where much of Alaska's population concentrated.⁴

Several small ports connected Alaska's seaways to the interior. From the Port of Valdez, located at the head of Prince William Sound, supplies and equipment were hauled over the Richardson Highway — which had been improved from a trail to a road in 1913 — to Fairbanks and the interior. The route was not always dependable, since heavy snow frequently blocked the Richardson Highway for extended periods. Local fishing and mining interests of the panhandle used the ports of Sitka, Juneau, and Ketchikan, but these offered no inland connections. Anchorage, located on Cook Inlet, had a ship dock that was rarely used. Ice closed the port during the winter months and the Alaska Railroad supplied the city. Similarly, the Port of Nome closed from October to May.

Three navigable rivers provided further access to interior Alaska. The Yukon River, navigable throughout its course in Alaska, had served as the principal route to the gold fields. The Alaska Railroad, however, after its completion in 1923, offered a shorter, more dependable route to the interior. The Tanana River,

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a tributary of the Yukon, was navigable from its mouth to the town of Nenana, a railhead on the Alaska Railroad. Cargo was transferred from rail cars to small steamers and barges at Nenana for shipment to settlements on this waterway. The Kuskokwim River, south of the Yukon River, was navigable from its mouth on Kuskokwim Bay as far as McGrath from mid-May to mid-September.

Although Alaska's land and water routes were frequently closed to travel due to storms, ice, snow, and floods, by the late 1930s the widely scattered and isolated Alaskan villages had become accessible by small aircraft. Even so, severe weather restricted the use of airplanes. Furthermore, the few improved landing strips that had been built at isolated villages were too small to handle cargo planes. The sea, land, and air lines that supplied Alaska in 1940 remained considerably limited and unreliable, leaving the territory isolated.

THE THREAT OF WAR

During the early 1940s, according to Colonel James D. Bush, Alaska possessed "only the beginnings of modern development of roads, railroads, public utilities and airfields."⁵ This period marked a turning point in Alaska's development, as the territory's strategic importance became increasingly evident to Americans in the Lower 48. The threat of war, and the fear that Alaska could become a "second Pearl Harbor," prompted the U.S. Army to build rail lines, harbor facilities, and highways to strengthen the Far North's ties to the United States and to Europe.⁶ The Army also constructed military installations for the protection of these life lines, which remained vulnerable to attack from hostile sea and air forces.

By 1938, the United States had taken only initial steps to fortify Alaska's defenses. A minimal number of anti-aircraft guns or patrol boats protected the harbors at Ketchikan, Sitka, Valdez, and Seward. Chilkoot Barracks at Haines was the only active Alaska Army post. While the Army had built a cold-weather testing and training station at Ladd Field, that facility offered no protection for the coast. Deteriorating relations between the United States and Japan in the late 1930s and the release of the Hepburn Report in 1938, which advocated increased defenses for Alaska, prompted the Navy to initiate the construction of defensive bases on Kodiak Island and at Dutch Harbor in the Aleutian Islands. On the Alaska mainland, the Army began construction of Fort Richardson in 1940.⁷

In January 1941, the Corps, led by Area Engineer Talley, became responsible both for improvements to the Alaska life lines and for their defense. To carry out this mission, the Corps built harbor defenses, docks, railroads, and airstrips. Engineer troops were used to unload material and equipment from ocean-going transports.

Between 1941 and 1942, Talley had also been designated superintendent of the Army Transport Service for Alaska (ATS).⁸ This service was responsible for construction projects as well as for purchasing and transporting military materials and equipment to Alaska. To maintain the flow of men, supplies, and equipment to the Alaska military projects, the ATS leased or purchased more than 300 small craft, tugs, barges, fishing tenders, scows, and yachts. In addition, the ATS operated several military transports and large barges between Seattle and the Alaska ports. To assist in this effort, Talley and his engineers developed harbor facilities and met with union leaders as well as state employment officials to discuss hiring stevedores and longshoremen to unload cargo.

Inadequate boat-repair facilities compounded shipping problems in Alaska. The private marine services at Cordova, Juneau, and Ketchikan were not sufficient to handle local civilian boats and fishing vessels, much less the large barges demanded by the military buildup. For major repairs, boats had to be taken to Seattle. The ATS and the Corps thus faced managing a fleet of transports and barges with inadequate repair facilities and inexperienced personnel.

Between 1941 and 1944, the Corps operated the transport system and built garrisons, harbor facilities, roads, and railroads in order to keep Alaska's life lines open. Through their construction work, the engineers built a network that later served as the foundation for Alaska's postwar transportation system.

SEWARD SHIPPING FACILITIES

Talley brought efficiency and imagination to construction projects in Alaska. When he arrived in Anchorage in January 1941, he became apprehensive about the Seward/Anchorage/Fairbanks supply line. Delays in the delivery of material and equipment from the Port of Seward, along the Alaska Railroad, to Ladd Field and Fort Richardson continued to hinder construction and operation of both sites. Talley was determined to secure adequate personnel and facilities to deliver cargo to his projects in a timely manner.

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In February 1941, Talley visited Seward to investigate a bottleneck at the Seward Harbor. The cause was readily apparent. Cargo was unloaded directly from the transports to the railroad cars without being checked, and the facilities for evacuating freight from the dock were inadequate. At best, crews were able to handle only 450 tons of freight in 24 hours, or about 15,000 tons of freight per month. Talley, however, anticipated that his construction projects alone would require about 30,000 tons of freight per month, or the handling of about 1,000 tons a day.⁹ After holding discussions with the General Manager of the Alaska Railroad, and the Acting Resident Engineer at Fort Richardson, Talley concluded that the docking facilities at Seward required enlarging, and that the railroad needed to provide additional rolling stock and to install additional switches between Anchorage and Seward, thus allowing a greater number of trains to operate.¹⁰

Colonel O. F. Ohlson, President of the Alaska Railroad, recommended to Talley that the Army transport ships be equipped with longer booms to improve unloading efficiency and that the Army only bring one transport into the harbor at a time.¹¹ Talley found the suggestion to maintain only one ship in Seward Harbor at a time to be untenable. "This is impossible," he complained, "due to the length of time necessary to unload a transport at Seward. Provision must be made for taking care of two transports at one time if we are to handle the amount of freight indicated above. ... Additional berthing space seems to be in order."¹² Colonel Ohlson then negotiated an agreement with the ATS, against Talley's wishes, to build a cross-over on the Seward dock, provided that the ATS would place large booms on its transports. Talley still thought that additional measures would have to be taken to handle the freight.¹³

After further consideration, Talley again recommended increasing the capacity of the Alaska Railroad so that it could handle the tonnage that the military projects required. He further recommended that the railroad make proper switch engine and crane service available. At Seward, Talley asked that the current facilities be rehabilitated to accommodate two transports simultaneously and that a second dock — separate and independent from the existing one and sufficiently large to handle two ships — be constructed. If the dock renovation and new dock construction were completed, the Port of Seward could handle four ocean ships simultaneously. Talley considered this the "minimum emergency requirement."¹⁴

While rehabilitation of the existing dock was initiated in 1941, additional enlargement of the Seward harbor facilities was contingent upon the resolution

of two related questions: Did the Alaska Railroad have sufficient capacity to carry the anticipated freight load? Could a dock be built at Anchorage that would allow some transports to bypass Seward, thus reducing the need for expanded facilities at Seward?¹⁵ If the Anchorage dock were built, it would be icebound from December to March; Anchorage and Fairbanks would continue to be dependent upon Seward and the Alaska Railroad during those months. On the other hand, the Alaska Railroad might not be able to maintain continuous operations throughout the winter.¹⁶

Before these questions could be fully addressed, the Japanese bombing of Pearl Harbor brought an increased urgency to the successful and rapid delivery of supplies to Alaska. In March 1942, Lieutenant General Simon Bolivar Buckner of the ADC granted the Area Engineer authority to construct a second dock and two additional warehouses at Seward.¹⁷ The Seward dock was completed on March 28, 1943.

FORT RAYMOND

Without the Port of Seward, the flow of food, material, and equipment into Alaska would be seriously curtailed. This area thus presented an attractive target for Japanese pilots. In 1941, the War Department authorized the construction of Fort Raymond and harbor defenses, which made Seward the most fortified city on the Alaska Coast. At Fort Raymond, the Corps built housing for 171 officers and over 3,000 enlisted men, facilities for discharging fuel oil from tankers in the harbor to storage tanks distributed throughout the town, two transit sheds, and a 22-ton stiffleg crane for unloading heavy equipment.¹⁸

The engineers encountered few environmental difficulties in building Fort Raymond and the new harbor facilities. However, confusion about their location delayed the completion of the barracks at Caines Head. On October 12, 1941, Captain Burford M. Tanner, Resident Engineer, discussed changes in the location of certain buildings with Talley. Although Tanner had shown the changes to the North Pacific Division Engineer on a recent inspection of the Seward Project, he had not submitted the revised plans to Talley. After reviewing the changes, Talley concluded that they offered little or no advantages. Since the original plans had been approved, he ordered Tanner to follow them. This decision resulted in a loss of time, since Tanner reported that he had already begun clearing land and had poured some building footings.¹⁹

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On October 22, Talley subsequently received a call from General Buckner asking why Talley had found it necessary to move buildings that were nearly completed. Talley informed Buckner that he understood that construction had just begun.²⁰ Shortly after this conversation, Talley traveled to Seward, where he met General Buckner, Colonel Rogers, the Commanding Officer at Fort Raymond, and Resident Engineer Tanner. Together they inspected the buildings and found them 40 to 60 percent complete. Talley then issued instructions to Tanner to complete the buildings at their present locations. Later, Talley "went over this situation with Captain Tanner and pointed out the embarrassment caused by the misinformation and, also by the failure to furnish proper and up-to-date information."²¹ This was the only Corps project, he noted, "wherein there had been an official complaint regarding our operations." Soon thereafter Tanner was transferred.²²

SEWARD HARBOR DEFENSES

In May, 1941, Captain R. C. Parker, Commander of the Alaskan Sector of the 13th Naval District, Seattle, recommended to Talley that Dutch Harbor, Kodiak, Sitka, and Seward be fortified with harbor defenses. Parker proposed that the Navy undertake the construction at Sitka, Kodiak, and Dutch Harbor, and that the Corps construct the defenses at Seward.²³ The discussion regarding harbor defenses continued for the following year. In March 1942, Talley reported to the Harbor Defense Board of the ADC that he thought that the defenses at Seward could not be constructed in time to be of use that year. Colonel G. J. Nold, Engineer Officer on General Buckner's staff, agreed, arguing that "it would actually be an engineering feat to construct them at all." Talley noted that he had been discussing the fixed defenses proposal for several months, and he believed that the issue would soon be "brought to a head."²⁴

Talley did not have to wait very long. On June 3, 1942, the Japanese bombed Dutch Harbor and occupied Attu and Kiska in the Aleutian Islands. With the raid on Dutch Harbor, the Japanese dramatically demonstrated their ability to strike harbors within the Gulf of Alaska. The United States responded to the Japanese attack by strengthening the defenses of the south Alaska ports. In July 1942, the West Construction Company and civilian forces under the jurisdiction of Captain Tanner commenced construction of the defense installations at Seward.²⁵

The Port of Seward sits at the head of Resurrection Bay, an inlet opening onto Blyng Sound on the Gulf of Alaska. The Corps was charged with construction of harbor defenses at several locations around Resurrection Bay and on the islands at the mouth of the bay. The effort to construct these facilities challenged the engineers' ingenuity and tested their physical abilities: Colonel Bush described the defense sites as "predominantly granite, rising abruptly out of deep water and terminating in precipitous points and escarpments." He considered the entire coastline of Resurrection Bay to be "so rugged and formidable as to preclude the possibility of landing and sustaining troops in any force, without very elaborate preparations, equipment and supply lines."²⁶

Barwell Island, "a mass of steep, baldfaced granite mountain peaks, surrounded by deep water right up to its edges," was the most difficult site on which to make a landing. There, a man, "if he is agile and somewhat skilled in mountain climbing can make a landing from a skiff, and using both his hands and knees climb to the top." Such men — equipped with climbing ropes and life jackets and using air pumped from a compressor on a barge — drilled the rock for the construction of a highline to carry materials and supplies from the barge to the island. Storms from the Gulf of Alaska steadily pounded the island, and the work could continue only when the weather and the sea remained calm.²⁷

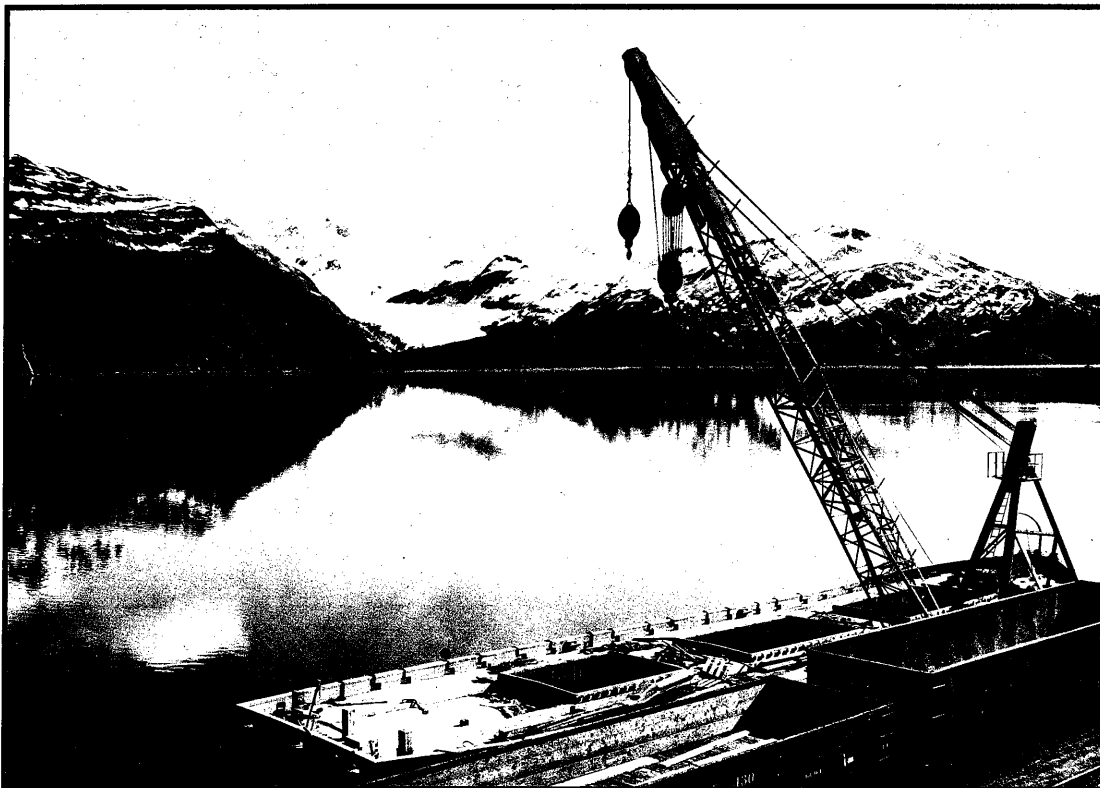
The construction workers hauled all cement, equipment, gun carriages, and the 42-ton cast steel gun shields from Seward to the defense sites by barge. At Barwell Island, Chamberlain Point, Carol Cove, Alma Point, and Topeka Point, they lifted the materials and equipment from barges to the work sites by tramway. To obtain aggregate for the concrete batteries, the contractor erected a crusher at the battery site or hauled in aggregate by barge. In some instances, the aggregate had to be delivered using the tramway. To obtain water for making concrete, a special barge was ordered to haul water across the bay to the contractor's dock. The construction of the defenses thus proved to be "difficult, expensive, and hazardous," but with their completion in 1944, Seward was fortified against air and sea attack.²⁸

WHITTIER PROJECT

The completion of the harbor improvements and defenses at Seward did not satisfy the War Department that the life line to Alaska was either adequate or secure. The Army needed additional ports to handle the increased tonnage of material and equipment that was shipped to Alaska as the war proceeded and to provide an alternative port if Seward became inaccessible.

Whittier is located east of Seward on the Passage Canal in Prince William Sound. Passage Canal, navigable year round by ocean vessels, extends into the mountains approximately 14 miles from Portage, a railhead on the Alaska Railroad between Seward and Anchorage. A rail line between Whittier/Passage Canal and Portage would open a second port with train connections to Anchorage and to Fairbanks. However, the inlet was blocked by a glacier at the head of Passage Canal and the mountains impeded road and rail line construction.

As early as 1914, R. J. Wier of the Alaska Engineering Commission had surveyed a railroad connecting Passage Canal with the Alaska Railroad at



Port of Whittier.

Portage. In 1939, Berryhill and Grammer, surveyors for the Alaska Railroad, re-examined the proposed 1914 route. On the basis of these surveys, Congress authorized the Whittier Project, which called for the drilling of the Whittier and the Portage railroad tunnels, the laying of 14 miles of track from Portage to Whittier, and the construction of a terminal on Passage Canal.²⁹ The Corps was placed in charge of the project. Major F. A. Hansen, Major Caleb B. Burgoyne, and Lieutenant Colonel J. Burleson served as resident engineers. West Construction Company provided the majority of the labor.

In the spring of 1941, survey parties under the direction of O. V. Kukkola and Anton Anderson determined the final locations for the tunnels, railroad, and terminal.³⁰ Kukkola began at Portage and surveyed south to the north end of the proposed Whittier Tunnel. Nearly 14,000 feet long, the Whittier Tunnel would be the fourth longest tunnel in the world.³¹ Anderson established a camp at Whittier, surveyed the site for the terminal, and located the route from Whittier to the south end of the 5,000-foot Portage Tunnel. Despite hazardous mountain and glacial terrain, persistent wind and rain, and poor inter-camp communication, the survey work was completed that summer.



During the 1940s, the Army Engineers drilled the Whittier Tunnel through a rock formation to provide access to a military port.

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In 1941, the West Construction Company crews began working at the Passage Canal site. Their progress, however, was disappointing. When Talley visited in August, the workers had not yet begun construction on the temporary dock that was supposed to have been finished, and a boat loaded with supplies was scheduled to arrive in five days. Not enough men were available to construct the dock, and lumber for its construction was not in evidence. Although poor administration accounted for some of the delays, most were attributable to a shortage of men and of supplies: "the camp is not being built because they haven't the men and they haven't the men because they have no place to house them."³²

By the spring of 1942, the contractors had improved the administration of the project, and the crews were making rapid progress on the Whittier Tunnel.³³ Their progress was not so rapid at the Portage Tunnel, where a lack of power to operate the equipment hampered construction.

By October 1942, workers had completed 60 percent of the Whittier dock, and the camp, housing 100 men, was in good order. The men expected to "hole through" on the Portage Tunnel by the first week in November and on the Whittier Tunnel two weeks later.³⁴ On November 20, Talley rode the special train to Whittier for the "Holing Through" ceremony.³⁵

Crews began work on the rail bed during the summer of 1941 and continued through the winter, clearing heavy timber and underbrush from steep hillsides, battling 10-foot to 15-foot snow drifts, and regularly working in winds of over 30 miles per hour and temperatures below zero. Two miles of the bed crossed a muskeg marsh, requiring the transport of a large amount of gravel fill, and three-quarters of a mile of bed, between the Whittier Tunnel and the terminal, were blasted from rock.³⁶

In the fall of 1942, the West Construction Company and troops from the 177th and 42d Engineer General Service Regiments, and the 714th Railroad Battalion, commenced laying track from Portage to Whittier. Alaska Railroad crews laid the turnout and the curved track at Portage. The crews completed the mainline track on April 30, 1943. The West Construction Company and units of the 42d Engineer General Service Regiment built the dock, terminal and port facilities, and garrison housing to accommodate 52 officers and 1,100 enlisted men.



Enroute to tunnel holing-through ceremonies, November 20, 1942, via Alaska Railroad. General Talley is pictured first on the right.



The two parties meet after holing-through blast.

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Despite washed-out bridges, -30 degree F temperatures, and difficult living conditions, the West Construction Company crews completed the Whittier Project six months ahead of schedule. In an elaborate ceremony led by Talley, the War Department presented the West Construction Company with the Army-Navy Production Award or "E Pennant," the highest award given to private industry for meritorious service.³⁷

ANCHORAGE HARBOR IMPROVEMENTS

Alaska's isolation and climate did not present the only problems. Labor disputes also slowed the war effort in the Far North. Many of the Army's projects in Alaska were completed by hired labor. "You have your own equipment," as Talley put it, "and hire your own personnel." The engineers also contracted some of the work to individuals and companies.³⁸ Work at the Anchorage harbor illustrated the difficulties created by shortage of equipment and inexperienced laborers.

In 1941, in conjunction with his work for the Army Transport Service and to reduce congestion at Seward's harbor and rail facilities, Talley suggested constructing a lighterage dock at Anchorage and diverting some transports from Seward to Anchorage. The cost of the dock, approximately \$200,000, could be saved through the reduction in freight costs for shipments from Seward to Anchorage by way of the Alaska Railroad. "Even more important than the economic consideration," he added, the dock "would serve to guarantee the continued flow of military supplies and food stuff into Anchorage in the event something should happen to the Railroad between Seward and Anchorage and would relieve the congestion at Seward Harbor."³⁹

General Buckner approved the construction of the Anchorage dock, and urged Talley to expedite the project. Talley immediately began negotiations with Colonel O. F. Ohlson, General Manager of the Alaska Railroad, to locate the dock and secure rail service to it. Talley thought that the facility could be built at the site of a dilapidated Alaska Railroad dock that had been built in the Anchorage harbor around 1919.⁴⁰

After examining the site, Talley and Ohlson concluded an agreement whereby the railroad would purchase the old dock and regain control of the site, which it had leased. The railroad would then build the new dock for the War Department on a reimbursable basis. The United States would own the pier, and

the Alaska Railroad would supply switching services for it. In addition, the two men agreed that the old dock would be reconstructed to facilitate the handling of 11 boats that the Air Corps used for target towing and rescue work.⁴¹ Once the agreement had been signed, Talley faced new problems. Alaska Railroad officials notified him that they did not have the materials to begin construction. Talley, who wanted the structure completed immediately, located the needed material in Seattle and ordered it to be shipped as soon as possible. He was informed that the materials could be shipped in 12 days.⁴²

Meanwhile, the crews working on the dock had become dissatisfied with the Alaska Railroad's work policies. Because housing in Anchorage was scarce, the railroad located mess and bunk cars at the job site. The railroad withheld room and board charges from the employees' paychecks, whether they stayed at the bunkhouses or lived in town. After several workers quit, the engineers agreed to bear any losses from the operation of the mess. The workers who had homes in town could then eat and sleep at home without having their wages cut. In general, Talley sympathized with the men who worked under difficult conditions in wartime Alaska. Frequently he assured them that "after Alaska, nothing'll ever seem hard to you again." Still, he portrayed this labor dispute from the perspective of a manager who needed to keep the project running efficiently.⁴³

By the end of April, the labor and supply problems had been temporarily resolved, and rail crews had extended the track onto the dock, had installed a switch, and were constructing two spurs.⁴⁴ By the middle of May, however, construction crews had again run out of materials and Anchorage had run out of stevedores.⁴⁵ The U.S. transport *Gibson* finally arrived with a load of lumber on May 20, and Talley made arrangements to use 75th Coast Artillery troops from Fort Richardson to unload the ship.⁴⁶

Talley's high expectations regarding the project's schedule and the experience of the workers sometimes created friction. When work on the dock continued to progress slowly, he asked Colonel Ohlson to explain the delays but Ohlson "expressed the opinion that he saw little need for rushing the dock construction." Talley saw that "this opposition must be overcome before real progress can be resumed," and repeated an earlier request that "the Port of Anchorage be considered a strictly military port," handled by a labor battalion.⁴⁷

On July 15, the first Army transport *Will H. Point* docked at the completed Anchorage facility, where it was unloaded at an unsatisfactory rate of approximately 500 tons per day. "The [sailors] unloading the *Will H. Point* are without

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previous experience in the handling of cargo," Talley explained. "The lieutenants have had no more experience than have the men." He added, however, that "before one or two other ships are handled that the rate of discharging cargo at Anchorage will be approximately as fast as it is at Seward at the present time."⁴⁸

Talley had requested a labor battalion some time earlier in anticipation of the work at Anchorage. Higher authorities had not acted upon this request, compelling Talley to use untrained troops. Furthermore, there were few experienced civilian stevedores available in Anchorage to handle the cargo, and Talley was hesitant to accept the American Federation of Labor's offer of stevedores from Kodiak, fearing that such action would "precipitate a jurisdictional strike." Talley reported that, while he had begun to select key personnel for the organization of the Port of Anchorage, he would continue to be handicapped by using combat troops for unloading.⁴⁹

A September 4, 1941 announcement that Colonel Maslin, Quartermaster at Fort Richardson, had been appointed Assistant Superintendent of the ATS, disrupted Talley's plans for the operation of the Anchorage dock. Talley responded by stating that administration of the dock was a task easily handled from the Area Engineer's office. The Corps' investment of \$200,000 in the dock facilities also contributed to Talley's desire that the Area Engineer's office continue as administrative agent: "as long as we continue to operate the dock we will continue the pressure that is necessary to bring transports into Anchorage to repay us for this construction and to effect further savings on transportation costs." Talley argued that Colonel Maslin would "be content for the dock to remain idle," convincing General Buckner of the ADC that the Post Quartermaster's office was not prepared to manage the dock. Buckner successfully petitioned that the order appointing Colonel Maslin Assistant Superintendent of the ATS be rescinded and that the Area Engineer be reappointed.⁵⁰

THE PORT OF VALDEZ

The Port of Valdez, located at the head of Prince William Sound, was the terminal for a second supply route to the Alaska interior. The Army shipped thousands of tons of construction material to Valdez, where it was transferred to trucks and carried to Fairbanks over the Richardson Highway. Although Valdez was a year-round port, deep snow closed the Richardson Highway for extended periods during the winter. Also, trucks at Valdez could not handle the amount

of freight that the Alaska Railroad could move out of Seward. Despite these drawbacks, Valdez and the Richardson Highway remained a vital link in the Army's supply route to Fairbanks. On February 28, 1943, the Commanding General, WDC, ordered the construction of the Valdez post, to provide housing and other support facilities for the 297th Infantry stationed there.⁵¹

Crews commenced the foundation work in April 1943, while two feet of snow covered the ground. They completed construction in October of that year. Facilities included barracks for 265 men, a 25-bed hospital, a motor repair shop, 20,000 feet of storage space, a dry cleaning plant, and a laundry.

White Pass and Yukon Railway

In the summer of 1942, the Army purchased the White Pass and Yukon Railway, a narrow gauge road connecting the Port of Skagway with Whitehorse. The Northwest Service Command operated the railroad, which carried material and equipment to troops working on the central section of the Alaska Highway. Once the highway was completed, the White Pass and Yukon Railway served as an additional route for supplying Fairbanks and the Alaska interior.⁵²

GASOLINE AND OIL STORAGE AND DISTRIBUTION

At most of its Alaska sites, the Corps built facilities for fuel storage and distribution. Most often, the engineers used welded steel tanks with a capacity of 25,000 or 50,000 gallons for gasoline storage, although in some instances they installed smaller, bolted-steel tanks with capacities of 500, 5,000, or 10,000 barrels. At times, they also stored diesel and fuel oil in wood-stave tanks, in reinforced concrete tanks, or in drums. Welded steel tanks were sometimes shipped from the States completely assembled. Most, however, were constructed on site — where construction was frequently delayed by shortages of steel, of welding equipment, and of experienced welders. At the facilities near harbors the engineers built pipelines from the docks to tank farms. When possible, the tank farms were located to allow the use of gravity flow systems for discharging the fuel.⁵³

The Corps' principal fuel-supply project involved construction of the Canadian Oil Line (CANOL), which supplied the Northwest Staging Route and the Alaska Highway with fuel from the Norman Wells on the MacKenzie River. In August of 1942, plans were expanded to include a pipeline from Skagway to

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Whitehorse (CANOL 2), a pipeline from Whitehorse to Watson Lake (CANOL 3), and one from Whitehorse to Fairbanks (CANOL 4). The system was largely operational by 1944.

The project, which involved 4,000 engineers and 10,000 civilians at a cost of \$133 million, proved to be far less useful than originally desired: CANOL 2 and 4 were justifiable only as emergency measures and were closed when the immediate Japanese threat was removed in 1943. CANOL 1 and the associated Whitehorse refinery were shut down in April 1945. The Skagway-Whitehorse line, however, remained open, as it had reduced the cost of transporting a barrel of gasoline between the two points from \$8.40 to 23 cents.⁵⁴

RECONNAISSANCE OF FAIRBANKS-NOME ROUTES

In the spring of 1942, the War Department directed the Corps to survey a rail line across Alaska between Prince George, British Columbia and Teller on the Seward Peninsula. The Corps was also directed to study the potential for a harbor at Port Clarence, and to examine the possibility of a pipeline from Tanana to Teller. The purpose of these facilities was to supply the Soviet Union in its struggle against the Germans.⁵⁵

In response, Colonel Bush surveyed the area between St. Michael on the south and Kotzebue on the north in search of a suitable line for a road or railroad west of Fairbanks.⁵⁶ On the basis of his survey, Talley advised Chief Engineer Major General Eugene Reybold, Lieutenant General Brehon B. Somervell, Brigadier General William M. Hoge, and General Buckner of the ADC that "the difficulties beyond Fairbanks were such that we didn't consider it justified unless it is intended that the highway or railroad, or both, be considered as an avenue of supply to Russia." A road or railroad was not justified for the support of garrisons on the Seward Peninsula, where the Yukon River could be used in an emergency as an avenue of supply.⁵⁷

As a result of the conference, the military leaders concluded that beyond Fairbanks or Nenana, the Yukon and Tanana rivers as far as Kaltag could be used for transporting goods. A highway would be constructed between Kaltag and Unalakleet on Norton Sound. If necessary, the Seward Peninsula and the Soviet Union could thereby be supplied from Fairbanks and the Alaska Highway.⁵⁸ Once the Russians had repulsed the Germans at Stalingrad and the Americans had

forced the Japanese out of the Aleutian Islands, the highway and the railroad were no longer needed, and the proposal was shelved.⁵⁹

The Corps played a prominent part in keeping the Alaska life lines open during World War II. Under the direction of Talley, the engineers built garrisons, harbor defenses, and bases. In addition, engineer troops helped expedite the flow of supplies to Alaska through the construction of port facilities, roads, and railroads. The Area Engineer's Office, in close cooperation with General Buckner and the ADC, served as a central coordinating office for the movement of transports between Seattle and the Alaska ports. When they were needed to expedite the flow of materials to various projects, engineer troops served as longshoremen and stevedores. By a variety of endeavors, the Corps built the Alaska defense sites and kept those facilities supplied.

THE ALASKA HIGHWAY

Completion of the Alaska Highway marked the realization of a 19th-century idea. For more than 50 years, visionaries had promoted an overland link between Alaska and the Lower 48. Constructed in 1942, the Alaska Highway remained the most significant transportation line built by the Army Engineers in wartime Alaska.

During the initial military buildup in the Far North in 1940 and 1941, the Army remained dependent on ocean-going vessels using the ports of Seward and Valdez for the delivery of bulk cargo to Anchorage and Fairbanks. Several proposals to end Alaska's reliance on sea transport through the construction of a railroad or highway from the continental United States to Alaska had been introduced in Congress during the 1930s. Because the War Department had been unreceptive, Congress dropped the proposal.

By the early 1940s, however, the threat of war had brought new urgency to the need for a continental supply route. The sea lane between Seattle and the



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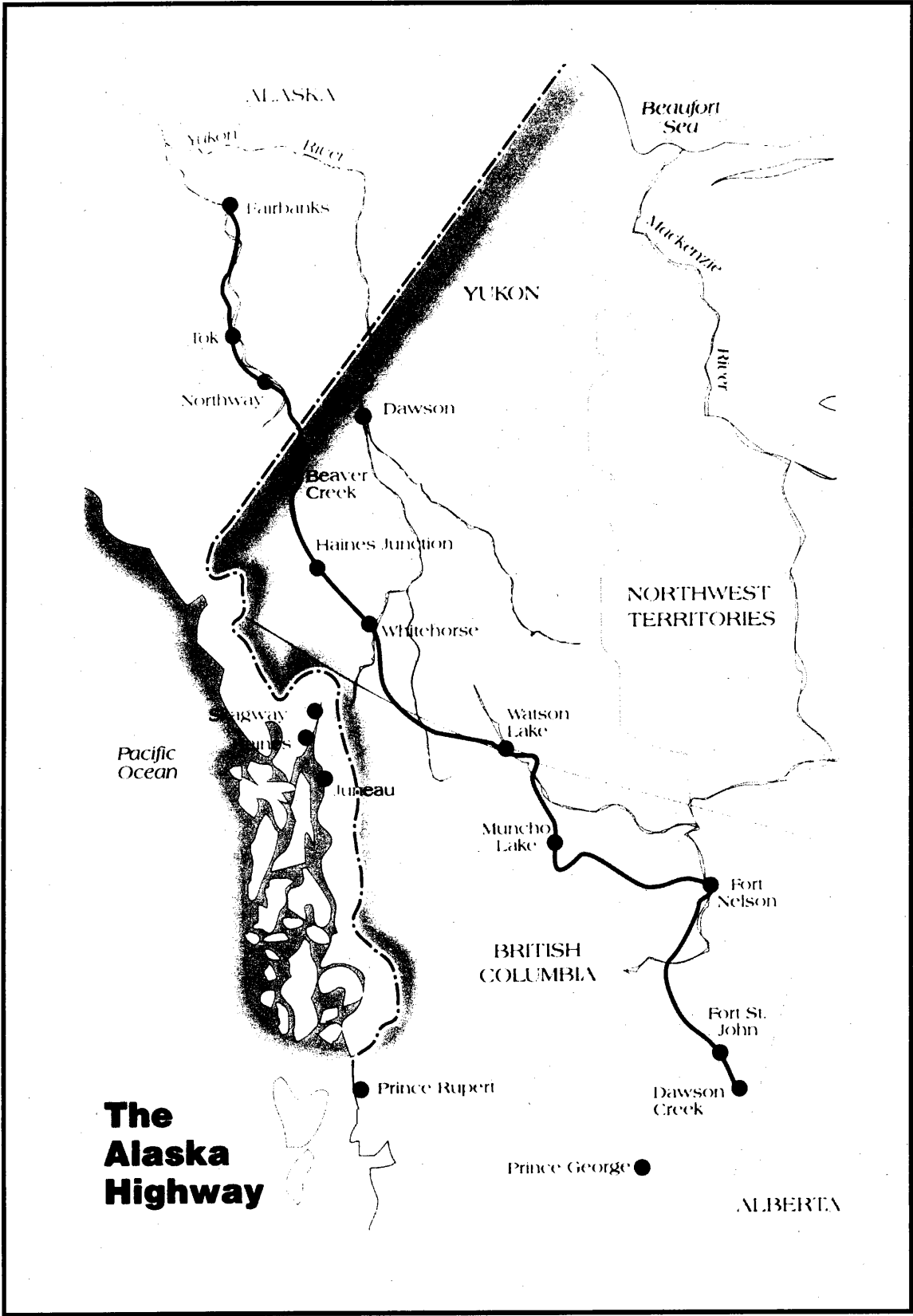
Alaska ports remained vulnerable to submarine attack, and the Japanese had extended their aggressive naval operations in the Pacific. When the Japanese attacked Pearl Harbor, the War Department immediately commenced plans for an alternate continental route to Alaska. As Talley explained, "the Navy doubted their ability to maintain active operations on the high seas outside the Inside Passage."⁶⁰

In January 1942, President Roosevelt requested the War and Interior departments to prepare recommendations for the construction of a military road to the Far North. Canadians, too, watched the attacks on Norway, Belgium, and Holland with trepidation, realizing the vulnerability of their northwestern region. By March, the United States and Canada had reached an agreement to construct a road from Dawson Creek, British Columbia, to Big Delta, Alaska.⁶¹

The U.S. Army selected the inland route from Dawson Creek to Fairbanks, which would link the isolated airfields scattered across Canada and Alaska, ensuring their continued operation. Earlier, however, the U.S. International



"Alaska Highway" by artist Henry George Glyde.



**The
Alaska
Highway**

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Highway Commission had recommended another route, located close to the coast, which was already surveyed. The Army that the coastal route's vulnerability to attack.⁶² Residents of Alaska and the Pacific Northwest remained "bitterly opposed" to the Army's route, since it would take them farther to the east, adding miles to the drive from Seattle to the Far North. "The road as projected will serve no useful purpose," complained commission chairman Warren Magnuson, "militarily or economically."⁶³

As a result of this dissension concerning the inland versus the coastal route, a controversy emerged over the naming of the highway. Before the war, Alaskans called the proposed road the "International Highway." With its fondness for acronyms, the U.S. military dubbed the road "ALCAN," short for Alaska-Canada. Many Alaskans and Canadians, however, remained contemptuous of that term, since it reminded them that the favored coastal route had not been chosen. As George Black, a member of Parliament from the Yukon, put it, "To Northerners the word 'Alcan' is repugnant." Anthony J. Dimond, territorial delegate to Congress, was less diplomatic. Alcan, he sneered, sounded "too much like Ashcan."⁶⁴

Americans and Canadians proposed a variety of names for the road, ranging from the fanciful to the cumbersome. These included Good Neighbor Highway, Pacific Land Highway, Canaska Highway, Alascanda Highway, Candalska Highway, and Laskadian Highway. Dimond suggested calling the road the "Alaska Highway," and in 1943 the United States and Canada agreed to adopt this term. Although the road passed through northwestern Canada, transportation routes traditionally characterized their destinations, as the term "Oregon Trail" reflected.⁶⁵

The Corps, led by Brigadier General William M. Hoge, was responsible for constructing the pioneer road, which contractors later improved. Ten-thousand men in seven engineer regiments were used in this project. These included the 93d, 95th and 97th Engineer Regiments, all African Americans, who comprised one-third of the troops.⁶⁶ In a single construction season, from March 13, 1942 to November 20, 1942, these regiments built 1,428 miles of road across tundra and permafrost, along glaciers, through mountain passes, over a multitude of streams at a cost of around \$135 million.⁶⁷

By midsummer of 1942, in part owing to the efficiency of the 23-ton Caterpillar D-8 bulldozers used for clearing, engineers were progressing more quickly than had been originally anticipated. They were also building a road of

much higher standards than the original plans had specified. For much of its distance, the pioneer road was a well-graded and drained two-way road rather than the one-way access road envisioned in the initial plans.⁶⁸

The engineer regiments built this highway in three sections. The southern section began at the Dawson Creek railhead, near the British Columbia-Alberta border. The central section commenced at Whitehorse, which was supplied by sea and rail through the Port of Skagway and the White Pass and Yukon Railway. The northern section was supplied through the Port of Valdez and the Richardson Highway.⁶⁹ Typically, regiments approached the work in two ways. Companies either completed an entire segment, clearing away timber, placing culverts, and grading the road, then “leap-frogging” ahead of other companies similarly engaged; or companies each completed a specific task, so that building the road proceeded more like a “train” moving forward. Following either approach, a company lived in tents and worked as fast as it possibly could. The finer details of road-building were left to the Public Road Administration’s permanent highway. Impatient for faster progress, Hoge was once quoted as telling a subordinate, “Your road is too good, too wide, and too short.”⁷⁰

The Corps labored under difficult conditions. Swarms of insects plagued the engineers during the summer months. “I had suffered from countless buzzing mosquitoes,” recalled one observer. “Everyone bolted his food in order to get back to swatting the mosquitoes.”⁷¹ During the summer, moreover, melting permafrost presented a major construction hazard. Both the 18th and 340th Engineer Regiments encountered serious problems after bulldozers stripped off the vegetation that normally insulated the permafrost, converting a dry path into impassible mud overnight. Progress slowed to less than one mile a day — compared to an average of 8 miles per day — during the month of August as units now had to cut timber by hand. General Hoge learned that laying a corduroy mat of timber and brush, covered with gravel and dirt, would substitute for the removed vegetation’s insulation of the frozen ground. “Everybody talked about muskeg and everybody talked of mountains and crossing lakes and rivers,” he complained, “but they never heard of permafrost which was the worst thing we had to contend with.”⁷²

Workers suffered hardships during the cold months as well. As winter approached, the temperature could drop as low as -60 degrees F, often rendering machinery inoperable. The winter of 1942-1943 was one of the coldest recorded up to that time in Alaska and Canada.⁷³ One *New York Times* correspondent

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traveled the highway in 1942, observing the hazards of laboring in the ice and snow. "Returned laundry arrives in a solid chunk," he reported, "which has to be set beside the oil drum stove for days before a sock or a handkerchief can be pried loose. Men bathe one limb at a time, making the complete cycle perhaps once in six to eight weeks."⁷⁴

More serious difficulties included frost bite, accidents, and poor morale. The cold temperatures perhaps hit the black engineer regiments — most of whom hailed from the Deep South — the hardest. One African-American soldier, Paul Francis of Lafayette, Louisiana, who served in the Yukon with the 93d Engineers, remembers the work with nearly every step he takes, having lost two toes to frostbite while unloading a barge in subzero weather. Another black soldier, ordered to stay with a broken vehicle while others sought help, had frozen to death by the time rescuers found him the next day. A military appeals panel later overturned the conviction of a group of 10 black soldiers who had refused to obey when ordered to ride in the back of an open truck. The appeals panel found their refusal more attributable to common sense than to insubordination.⁷⁵

Black soldiers also experienced another kind of difficulty — the racist attitudes that still generally characterized mainstream American culture, and specifically existed in the military at the time. Paul Francis likened his experience building the Alaska Highway to that of a convict laborer. He also remembered instructions to not "go to town" and to not "say a word to the ladies." Reverend Edward G. Carroll, of Baltimore, who served as a chaplain on the highway with the 95th Engineers, recalled a prevailing distrust regarding black soldiers' engineering skills: "They thought we could cook and use picks and shovels, but they didn't think we had the intelligence to do engineering." Black regiments then had much more than harsh weather conditions and long hours of work to contend with as they helped build the highway.⁷⁶

In November 1942, as the highway reached completion, Colonel (later Brigadier General)

Galloping Canaries

To boost morale, Lieutenant Colonel Robert D. Ingalls, Commander of the 35th Engineer Regiment, organized a band. He also added several verses to the song, "Hail to the Engineers":

Hail to the Engineers

On Land or Sea

Hail to the Engineers

Where'er they be

The Army all rolled in one

None are their peers

In Peace or War

Who goes before?

It's the Army Engineers!

His regiment thus earned the label, "Galloping Canaries."

...Twichell, *Northwest Epic: The Building of the Alaska Highway*, p. 75.

James A. "Patsy" O'Connor noted that although the men were not fighting, they were engaged in battle. "They were worn down," he observed, "their clothing [was] in tatters, their equipment unserviceable and their construction machinery worn out."⁷⁷ At times, the men worked 16-hour days, 6 days a week. In addition to the long hours and relentless pace, some engineers found the work monotonous. "It's nothing but miles and miles of nothing but miles and miles!" complained one soldier.⁷⁸

On October 25, 1942, the lead bulldozers of the 18th and 97th Engineers — driven respectively by a white soldier from Texas and a black soldier from Philadelphia — met at Beaver Creek, just a few miles from the Alaska-Canada border. For the next month, the engineers constructed a temporary trestle bridge to span the White River. Meanwhile, contractors working for the Public Road Administration finished sections of the road from Big Delta to Tanacross and from Whitehorse to Jake's Corner. On November 20, engineers finished work on the bridge, and the Alaska Highway — from Dawson Creek to Big Delta — was open.⁷⁹

Completion of the Alaska Highway represented a momentous development in the history of the Far North. Constructed in only eight months, it secured Alaska's life lines. Although the Alaska ports were never closed to shipping by enemy action during the war, the military buildup placed greater demands on them than they could handle efficiently. The Alaska Highway relieved the pressure on the ports and the Alaska Railroad. From the fall of 1942 to the end of the war, thousands of tons of supplies and equipment were transported to Alaska over this road.

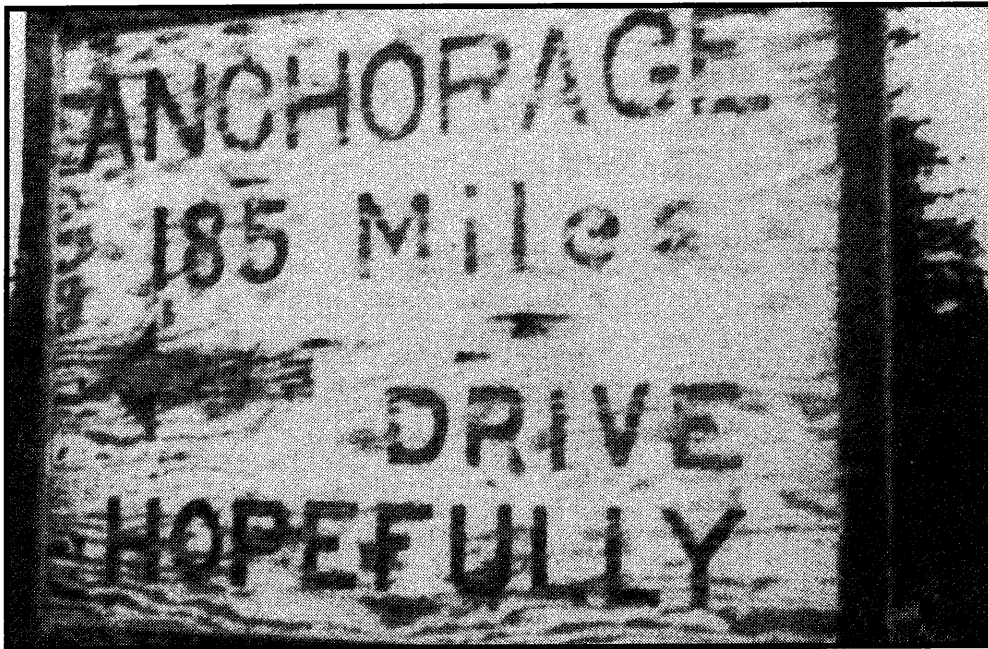
The Alaska Highway also helped open the Far North to civilians. As one observer commented in 1949, the road "exposed Alaska to all the good and all the bad in the civilization we thought was so far away."⁸⁰ Harold Ickes, Secretary of the Interior, agreed. "I see it as the Little Man's Road," he commented in a speech to commemorate its opening, "the road where Mr. Jones and Mr. Ivanovich and Mr. Chang will help each other fix a flat." Echoing William Gilpin, he added, "I see it leading from the factories and glistening white houses of America across to Siberia, Asia and Europe into the houses of all those native and minority races, those men and women who must be granted the same rights and privileges that we ask, if ours is to be a free world."⁸¹

For all the lofty sentiments and romantic portrayals, travel on the Alaska Highway remained difficult during its early years. The Canadian Army warned

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civilians not to be “overly optimistic” about the road’s conditions.⁸² Early travelers were required to carry a large supply of tools and spare parts. Corinne Walker, who served as the Corps’ General Service Chief in Alaska, recalled traveling the road as a newlywed in the early 1950s. “We came up with four suitcases, one screwdriver, and an Allen wrench,” she remembered. Although Walker and her husband expected “to hit this four-lane, paved Alaska Highway” at Dawson Creek, they instead discovered terrible ruts in the road, along with “lots of dirt and dust.” As she put it, “we were not talking too much by the time we reached Alaska.”⁸³

Even so, many observers praised the rapid construction of the road as an achievement, emphasizing its impact on Alaska’s development. In 1943, Douglas Coe, who reverently referred to the Alaska Highway as “The Road,” portrayed its completion as “a stirring chapter in the American legend.”⁸⁴ Modern historians continue to point out the road’s significance. “The Alaska Highway broke the old territorial shell of isolation,” Terrence M. Cole summarized, “and helped make possible the transformation of Alaska to a state in 1959.”⁸⁵



THE ALASKA HIGHWAY

The Alaska Highway represented a momentous development in the history of the Far North. Constructed by the Corps of Engineers in just eight months, it secured Alaska's connection to the Lower 48 during World War II. Afterward, it made Alaska more accessible to civilians. As one observer commented in 1949, the road "exposed Alaska to all the good and all the bad in the civilization we thought was so far away."

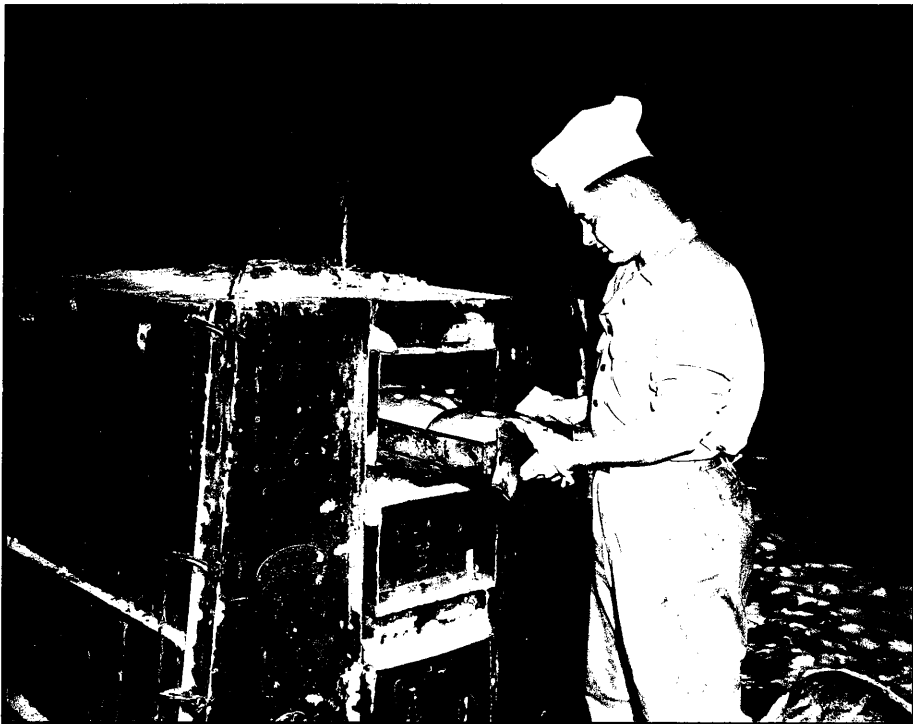


"Pushing Through the Road to Alaska" by Orville Norman Fisher.

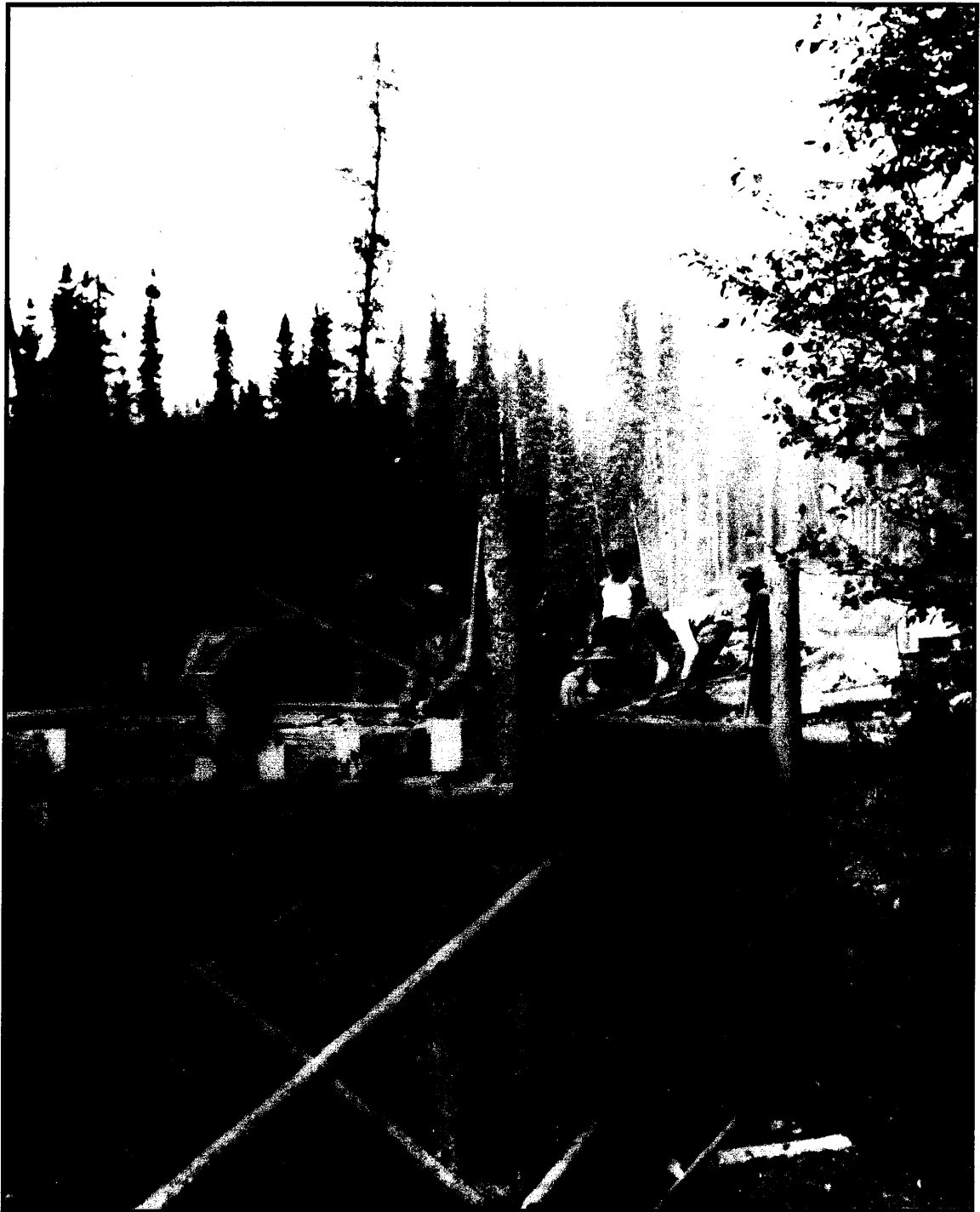
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Workers confronted difficult conditions, including ice and snow, in construction of the pioneer road that became the highway.



Baking bread in portable ovens.



Alaska Highway workers included the 93d, 95th, and 97th Engineer Regiments – all African Americans.

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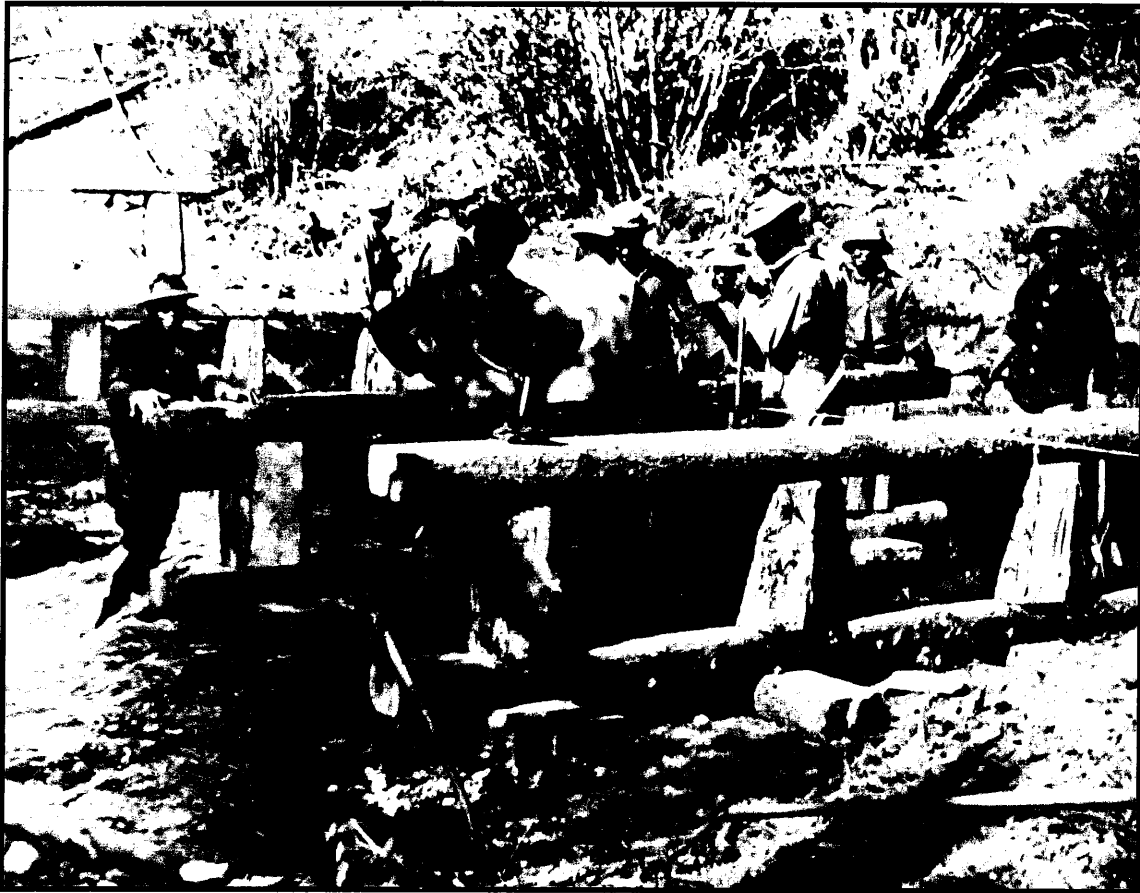


Trestle bridge under construction on the Alaska Highway.

Dozens of streams and lakes, both large and small, had to be spanned as the road progressed. Practically every type of timber structure was used to provide a crossing, but the type most often used was timber-trestle bridge. This photo shows a trestle bridge during construction and illustrates the use of the timber immediately adjacent to bridge site.



Engineer construction troops could not wait for bridges as they rushed work on the Alaska Highway during WWII. Here are trucks shown crossing the Teslin River at Johnson's Crossing using a pontoon ferry.



Hundreds of northern streams — many of which turned into raging torrents in the spring — had to be crossed in building the Alaska Highway. Shown in the photo is a rough-hewn bridge being put in over Goose Creek, 12 miles north of Teslin, Yukon Territory by U.S. Army Engineers troops.



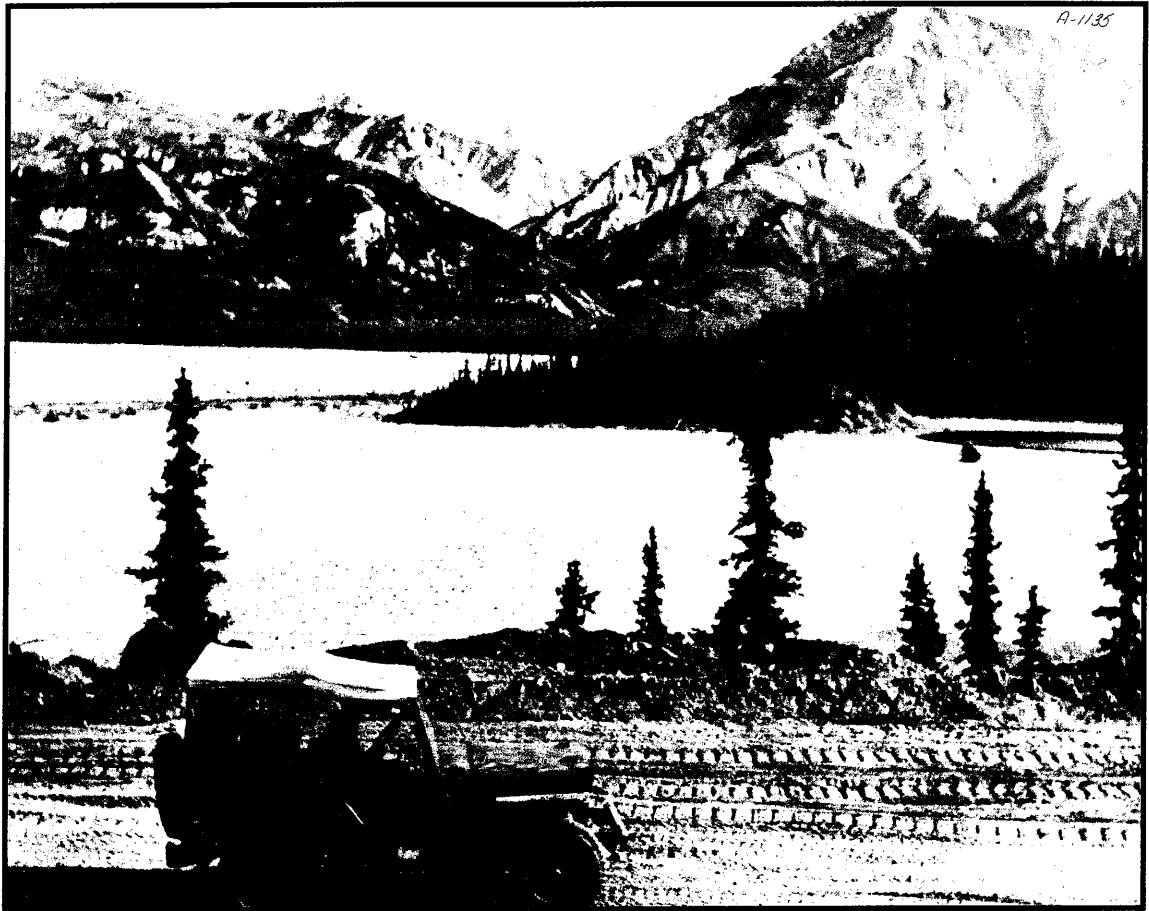
“The Japanese weren’t the enemy up here,” recalled one engineer. “The enemy was water.” One of the Corps’ biggest challenges was delivering equipment and supplies to the construction sites. As one worker commented, “It seemed like a hopeless task in the beginning.”



Pack trains brought supplies to the construction camps.



Looking south across the Northway Bridge, 1944.



Scenic stretch of the highway — adjacent to Teslin Lake.

CONSTRUCTION TECHNIQUES



After an initial path had been cut, bulldozers widened the right-of-way to permit the sun to dry the highway.



Mud and muskeg areas were corduroyed and the logs covered with gravel. Holes were drilled for blasting out rock walls along the Alaska Highway.

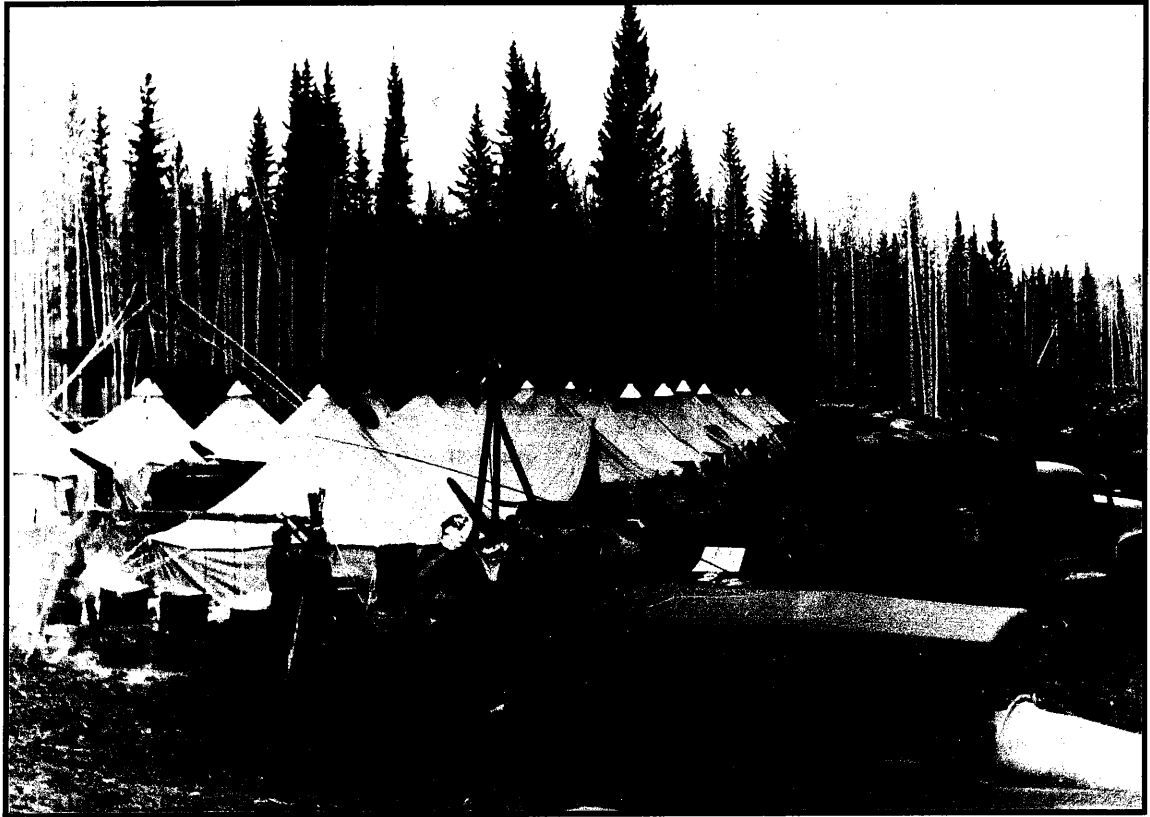


LIVING CONDITIONS



The winter camp of Company B, 341st Engineer Regiment, during construction of the Alaska Highway — both men and clothing froze during cold weather.





Tent camp — engineers relaxed in camp by reading and playing cards.

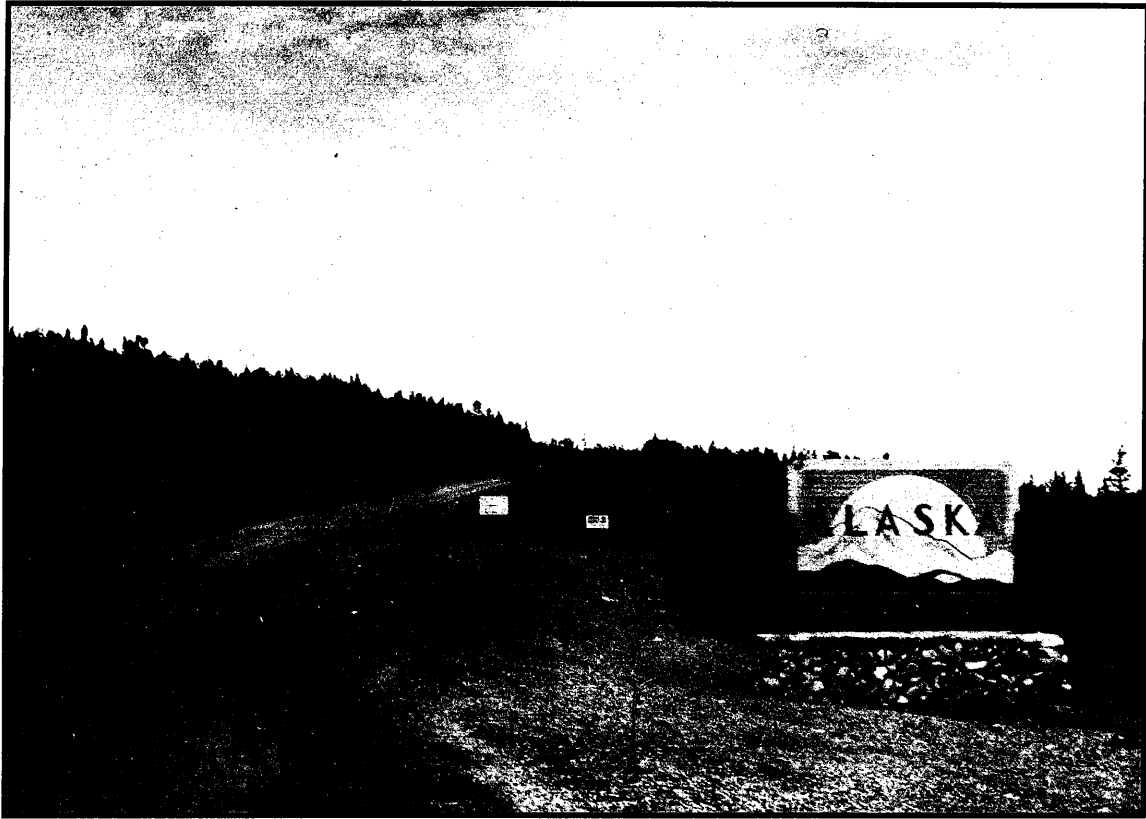




October 25, 1942 — construction is complete. The 97th Engineers, represented by Corporal Refines Sims, Jr. and Private Alfred Jalufka, representing the 18th Engineers, pose at Beaver Creek, Yukon Territory.

The 97th Engineers, who were African American, raced the 18th Engineers to complete different segments of the pioneer road. The 97th emerged victorious, and here a representative from the 18th offers his congratulations. The 97th and 18th Engineers met near the Alaska-Canada border.





Alaska Highway at the border between Alaska and Canada.