ERRATA: The following opening paragraph was omitted from the published version of this article in North, May-June 1969, page 31. This should have been followed immediately by the fourth paragraph in the published version.

THE ROLE OF TRANSPORTATION IN NORTHERN DEVELOPMENT

A RE-EXAMINATION OF THE ALASKA EXPERIENCE

Prominent among development cliches is "the key to development."
The implements put forward to unlock development potentials have been several, but transportation projects and programs probably would take top honors in any North American competition for nomination as the master key. Common sense says that development involves getting there and back and moving things about, hence you can't have development without transportation. Underdeveloped or undeveloped regions of the world appear to share a condition of primitive transportation systems or their virtual nonexistence, suggesting that the degree of development might be a function of the state of transportation. The westward expansion and subsequent development of Canada and the continental United States is frequently recounted in terms of transportation, the eighteenth and nineteenth century eras of canal, turnpike, and railroad construction being promoted as providing the essential key to the "opening of the country," and the twentieth century highway and airway programs filling the role of completing the process of binding the nation together. This interpretation of our histories gives rise to the belief that transportation programs are a prerequisite to settlement and development, that these are initiated by transportation programs.
Container cars are carried by the White Pass and Yukon Railway to the harbour at Skagway, Alaska.
The inter-relatedness of transportation and economic development cannot be denied or even minimized. But there is need to question the role of transportation in relation to development, and the experience in the Canadian North (all territory above 60°) and in Alaska affords a convenient means of doing this. That transportation development must precede other development (that in fact it gives rise to other development) is here accepted as Natural Law. The construction of the Alaska Railroad was authorized in 1914 in the firm belief that it would “stimulate settlement and the industrial and agricultural development of the Territory.” The subsequent experience was the reverse. This transportation system was not tailored to Alaska’s needs until overtaken by the freight demands of World War II. The system could only operate at a fraction of its potential, and the differences had to be made up in high rates and obstructionist tactics against potential competitors. The net result in economic development was negative.

The orthodoxy and the contrary experience has given rise to heresy. In December 1937, for example, the National Resources Committee in its report on Alaska’s development potentials and needs and with the Alaska Railroad in mind stated: “Those areas for which adequate information on natural resources is lacking should not be tapped by speculative building of railroads or high class highways until such information is available. It may easily turn out that there is nothing of sufficient economic value to tap.” The report goes on further to urge avoidance of speculative road construction “in order to reduce to a minimum the scattering of the population over a wide area, a condition that results in an excessively high cost for adequate government.”

There are many local government officials today who must secretly wish this advice had been heeded as they attempt to service the single-dwelling strip developments which stretch along the roads pushing out from their communities.

But orthodoxy does not die readily and thirty years later State Governor Hickel in his 1967 inaugural address again issued a stirring challenge to join him in building another railroad (with Federal funds) northward and westward to unlock the riches of the Arctic (still largely unknown), to create new cities and otherwise realize the destiny of the North. In a demonstration of what Marshall McLuhan calls “living in a rear-view mirror,” he supported his dream by calling up a TV version of “how the West was won” in the last century. Something of this was also reflected in the spirit of the “Roads to Resources” program in Canada when first announced.

The inter-relatedness of transportation and economic development cannot be denied or even minimized. But there is need to question the role of transportation in relation to other development, and the experience in the Canadian North (all territory above 60°) and in Alaska affords a convenient means of doing this. As an Alaskan, I will limit my observations to my own state, firm in the belief that any conclusions made here will have or have had application to the Canadian North.

Since World War II the development of Alaska’s transportation has been a dynamic process with dramatic shifts in emphasis and surprises.
Paralleling this there also has been compressed into the last thirty years major economic, political and social developments. Pre-war colonial Alaska based upon limited and selective natural resources exploitation (gold and salmon) changed to the military Alaska of World War II and the decade following, and again into the emerging natural resources-international Alaska of the mid-1950's and 1960's. The two courses of development have not only paralleled one another but have been inter-related. The nature of this will be discussed in terms of three highly generalized development impacts.

The Defense Impact

For all practical purposes, the Alaska studied and reported on by the National Resources Committee in 1937 was an island which could only be reached as islands were reached before the advent of the flying machine. There was no land link with southern Canada or the rest of the United States. Except for the trim luxurious cruise ships operated by Canada between Vancouver and Skagway, the only means of moving freight and passengers between Alaska and the Outside was by means of a motley fleet of American relics salvaged for the most part from other trades. At the time of the report, air-mail routes connecting Juneau and Whitehorse had just been inaugurated and plans were made for connecting Whitehorse to Fairbanks. The once-a-week schedule was to connect with the steamer bringing mail to Juneau from Seattle, for the first time affording an alternative to the time-consuming sea connection via the Gulf between the capital and the rest of the territory. This was to be the first leg in a trunk line air-mail route from Fairbanks and Juneau to the United States by way either of Seattle or Spokane in Washington or Great Falls in Montana. The proposed routes were then under consideration, which in governmentese means “don't expect anything for a few more years.” Furthermore, the routes would only be carrying mail, not passengers or freight.

There was only a total of 2,500 miles of roads and trails to serve a land mass of 586,400 square miles. Movements within Alaska, therefore, were largely by water, through the Inside Passage of southeast Alaska and the major river systems of the interior. In winter mail was carried by star-route dog teams, and some of us are old enough to have played as boys the game of rushing the serum to Nome by dog sledge. A start had been made on converting the star routes to air carriers. The Alaska Railroad, which had been in operation since 1923, pushed a single line from tidewater at Seward to the head of river navigation at Nenana and on to Fairbanks. The line had never been built up to standard and could be traversed only at low speeds with stops to chase moose off the right-of-way (it was illegal even for the Department of the Interior to kill them out of season) or wait for a wrecking crew to arrive to hoist the engine and cars upright when the continuously shifting track got too far out of line to accommodate the wheels. The rolling stock of coal-fired locomotives and wood frame cars had been salvaged from the building of the Panama Canal. The 470-mile journey took two days with an overnight stop midway at the Curry Hotel.

This was all dramatically changed by Pearl Harbor and the Aleutian invasion. The Alaska Highway was pushed through the Canadian wilderness into the heartland of Alaska in record time and connected up with the existing primitive road system to hurriedly lace together the burgeoning defense establishment. The gravel bush air fields were replaced by surfaced air strips and air fields and commercial aviation developed to back up the military effort. Alaska emerged from World War II with its road mileage more than doubled and connecting the main population centers of south-central and interior Alaska with the Outside through Canada and tidewater at Anchorage, Seward, Valdez and Haines. There was regular scheduled commercial airline and airfreight service from the Pacific and midwest states and Canada, and within Alaska most sections were now served by scheduled airlines supplemented by the bush service of the pioneer period.

But military necessity did not end with the cessation of hostilities. The Cold War, the Korean War, and the present period of uneasy peace supported by missiles brought continuing improvements to the transportation systems. The Alaska Railroad was completely rebuilt by 1948 to modern heavy-duty standards and the rolling stock modernized and dieselized. In fiscal year 1937 a total of 157,717 revenue tons was handled by the railroad as compared with 1,479,027 revenue tons in 1966. Aside from modernization, however, this was still the 470-mile single-line system operated in 1923. The system was finally realizing the full capability of its original design and at last became a paying
proposition. The air transport revolution wrought by military needs was translated into longer-range civilian aircraft, and Anchorage and Fairbanks became key stops in the flights connecting the Far East, North America and Europe via the North Polar route. The road network was upgraded and most of it paved in order to facilitate highspeed vehicular movement in the event of military emergency. In 1956 the Haines to Fairbanks pipeline built by the U.S. Army went into operation. All harbor facilities were improved to accommodate larger freight movements and new ones constructed, such as the port of Whittier in Prince William Sound. The obsolete and worn-out American shipping was replaced by Liberty and other freighters built to serve the war effort, supplemented by private barge and rail carriers benefiting from military experiments during the war. In 1936 the maritime trade between Alaska and the rest of the United States transported 873,600 short tons of dry cargo and petroleum products. In 1962 this had risen to 3,332,419 short tons. Improvements in scheduling, containerized freight, vessel and terminal innovations reflect the economies of scale made possible by the expansion of the trade.

This is substantially the transportation system, with some further elaborations and additions, which today serves Alaska. It was brought into being not as a development key or tool, but to serve military necessity (including the supporting civilian population and economy) and otherwise capitalize on Alaska’s strategic world position in the present air age. Development clichés may have arisen in connection with justification of its planning and construction, but always these were secondary or incidental considerations.

The Politics of the Automobile

The most important single social phenomena of the post-war Alaska has been the emergence of two near metropolitan centers and the increased urbanization of total population. The 1939 census (total population 72,524) reported the largest population concentrations as about 8,000 persons residing in the Juneau-Douglas area and 5,000 in Ketchikan in southeast Alaska and about 3,500 each in Anchorage and Fairbanks. For all practical purposes these four “centers” were islands separated from each other by hundreds of miles of wilderness and water. Except for very limited air travel, any population movement between them was accomplished seasonally by rail and marine transportation. The balance of the population (27%) was scattered in three intermediate centers of about 1,000 persons and smaller native villages and mining and fishing facilities. The 1960 census (total population 226,167) reported 80,323 persons in the city of Anchorage and its immediate environs and 39,630 in Fairbanks and environs, or 53% of the total state population located in these two centers. Another 15% was located in six places of between 2,300 and 10,000 population. All indications since 1960 point to greater concentration in these centers with accelerating trends of remaining population out of the villages and more remote sections of the State. Another important revelation of the 1960 census was that the new Alaskans who comprised the majority of the population were, for the most part, sojourners rather than permanent residents. Military personnel and their dependents, construction and petroleum workers, and federal government employees are generally signed on for limited tours of duty with rotation out of Alaska at the end of two years or so. Although they take on certain “Alaskan” characteristics during their tour, basically and for the long pull their values and their needs are determined by the mainstream of North American industrial-military-urban society. Finally, in terms of persons employed and wage and salary disbursements, contract construction has been the most important industrial classification in the private sector of the economy of the 1950’s and 1960’s.

The post-war Alaskan, in short, is more mid-twentieth century urbanite than nineteenth century pioneer settler. Ideally, his way of life requires quick and comfortable transportation from his suburban home to his downtown office or other place of business. His most prized possession is the low-slung, powerful and high speed American automobile which is virtually helpless and dangerous without a hard-surface and carefully graded and designed road system on which to run. Finally, in the process of meeting these needs and desires and fulfilling this important element in the American dream, more jobs are provided for Alaskans than any single natural resource developed to date.

All of this has become politically and institutionally reinforced. During Alaska’s territorial days the road building function resided in the Alaska Road Commission in the Department of
Tourists on the Alaska Railway, 1923.

The degree that road construction has become an end in itself (direct satisfiers of taxpayers' desires and a source of employment) rather than a means to other ends (opening up the country and natural resource development) can be gauged from the statistics on miles added to the network and its finances. On June 30, 1958, the last complete fiscal year before Alaska became a state, there were a reported 5,196 miles of roads of all grades in use, some of which were temporary trails subsequently abandoned. By 1963 the state roads were 4,249 miles (1,601 miles in the federal-aid primary system, 1,707 miles in the secondary system, and 941 miles of other state roads), and by 1967 this had increased to only 4,354 miles (1,641 miles in the primary and 1,780 in the secondary systems, and 933 miles of other state roads). The last state report indicated that during the 1968 fiscal year the total road systems had been lengthened by 12 miles, with 24 miles of new road under construction. The modest extension of the road network during the past decade, however, was accompanied by annual expenditures of about $40 million for construction (the 1967 fiscal year exceeded $60 million). The wholly state-financed pioneer road program, which started off with a 1961 budget of one million dollars, has virtually disappeared. Examination of the road-building programs indicates that most of the construction was re-construction, re-routing, and substantial up-grading of the standards of the road network pioneered during the territorial period.

An exception to these generalizations concerning the contemporary role of roads in relation to economic development is the state-operated Alaska Marine Highway (State Ferry System) inaugurated in 1962-63 with three 18-knot motor vessels, each with a capacity of 108 passenger cars and 500 passengers, and connecting Prince Rupert, B.C., and southeast Alaska communities and the Alaska Highway at Haines over a 500-mile route along the sheltered Inside Passage, and the south-central service inaugurated in 1964 with two smaller motor vessels and now connecting Kodiak, Cordova, Valdez, Seward, Homer, Seldovia, and Whittier. This program was financed by state-issued revenue bonds as a means of promoting tourism, and its experience to date has exceeded even the most optimistic hopes of its early advocates. A recent study of the program estimates that the number of tourists carried by the system (not residents using it as a means of
transportation) increased by 63% between 1964 and 1967 from 11,650 to 18,950. A further increase was registered in 1968 (the number of tourists was not segregated) with the addition of the Norwegian-built auto-liner MV Wickersham and extension of the service to Seattle. The success of this transportation system in the development of tourism can be attributed to just those characteristics of the American public which have overthrown the concept of roads as development tools in Alaska. The typical mobile American family with a camper or more conventional car-trailer combination and an unsatiable wanderlust has created a rush to the Last Frontier which appears to rival the turn-of-the-century gold stampedes.

The Impact of Natural Resource Development and International Markets

The current excitement in Alaska is centered on the July 1968 petroleum discoveries at Prudhoe Bay on the Arctic Slope which could raise total North American reserves by as much as twenty-five percent if the most optimistic estimates prove to be correct. In a straight line the two discovery wells are on the far north side of the Brooks Range some 290 miles from the nearest spur of the inter-connected road system and 340 miles from the head of the Alaska Railroad at Fairbanks. The job of moving equipment and supplies for this single operation were major undertakings, but it was accomplished without any investment in conventional transportation systems. This is only the beginning. During the 1968-69 winter, 12 new wells were being drilled on the North Slope, four by Atlantic-Richfield, three by British Petroleum, and one each by Mobil Oil, Pan American Petroleum, Sinclair, Standard Oil of California, and Colorado Oil and Gas. Rigs are being transported overland by cat-train and by sea in barges hauled by tugs. Most revolutionary has been the use of quad-track vehicles manufactured in Calgary which enable Alaskan oilmen to move drilling rigs and freight weighing up to 30 tons (an 80-ton version is in production) across swampy muskeg country and tundra during summer, thus eliminating costly delays of waiting for winter freeze-up or construction of roads which would cost millions of dollars and possibly have to be abandoned if the prospect did not prove up. Supplies and equipment are being flown to drilling sites by Alaska Airlines and Interior Airways using C-130 Hercules transports carrying average loads of 22 tons and capable of landing on quickly made air strips.

A variety of methods of getting the product to market by 1971-72 and after are currently under consideration. On February 11, 1969 Atlantic Richfield, British Petroleum and Humble Oil and Refining made a joint announcement of plans to spend $900 million to build a 48-inch
pipeline to move oil from the North Slope 800 miles south to a year-round port on the Gulf of Alaska. A fleet of 200,000-ton tankers would have to be built by American shipyards (to meet requirements of the Jones Act) to haul the oil across the Gulf of Alaska to Pacific Coast ports. An alternative being considered by others would be a pipeline to Yukon Territory, then south to Edmonton where the oil would flow through existing systems into mid-western markets. Sea transportation involving ice-breaking surface tankers (the “Manhattan Project”) or under-ice tanker submarines is also being studied. All of these decisions will have been made and the systems or combination of systems ready for use by the time the fields have been developed and are ready for commercial production.

The existence of a road on the Kenai Peninsula was useful in the earlier 1957 petroleum discovery of the Swanson River Field, but it was not essential and certainly played no part in the offshore developments in the Cook Inlet and exploration in the Bristol Bay area and elsewhere. Necessary transportation was and is being provided by the combined use of helicopters, tracked land-crawlers, special wheeled vehicles and hovercraft. Natural gas is being moved to local Alaskan markets by pipeline, and crude oil and petroleum products by pipeline to marine terminals.

The re-emergence of the road as a development key may have occurred in 1968 when the State of Alaska launched its ice road project, but even this was flawed in terms of pure development considerations. In an attempt to divert more of the freight generated by these petroleum developments through rather than around Alaska, and as a means of eventually encouraging a pipeline route southward through Alaska to tidewater in the Gulf, Governor Hickel solicited and acquired from a majority of the new State Legislature approval to spend $350,000 to construct a 360-mile winter truck road from Livengood to the North Slope.

Traditional or conventional marine transportation played a secondary role in relation to new natural resource developments comparable to that of roads. In 1954 Alaska’s first major post-war industrial development, the pulp mill at Ketchikan, went into operation. During the project’s promotional and planning stages there did not exist transportation facilities or service to meet its projected needs, but the lack of this development “key” did not even cause a pause in development. When the mill began operating, specialized transport was provided to ship in the chemicals required in the manufacturing process and ship out the finished product via Prince Rupert in British Columbia. This story was repeated in other versions in the case of the second pulp mill built at Sitka, the expanded lumber operations at Wrangell, and log and cant export at Haines, all developed to meet the demands of markets in Japan. The Japanese developers designed and built special cargo ships tailored to accommodate each type of cargo and the unusual conditions at each Alaska port. Each ship was named for the Alaska port it was designed to serve, the Haines Maru, Sitka Maru, and so on. Liquefied natural gas from the Kenai will be transported to Tokyo in two special tankers, each with a capacity of 1.5 billion cubic feet. But the discovery and development of the natural gas fields and the construction of a liquid gas plant all were accomplished prior to the development of the means of transport to Japan.

Returning to the 1937 report of the National Resources Committee, in considering transportation the writers observed: “Although Alaska may not be ideally suited for aviation, aviation, on the other hand, is ideally adaptable to Alaska. The topographic and physical features of the Territory, the distribution of a sparse population, climatic and seasonal factors all combine to favor the growth and development of this, the most recent of man’s space- and time-conquering transportation devices.” Roads and railroads were considered at the time to be too costly and impractical to be means of aiding development. The technological advances since 1937 to the present stage of availability of a wide variety of craft from helicopters to jumbo jet freighters have enhanced this general conclusion, and its soundness has been borne out by recent natural resources development. Transportation is essential to development, but speculative transportation development of the conventional sort is not and can impose hindrances. The form, nature, and extent of the development must first be determined and then the transportation tailored to fit it, not the development to fit a transportation system. Outmoded thinking concerning transportation technology or the premature hardening of the system in the wrong places can hinder northern development through a misapplication of development capital and imposing higher transportation costs upon subsequent development than necessary.