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SOVIET NORTHERN DEVELOPMENT, WITH SOME ALASKAN PARALLELS AND CONTRASTS

Terence Armstrong

Introduction

This paper is based in part on a series of lectures delivered at the University of Alaska in March and April 1970. A number of recent developments in the Soviet north have been selected, their present status outlined, and comparison made to analogous situations in Alaska. The selection, necessarily from among those topics for which there is adequate information, has been made with a view to exploring these comparisons. The subjects covered are all forms of transport, oil and gas exploitation, local food production, electric power, regional wage differentials, housing and town planning, relations with native peoples, and conservation problems. The emphasis is on description of the Soviet scene rather than of the Alaskan scene, since the former will be the less familiar to most readers.

The purpose is twofold: to inform Alaskans about Soviet developments in an environment similar to their own; and, more important, to indicate areas of activity in which exchange of experience between Alaskan and Soviet specialists would be desirable.

The Soviet North—Background Information

There is no consensus in Soviet literature as to what is implied by “the north” of the Soviet Union. Geography provides no clear southern limit (as it does for Alaska, the whole of which may be regarded as “the north” of the United States for our present purpose). But definitions put forward by S. V. Slavin of Gosplan (the State planning authority) are gaining acceptance. He defines an area that he calls “the Soviet north” in terms of economic development,
selecting as the main criterion a population density of less than five persons per square kilometre in 1917. This gives a southern limit at about the 60th parallel in Europe, dropping to the 50th at the Pacific seaboard (see Map 1).

The area of the Soviet north, so defined, is about 55 per cent of the land area of the Soviet Union, or substantially bigger than the United States including Alaska. It is largely forested, but is broken by mountains in the east and gives place to tundra in the north. The climate is severe, in the sense that temperature extremes are great. Every part of Alaska has climatic analogues in the Soviet north, and most have topographic analogues, but Alaska’s high mountains have no counterpart. Contrary to some views that have been expressed, the best geological opinion in the United States and the Soviet Union denies any continental drift between Alaska and northeast Asia at least since the Palaeozoic, so the possibility of still closer geological similarity is small.

The population of the Soviet north in 1959 was about 4.75 million, of whom just under one million were natives. A rough estimate for 1969 was 6 million, with about one million natives. The density is about three times as great as in Alaska, which has one sixth of the area and one twentieth of the population, but the proportion of white to native is about the same. The immigrant population has, however, been in the north for a much longer time. Russians reached the region of the White Sea probably in the eleventh century or earlier, crossed the Urals in force in the sixteenth century, and emerged on the Pacific by the mid-seventeenth century. Thus the whole of the Soviet north has been known to Russians for over three centuries, and although Russians were few and widely separated in the early stages there has nevertheless been continuous Russian settlement at a number of key points. At no time was there any serious attempt by another country to challenge Russian annexation of the territory.

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1 V.V. Yanovskiy, *Chelovek i sever (Man and the north)*, Magadan, 1969, p. 28.

Glossary: G = Guba = bay; M = Mys = Cape; O(va) = Ostrov(a) = Island(s); Proliv = Strait; Zemlya = Land.
During the Soviet period heavy investment has been made in the north. The motivation for this has come from a strong desire for self-sufficiency: the Soviet Union, finding itself in its earliest years surrounded by hostile countries, determined to make itself independent of foreign sources of raw materials. To this end major mineral exploration was undertaken, and many useful deposits were found. Exploitation may have been more expensive than importing, but this was irrelevant since national security was believed to be at stake. Such strong motivation has generally been absent in the northern territory of the other nations round the Arctic Ocean, and this is the main reason why the Soviet Union is ahead of the rest of the world in many practical aspects of northern development.

Finally, it is worth contrasting briefly the Soviet and the Alaskan systems of governmental administration. In Alaska, there is a complicated interplay of federal and state control, but major initiative is expected to come from private entrepreneurs, who finance and operate much economic development. In the Soviet Union, there is a parallel to federal and state control in the central (Moscow) and provincial authorities, but the importance of both of these is much increased by their being responsible also for the role played in Alaska by the private entrepreneur. In the northern context, it is important to note that many of the Soviet agencies involved, particularly the big mining organizations, are organs of the central government. The policies of the central and local authorities are not always necessarily in complete harmony so that strains may occur between them, as they sometimes do in Alaska.

Transport

Sea

The prominence suddenly thrust upon the Northwest Passage by the oil discoveries on the North Slope of Alaska attracts attention to the analogous waterway north of Eurasia, the Northeast Passage. This waterway has been energetically exploited by the Russians, and especially by the Soviet government. Its early exploration was in the

\[3\text{Sources for this section include T.E. Armstrong, The Northern Sea Route, Cambridge: University Press, 1952; and annual articles on the Northern Sea Route appearing in Polar Record, 195-69, and Inter-Nord, 1965-70.}\]
seventeenth and eighteenth centuries, and it was first navigated over its whole length in 1878-79 by A.E. Nordenskiold in the Vega. The history up to this first navigation is not greatly dissimilar from that of the Northwest Passage, through which the first voyage was made in 1903-06 by Roald Amundsen in the Gjoa. One difference is that Russians and others have seen the potential of developing a trade route, not right through the Northeast Passage, but to the rivers flowing into it, and traffic between the Atlantic end and the river Yenisey in particular was beginning to flourish in the decades before 1917. This was the basis on which the Soviet government was able to build.

The effort directed towards making a usable waterway out of the Northeast Passage (now called the Northern Sea Route) was great. The motivation sprang largely from the desire for self-sufficiency already mentioned. Lenin himself is often shown in the Soviet literature as playing a key role by signing the decree of 10 March 1921, which set up a scientific institute to study the seas and islands north of the Soviet Union. In fact, major advance did not occur until 1932, when a new government department was created, the Chief Administration of the Northern Sea Route (abbreviated in Russian to Glavsevmorput), with the task not only of making the route work, but of running a whole series of economic undertakings in a vast area of northern Siberia (everything north of lat. 62 degrees N.), which the sea route would render accessible. The new department was placed directly under the Council of Ministers. Its first head was O. Yu. Shmidt, a striking personality who had been a professor of mathematics, an explorer, and a holder of various senior administrative posts in the 1920’s.

Under Shmidt, a series of summer campaigns succeeded in bringing ships in increasing numbers to all parts of the route. An icebreaker fleet was assembled, port construction was begun, charting and ice forecasting services were established. An immense amount of work had to be done, and Shmidt was able to stimulate many people with the enthusiasm to do it. Unfortunately, the 1937 shipping season proved to be a failure. Through some bad luck and some mismanagement, an early freeze-up resulted in 26 ships being forced to winter at sea, among them seven out of eight serviceable icebreakers. This event took place at a time when the political purges were at their height, and the disaster was therefore at once attributed
to sabotage. Many heads rolled, Shmidt was replaced, and Glavsevmorput was shorn of its responsibility for all activities not directly related to the sea route. This process was barely completed when war broke out in Europe, and two years later the Soviet Union was a combatant.

During the war, the Northern Sea Route played its part. Traffic moved along it each summer, supplying the settlements and scientific stations. It was used for lend-lease convoys operating out of United States West Coast ports and passing through Bering Strait. The ships used were all Soviet, and thus could retain neutral status in relation to Japan. The German navy knew about this traffic, and sent U-boats and a battle cruiser to the Kara Sea in order to intercept the ships as they came through from the east. Soviet naval vessels from the Pacific also used the route to join the Red Navy’s Atlantic fleet.

After the war, there was an increase in activity. No complete picture of any season’s operations is issued in the Soviet press, but from occasional news releases the impression is gained that in the 1950’s and 1960’s probably 200 to 400 ships operated in these waters each summer, carrying between one and two million tons of freight. The biggest traffic is to and from the Yenisey river, where there are important nickel mines at Noril’sk and a substantial timber industry at Igarka. After that comes traffic from the Pacific to Pevek and the Kolyma river, where again there are mines. A large convoy of river vessels, bound for European U.S.S.R. and Eastern Europe to destinations on the Siberian rivers, is escorted along the route each summer. There is not generally any significant through traffic—unless it is naval and therefore not reported. In 1967 the Soviet government offered to open the through route to foreign shippers, but none accepted the offer, which seems to have been tacitly withdrawn later. Although it offered a possible economy of 13 days steaming time between, say, Hamburg and Yokohama, many factors might have acted to reduce the apparent gain, and perhaps turn it to loss. Ice is the biggest variable, and largely determines the success or failure of each season.

Operations are made possible by the existence of a fleet of about a dozen powerful icebreakers (i.e. over 10,000 h.p.), most of them Finnish-built. The flagship from 1960 to 1967 was the
Glossary: B = Bukhta = Bay; M = Mys = Cape.
Soviet-built Lenin, nuclear-fueled and with nearly twice the power (44,000 h.p.) of the next most powerful icebreaker afloat. She performed some impressive feats, but has been out of action, for undisclosed reasons, since 1967. Work on two more nuclear-fueled ships in the same class, the first originally due to come into service in 1971, has apparently been stopped.

Improved knowledge of ice distribution and behaviour stems from an extensive and long-term scientific program, which has included operating a still continuing series of drifting stations on the ice of the Arctic Ocean (nos. 19 and 20 are now in commission). This knowledge, together with the icebreaker fleet, has led to a lengthening of the season from about two-and-a-half months in the early 1930's to four months, or four-and-a-half in some places and seasons.

During the last twenty years, the service area of the Northern Sea Route has tended steadily to diminish. Once it was almost all Siberia beyond the reach of the Trans-Siberian railroad, but it has been eroded both by the enormous growth of air transport and by the extension of the rail link to the Lena river. More and more, the lines of communication from north Siberian settlements run southwards, by river, to the railroad. The Northern Sea Route tends now to be used only to serve locations in northern Siberia, which are also remote from the rivers Ob’, Yenisey, and Lena (all of which are intersected by the railroad). Nevertheless, in absolute terms the volume of freight carried on the sea route does appear still to be growing. The very large investment made in it is not going to be abandoned.

The experience of the supertanker Manhattan in the Northwest Passage in 1969 and 1970 may be thought likely to affect Soviet policy on the Northern Sea Route—especially since, as will be shown later, there is a parallel situation in the Soviet north with regard to oil. But, up to the present, no freighter of more than 10,000 tons deadweight appears to have used the Northern Sea Route. Manhattan is 140,000 tons deadweight, and much the largest ship ever to penetrate arctic pack ice. The shallow waters of the continental shelf extend far northwards off the Siberian coast, and would make great difficulties for ships like her. To find 20 fathoms (Manhattan draws over 11), a ship would have to pass more than 300 nautical miles from the coast in some places in the East Siberian Sea, for instance, and this would lead to considerable problems with the old pack ice
of the Arctic Ocean, and might also complicate loading. The same practical difficulties would apply to the possible use of submarine tankers, another idea with significant potential in the context of the Northwest Passage.

A final point of interest is the position regarding the right of non-Soviet ships to traverse the Northern Sea Route. In international law, the whole marine area outside territorial sea is regarded as the high seas, with free right of passage for all at all times. The Soviet Union claims 12 nautical miles of territorial sea, so that certain straits, notably Proliv Vil’kitskogo between Severnaya Zemlya and the most northerly point of Asia, lie wholly within it. This confers certain rights on the sovereign country, which should not, however, deny “right of innocent passage.” The question arises, how far does the Soviet Union recognize international law in this context? A Soviet decree of 1926 appeared to claim sovereign rights over all land and sea areas within a sector subtended by drawing lines from the eastern and western extremities of the country to the North Pole. However, a series of voyages by United States Coast Guard icebreakers to these waters between 1962 and 1967 shows that the Soviet Union is not prepared to dispute passage of foreign ships, except within territorial waters. Its right to deny innocent passage, whether to warships or other vessels, is contested by Western jurists, but there seems to be a radically different interpretation by the Soviet side.4

In arctic sea transport it is clear that the Soviet Union has a longer and more varied experience than Alaska. Her icebreaker captains are probably the most experienced in the world in navigating in the pack ice of the Arctic Ocean, and her scientists did much of the pioneer work on the properties and behaviour of sea ice. In many matters of coastal shipping operations in ice-filled waters, there could be a useful exchange of experience. In north Alaskan waters at the moment, however, the most pressing problems for

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4 Donat Pharand, Soviet Union warns United States against use of Northwest Passage, _American Journal of International Law_, Vol. 62, No. 4, 1968, p. 927-35. See also the same author’s more detailed Innocent Passage in the Arctic, _Canadian Yearbook of International Law_, 1968, p. 3-60, where the parallel with the Northwest Passage is examined too.
shipping are the possible operation of supertankers or of submarine tankers, and it happens that the Soviet Union does not have, and is not very likely to have, any interest in these.

River

The Soviet north is better provided with navigable rivers than is Alaska, and it is not surprising that much greater use is made of them. The original Russian advance into the area used the rivers as highways, and they have been central to the transport system ever since, acting as an extension of both the sea and overland networks. Only the Yenisey is navigable for ocean-going ships, the other large rivers having trans-shipment ports at their mouths. The Yenisey will permit ships with a draft not exceeding 24 feet as far upstream as Igarka, about 250 miles beyond the head of the long estuary. Large fleets of barges and powered craft operate on the Pechora, Ob'-Irtysh, Yenisey, Lena, Yana, Indigirka, and Kolyma, carrying a freight load which certainly runs into millions of metric tons a year. The introduction of hydrofoils on a large scale over the last decade has greatly speeded the transport of passengers and freight. These craft are used on waterways all over the Soviet Union.

In Alaska, the Yukon and the Kuskokwim are the main arteries, and both have carried, and still do carry, relatively light traffic, freighting some 30,000 to 50,000 tons a year. Hydrofoils might be useful here also, but their economic use would probably depend on the existence of firmly based production in the United States. The use of river craft as floating workshops and even power stations is another Soviet development, still relatively new, that may be worth watching. In any expansion of Alaskan river transport, Soviet experience could be most useful.

Road

The network of year-round roads is even sparser in the Soviet Union than in Alaska. There is only one major one, from Bol'shoy

Never on the Trans-Siberian railroad in eastern Siberia to Yakutsk and on through the mountains to Magadan, with spurs to mining areas—perhaps 2,500 miles in all. This sparseness stems in part from the greater distances, and in part from the high-level Soviet decision taken many years ago to favour other transport media in preference to automobiles. For this reason, Alaskan road engineers are likely to be better informed on the problems and better equipped mechanically to meet them than are their Soviet counterparts.

Wide use is made of winter roads in the Soviet north. Most of these follow well-established routes, and therefore the trail does not need to be cleared very much each year. Even if the trail does have to be cleared or graded, ordinary road-building equipment can be used for winter roads, so Alaska probably again has the advantage for the same reason just mentioned—that the Soviet Union is less advanced than the United States in highway construction.

There is no close parallel in the Soviet north to the Alaskan proposal to build a road to the North Slope oilfield. There has never been any public outcry in the Soviet Union about either building or not building a road to some northern area. The new Soviet oil and gasfield (see below, p. 18) has not had a road link with the outside world since it started production in 1953. Many new mining areas have been developed without a road link, including the nickel-mining complex round Noril’sk with 140,000 inhabitants. The one major road, to Yakutsk and Magadan, was built to serve existing centres rather than to facilitate their creation. Soviet planners would tend in any case to think first of railroads rather than highways.

Rail

Railroads are the backbone of the Soviet transportation system in the main part of the country, so their extension to the north is to be expected in preference to roads. There are two major lines to the north: to the port at Murmansk, completed in World War I, and to the coal mines at Vorkuta, completed in World War II and later extended to the mouth of the Ob’ river at Labytnangi. Apart from these, there are a number of spurs striking northwards from the Trans-Siberian line: from west to east, Ivel’ to Sergino on the Ob’, Tavda to Konda, Tyumen’ to Surgut, Asino to Belyy Yar, Achinsk to
Maklakovo, Reshoty to Boguchany, Khrebtovaya to Ust’ Ilim. Each of these is 100-200 miles long, and most of them were completed in the 1960’s. The line from Tyumen’ to Surgut, which is not due for completion until 1974, has special significance, since it is planned to be the beginning of a “northern Trans-Siberian,” running parallel to the main line and 200-400 miles north of it. East of Surgut it will follow the valley of the Ob’ to Kolpashevo, thence to Belyy Yar, Maklakovo, Boguchany and Ust’ Ilim (all already linked to the south), and finally, following the proposed route of the long-considered Baykal-Amur line, north of Baykal to Komsomol’sk-na-Amure. Completion of the whole line will undoubtedly take many years, and approval has probably not yet been given to all stages of the project. But if completed, it should open up to further development a broad strip of territory immediately to the north of the present developed area. At one point at least close to the projected route there is major mineralization: the iron ore and high grade coking coal of the Chul’m region in southern Yakutia, which could become the basis for major industry in the Soviet Far East. A decision to develop this complex would, however, be likely to include also construction of a direct rail link to the Trans-Siberian (about 200 miles).

Another line under consideration would run from Salekhard at the mouth of the Ob’ to Igarka on the Yenisey, some 700 miles. Construction actually started on this line in Stalin’s lifetime (when it would have had little justification), but it was abandoned at his death. Oil and gas discoveries in the area bring the idea to life again. The terrain is very difficult and wholly within the continuous permafrost zone, but some 450 miles of bed were prepared, and many bridges built. If the line is completed, it is likely that a bridge would be built over the Ob’ at its mouth to connect the line to the national network at Labytnangi; and that an extension would be made at the other end to Dudinka, from which there is an existing line to Noril’sk, the major mining centre of the Soviet north. It would then become unquestionably the most important northern railroad in the country.6

All these are projects which either have been completed, or are in construction, or are at a detailed planning stage. Other, more spectacular projects have sometimes been aired in the press: a line to Bering Strait, for instance (which would at least begin to make sense of the proposals for bridging or damming that strait). But ideas of this sort are not to be taken seriously, and few do so in the Soviet Union.

The parallel to these developments on the Alaskan side is the possible extension of the Alaska Railroad to the North Slope, a distance of under 600 miles. Soviet experience in railroad engineering would certainly embrace all the constructional problems likely to arise; but it is likely that American railroad engineers would feel competent to proceed without any such advice.

An issue often debated in the Western world is whether to build a transport link first, in the hope that it may lead to economic development, or whether to await evidence of economic development, and then build a transport link to it. These two possibilities are not strictly alternatives, but rather complementary requirements; but it seems that the emphasis in the Soviet north has been upon the second, in that resource exploitation has generally been in progress before a highway or railroad is built. An exception to this may be the “northern Trans-Siberian,” whose utility seems to be more general than specific; and in this it follows to some extent the example of the Trans-Siberian itself.

Air

In the Soviet north, as in Alaska, the greater part of passenger transportation is by air. The Soviet national airline, Aeroflot, operates efficiently a dense and frequently served network of scheduled flights. The absence of Soviet published air route maps, and the scarcity of timetables, lead to difficulty in determining just how dense is the network and how frequent the flights. But some examples of regional networks published outside the Soviet Union\(^7\)

\(^7\)Polar Record, Vol. 13, No. 83, 1966, p. 209; Aeroplane, 3 November 1966, p. 12-22. However, cover is too uneven to warrant inclusion of an air routes map here.
TABLE 1.

Aircraft Charter Rates, Per Hour, With Pilot

<table>
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<tr>
<th>Soviet aircraft</th>
<th>Rate charged in Yakutsk, 1967, with official $ equivalent</th>
<th>U.S. equivalent aircraft type</th>
<th>Rate charged in Fairbanks, 1970</th>
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<tbody>
<tr>
<td>YAK-12</td>
<td>R50 = $55 Aeroflot</td>
<td>Cessna 182 single-engine 3 passengers</td>
<td>$60 Fairbanks Air</td>
</tr>
<tr>
<td>single-engine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 passengers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AN-2</td>
<td>R120 = $132 Aeroflot</td>
<td>Beaver single-engine 7 passengers</td>
<td>$160 Interior Airways</td>
</tr>
<tr>
<td>single-engine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 passengers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IL-12</td>
<td>R200 = $220 Aeroflot</td>
<td>Twin Otter twin-engine 18 passengers</td>
<td>$280 Interior Airways</td>
</tr>
<tr>
<td>twin-engine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27 passengers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MI-4</td>
<td>R220 = $242 Aeroflot</td>
<td>Agusta-Bell 205A helicopter 14 passengers</td>
<td>$500 Jet Choppers</td>
</tr>
<tr>
<td>helicopter</td>
<td></td>
<td></td>
<td>Tundra Copters</td>
</tr>
<tr>
<td>11 passengers</td>
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Sources: Polar Record, Vol. 14, No. 89, 1968, p. 181; Jane’s All the World’s Aircraft; and personal communications from Fairbanks air charter companies.

show that the level reached is at least as good a service as is provided in Alaska, and this is confirmed by experience. Many places, as in Alaska, are accessible only by air, but some of them are much bigger than comparable Alaskan isolated centres. The problem of providing an adequate service for small villages, where a frequency convenient for users is not likely to be economic, can be dealt with quite easily by allowing busy routes to subsidize the others. For instance, the village of Bala on the upper Yana River, with 500 inhabitants, received in 1967 1-2 flights a day by 10-seater aircraft. Passenger fares per kilometre on Soviet internal routes are about one-third of the rates approved by the International Air Transport Association. On the other hand, a flight may be cancelled if an insufficient number of passengers have booked on it. There is no shortage of aircraft or aircrew, both of which can apparently be obtained at short notice from the Red Air Force, if necessary.
Bush flying has its equivalent in Aeroflot’s charter service. The rates charged seem to compare favourably with Alaskan rates (see Table 1), but it must be remembered that the purchasing power of the rouble is considerably less than its dollar equivalent at the official rate of exchange. The largest difference is in the case of the large helicopter, when the Soviet rate drops to half the Alaskan rate.

For moving heavy and bulky freight, the Soviet Union has long had the AN-22, whose payload is four times that of the C-130 Hercules, and comparable to that of the C-5A now coming into use. The Soviet MI-6 helicopter, which is the biggest in service anywhere, is much used for the transport of oil and gas pipelines.

In the efficiency of the air services provided, there seems to be little to choose between the Soviet north and Alaska, but the Soviet Union probably has the edge in freighting. Passenger handling and terminal facilities are more primitive on the Soviet side, however, and there is no private flying.

Resource Exploitation

Oil and Gas

Obvious opportunity for comparing Soviet and Alaskan experience occurs in oil and gas development. The Soviet exploitation began in the mid 1950’s, and has been proceeding at an accelerating pace ever since, so the Soviet industry will have met and perhaps found solutions to a number of problems that may be expected to occur in Alaska.

The major area of discovery is the northern part of the west Siberian plain, between the rivers Ob’ and Yenisey. Gas was found at Berezovo on the lower Ob’ in 1953, and subsequently at Ust’Balyk, further upstream beyond the Irtysh confluence; on the Vasyugan, a left tributary of the middle Ob’; on the peninsula of Yamal; and in

the region of the rivers Pur and Taz. These points are within a rectangle about 500 miles by 700 miles. The size of the reserves is continually being upgraded as exploration continues, but the largest gasfield, Urengoy on the Pur river, was estimated in 1969 to contain 175 trillion cu. ft. beneath a surface area of about 800 square miles. For comparison, the “estimated proved recoverable resources” in Texas in 1968 were 119 trillion cu. ft. Tazovskoye, another field 100 miles to the north, is reported by an American source to have lost much through formation facture.9

A gas pipeline was completed in 1968 from Punga, south of Berezovo, to Serov in the Urals. The new gasfields to the northeast call for further extensive pipelines. One will join the existing pipeline at Punga, and increase supply to the Urals industrial region and into European Russia. Another, more northerly, will join the “Northern Lights” pipeline, completed in 1969, from the northern Urals to the Moscow-Leningrad region. These pipelines vary in diameter from 39-in. to 48-in., and there has been serious talk of building a 96-in. pipeline in the near future. The advent of northwest Siberian gas into European Russia will permit the Soviet Union to export more gas to eastern and even western Europe (pipelines are planned to Trieste and the Netherlands). A third gas pipeline runs from the Messo-Yakha river to the city of Noril’sk on the other side of the lower Yenisey (170 miles). Work was started in early 1968 and is probably complete now. The pipe crosses the Yenisey on the river bed, here covered by 150 ft. of water. Other pipelines are also planned. The problem of laying gas pipeline within the permafrost zone is not necessarily anything exceptional, since gas will flow at any low temperature likely to be encountered. A 19-in. gas pipeline runs from a smaller, but still important, gasfield in the Lena valley near Yakutsk, and this, the first in the continuous permafrost zone, was laid on the surface, without protection or insulation of any kind.

Oil has been found within the same rectangle. The richest area is on the middle Ob’, in the region of Surgut and Megion. A discovery of the last two or three years is a structure called Samotlor, near Megion, which is said to be comparable to the Prudhoe Bay structure.

Map 3.

Exploitation of Oil and Natural Gas Resources in Northwest Siberia

- Pipelines
  - completed
  - in construction or planned
- Oil
  - completed
  - in construction or planned
- Railways
  - existing
  - formerly projected

**Southern limit of continuous or predominant permafrost (0° C. at 10 m depth)**
in potential. Also in the late 1960's oil was found on the peninsula of Yamal. Offshore oil in the gulf of Ob' (Obskaya Guba) and on the continental shelf of the Kara Sea is a good prospect, but no exploration has been done there yet. The middle Ob' oil is taken southwards in two pipelines: Shaim to Tyumen' (275 miles, completed 1965) and Ust'Balyk to Omsk (650 miles, completed 1967). The second is the more important, as there is a refinery at Omsk. This pipe is 39 inches in diameter, and there is a plan to lay a second alongside it. The completed pipelines are for most of their length above the surface, carried on supports so that there is clearance of 6 feet 6 inches above the ground. This height is found sufficient for the movement of wildlife. A third major pipeline, to follow the Ob' river upstream to Anzhero-Sudzhensk on the railroad (800 miles), has been started. None of these pipelines lie within the permafrost zone as shown on recent Soviet maps, but the terrain is very difficult due to swamps, and the presence of sporadic permafrost is not to be excluded. No plans have yet been announced for including the Yamal wells in any pipeline system. This will certainly raise greater problems, as there will be some hundreds of miles of continuous deep permafrost to traverse.

It is expected that this west Siberian region will become the country's biggest single producer of both oil and gas in five to ten years' time, and will meet about one-third of the country's demand for both fuels. In absolute terms, the gas production should be 5 trillion cu. ft. in 1975, with a potential ultimately of 25 trillion cu. ft.; and oil production should be 5 million barrels a day (230-260 million metric tons a year) by 1980, with a potential ultimately of 10 million barrels a day. Development up to this time has tended to lag behind the plan, and shortage of capital is believed to be a major difficulty. Thus production in 1969 was at the rate of only 420,000 barrels a day, and that for 1970 is planned to be 560,000 barrels a day.

There must be a large number of technical points in which Soviet experience could be helpful in Alaska. The Russians have learned a good deal, for instance, about the ways in which permafrost distorts seismograms. Pipe laying has been carried out on a large scale by MI-6 helicopters, and hovercraft have been used experimentally. Modifications of engineering techniques to suit particular local conditions must be numerous, even if the major
problem of continuous permafrost has not yet been encountered (in
the case of oil pipelines). This whole subject of pipeline construction,
operation, and maintenance is one in which an exchange of
experience could surely be of the greatest value to both sides—and
the sooner the better.

On the other hand, it is clear that the development of the
northwest Siberian region is going to be based on fundamentally
different principles from those at present governing the actions of
the North Slope oil companies. In Alaska, once the exploration stage
is over, development will be of a kind that calls for minimal labour
force. Production will be as fully automated as possible, and no
major refineries or petro-chemical plants are planned for the North
Slope. But in Siberia, the oil and gas are evidently seen as a way of
attracting a considerable permanent population to the region. A
number of oil towns have sprung up, Nefteyugansk being the largest,
and it is planned that Surgut should have a population of 200,000 in
1985. Admittedly, the Soviet production is likely to be bigger than
anything yet foreseen for the North Slope, where the present aim is 2
million barrels a day by 1975; and the whole operation probably has
greater relative importance in the Soviet Union, where the extra oil is
badly needed, both in order to service a growing domestic car
industry, and to meet advantageous export possibilities. Even though
part of the Soviet giantism may be due to lack of, or lack of interest
in, labour-saving technology, nevertheless there seems to be a
difference in the philosophy of northern settlement: permanent
settlement as a thing good in itself (for a variety of noneconomic
reasons), as against shorter-term settlement for as long as is necessary
to extract resources. This point will be referred to again later (see p.
31).

Local Food Production

Considerable effort has been put into exploring the possibilities
for local food production in the Soviet north. The most successful
branch has been the reindeer industry. This was to be expected, since
the Soviet regime inherited a reasonably flourishing industry from its
predecessor.

In early 1967, there were 2.36 million domesticated reindeer in
the Soviet Union, distributed throughout the north, but with highest
density in the eastern and western extremities of the country. The herds are tended by northern peoples, for whom the reindeer has been central for centuries. The Soviet government instituted new forms of ownership and management in the collective farm and the state farm, but some private ownership remains. A native subsistence economy based on reindeer has always existed. In the money economy introduced in Soviet times the emphasis until the last decade was on using reindeer for transport rather than meat production. However, the replacement of reindeer by mechanical transport, and a significant increase in the permitted selling price for reindeer meat, made a large difference. Meat sells for the rouble equivalent of 75 cents per pound (but the rouble has less purchasing power than the official rate of exchange might indicate), and this allows some state farms to show 100 per cent profit. In 1967, 722,000 domesticated reindeer of Magadanskaya Oblast' yielded 15,000 tons of meat (living weight), and this would be sufficient for 110,000 persons at the Soviet national norm of 62 kg. of dressed meat per person per year—a significant proportion of the population of the Oblast' (235,000 in 1959). In practice the meat probably supplies a smaller number of people at a higher level of consumption, but the value of the operation is still clear. Other factors that Soviet sources claim to have been effective in improving the industry, no doubt over a longer term, are the move to reduce nomadism among the reindeer-herding peoples, and the existence of a corps of veterinary personnel. There are 270 doctors, "feldshers" and "zootechnicians" in Magadanskaya Oblast', among them 88 members of north Siberian peoples. Scientific study of pastures, under such able and experienced botanists as V. N. Andreyev, has clearly helped also.

These figures for this particular region are not quoted as being the best in the country, but they undoubtedly reflect a level of accomplishment of which none concerned is ashamed. Room for further improvement is seen, however, even although the number of animals is approaching the believed optimum for the area.10

10 Based on papers by V.I. Dzodzikov, V.N. Andreyev, and M.I. Papernov in N.A. Shilo (ed.), Problemy razvitiya proizvoditel'nykh sil Magadanskoy oblasti (Problems in the development of productive forces of Magadanskaya Oblast'), Tom 3, Magadan, 1969, p. 58-68.
While reindeer industry is the most widespread source of local meat, there are also cattle and horses in northern areas. The cattle are kept chiefly for milk production, and the horses, which are mainly in Yakutia, for meat (the Yakuts prefer it to beef). The cost of producing horse meat is comparable to that of reindeer meat, and 140,000 horses in the region produce as much meat as its 350,000 reindeer.

Crops (other than hay) and vegetables are not produced on as large a scale as the Soviet literature might lead one to suppose. There are some model farms and some greenhouses, but they do not produce much more than token quantities of food. Of the seven National Districts in the Soviet north, which jointly occupy more than half its area, only one, the Khanty-Mansiyskiy on the middle Ob’ river, was reported in 1961 to have significant cereal crops and to be self-sufficient in potatoes and vegetables. This not very striking result is the more surprising in view of the enthusiastic and apparently effective scientific effort that was put into developing crops suitable for northern use in the 1920’s and 1930’s. What seems to have happened is that, although much is known about growing successful crops, the methods are expensive in time and effort, and therefore have not been widely applied.

The Soviet position with regard to crops seems to be parallel to the Alaskan position: although the potentiality is there, in present circumstances it is cheaper to bring these foodstuffs in from the south. With regard to animal husbandry, the Soviet experience seems to show that this can be successfully and profitably developed, especially with reindeer. What is not known is the extent to which the Soviet government, in raising the selling price of reindeer meat, was acting from noneconomic motives (e.g. trying to improve the lot of the natives, or to stabilize settlement in an underpopulated area). But it seems unlikely that any large element of subsidy is involved; and in any case a certain amount of subsidy could be justified on purely economic grounds in terms of the benefit to other industries of a more stable local population. Undoubtedly a major factor in the success of the Soviet reindeer industry has been the traditional

interest in reindeer herding shown by a number of the northern peoples.

This is the point of greatest contrast with the small Alaskan industry. Out of 31,000 reindeer (late 1969), 11,000 belong to the U. S. government, while 20,000 are herded, chiefly on Seward Peninsula, by 90 Eskimo families.\(^{12}\) One of the main problems has been encouraging Eskimos, who have never been animal husbandrymen, to go into this work, but there are indications that this difficulty may now be diminishing. The Eskimo attitude to a money economy has also caused some difficulty. The desire to maximize profits is not necessarily present, and the feeling that meat should be distributed round the village rather than sold is still strong in some.\(^{13}\) Among the traditionally reindeer-herding peoples of the Soviet north, however, the profit motive seems to have taken root, and Mr. Khrushchev’s insistence on the importance of their being allowed a “material interest” in the results of their labours was apparently a reason for the rise in selling price. Here, surely, the situation calls for a two-way exchange of experience.

Electric Power

There is no special interest attaching to thermal, or even nuclear, power stations in the northern environment. It is hydroelectric schemes which pose new problems. Few of these have been completed in the Soviet north. There is one on the Tuloma river south of Murmansk, but this is not in permafrost. The most interesting one is on the river Vilyuy at Chernyshevskiy. Here there is continuous permafrost, and this is the material used to form the dam, which has therefore to be kept frozen in order to remain effective. Apart from these, many very ambitious schemes have been put forward for the Soviet north: a 20 million Kw station at the mouth of the Lena; another almost as powerful, but harder to build,


\(^{13}\)Dean F. Olson, Alaska Reindeer Herdsmen, SEG Report, University of Alaska, No. 22, 1969.
at the mouth of the Ob’; a tidal station on the Murman coast; and, most ambitious of all, the famous Bering Strait dam. Of these, the Lena station is mentioned as a real possibility, and is said to have been approved in principle (though no one has yet demonstrated the need for such a vast amount of electric power in so remote a region). The Ob’ project was withdrawn, tacitly and no doubt grudgingly, when it was shown that the very large reservoir would cause a whole series of disadvantageous effects, up to and including flooding most of the wells in the vast oil and gasfield of northwest Siberia. The tidal station idea has proceeded far enough for a pilot project to be initiated at a site close by. The Bering Strait dam was not to be a producer of electricity, but a very large consumer, since water had to be pumped across the dam; the objective was climatic change over the whole arctic area. This scheme is sometimes still mentioned in the press, because its chief protagonist, the engineer P. M. Borisov, is a persistent person; but it would, if carried out, set off a chain reaction of climatic effects, and all agree that there is much doubt as to whether the net result would be favourable or unfavourable. Just to the south of the Soviet north several apparently successful hydroelectric installations have been completed or are nearing completion: Krasnoyarsk, Bratsk (at present the largest in the world, with 4.5 million Kw), and Ust’Ilim.

In the early 1920’s Lenin declared that Soviet power plus electrification would produce communism. The undoubted success of some major hydroelectric schemes in the Soviet Union has therefore given much influence to the engineers concerned. One feels that some of these ambitious proposals are put forward because very large public works of this kind are judged good in themselves, wherever they may be built, both for the electric power that would result, and for the evidence they provide of Soviet man conquering nature. It is possible therefore to envisage a situation in which a major scheme might go forward even though expert opinion in other fields was doubtful or hostile.

There are no projects on this scale that have been realised in Alaska. But it is possible to get a somewhat parallel feeling about the motivation of hydroelectric engineers from consideration of the plans for the proposed Rampart dam.
Incentive Wage Differentials

Since the death of Stalin in 1953, and the subsequent reduction in the forced labour camps, the main way in which labour has been attracted to the Soviet north is by incentive wage differentials, known as northern increments (severnyye nadbavki). Incentives in cash and kind have been in use since 1932, but the level has been changed several times. The most recent change was promulgated in a decree of the Supreme Soviet of the U.S.S.R. of 26 September 1967, and took effect on 1 January 1968. It increased the benefits, and made more people eligible. The main benefit is an increase in basic pay, rising at six months or yearly intervals by 10 per cent up to a maximum of either 50 per cent, 80 per cent, or 100 per cent above basic. The rate of increase, as well as the ceiling attainable, varies with the remoteness of the area (see Map 4). The sliding scale is, of course, designed to retain as well as attract labour. Other benefits include an initial cash grant and free travel to the north for the worker and his family, earlier pension entitlement, longer annual leave with some free travel, and the right to retain accommodation in the south.14 Quite apart from these incentives, there are cost of living allowances, known as regional coefficients (rayonnyye koeffitsienty), which also vary from place to place.

The system seems to work reasonably well, though the turnover of labour is always faster than is judged desirable. Complaints that the incentives were too low were frequent in the Soviet press in the 1960's (the previous revision of rates, announced in a decree of 10 February 1960, had reduced the rate of increase, although it had also spread the benefits over a wider range of recipients). This led to the increases in 1968. There are also complaints that the cost of living allowance is not adequate in some regions. It is no doubt inevitable that any centrally directed control of this kind will produce cases of hardship.

Map 4.

Regional Wage Differentials in the Soviet North

Zones in which regional wage differentials were provided under the decree of the Supreme Soviet of the U.S.S.R. of 26 September 1967.

Key: 1, "the far north:" increment of 10 per cent every six months to ten increments (100 per cent maximum). 2, "the far north:" increment of 10 per cent every six months to six increments, then 10 per cent every year to two increments (80 per cent maximum). 3, "localities equated to regions of the far north:" increment of 10 per cent every year to five increments (50 per cent maximum). 4, boundaries of zones under previous decree of 10 February 1960, by which rates of increase were also slower. 5, international boundary.
In Alaska there is no exact parallel because the pay and allowances of workers are not determined centrally. In the private sector, an employer pays what is necessary to get his labour, and compensation for the higher cost of living is included. It is possible in some cases to make a comparison, however, since the higher cost of living can be determined fairly accurately, and a sum equal to that cost can be deducted from the northern worker’s pay before comparing it with the national average wage for the job. Thus a comparison between a building worker’s pay at Yakutsk and at Fairbanks in 1966 shows that the Yakutsk worker’s incentive ranged from -9 per cent at the start (the basic rate in Yakutsk being below the national average) to +24 per cent after ten years’ service; while the Fairbanks worker received a 17 per cent incentive differential immediately, but was not placed on a sliding scale. (The analogous Canadian, a builder at Yellowknife, was paid at a rate implying a disincentive of 33 per cent, but he made up for it by working longer hours). If account is taken of the other benefits, not easily measured in money, the advantage of the Soviet citizen is increased (and that of the Soviet government, by the same token, diminished, in that it has to offer a larger incentive).\(^{15}\)

The Soviet incentives are necessary in order to get people to go north. There are several specific reasons, according to Soviet studies, why they would not otherwise go. First, and most obvious, is the climate. This is perhaps less of a disincentive in the Soviet Union than in Alaska, where the lack of any land connection with the lower 48 states may lead to exaggerated ideas of the severity of Alaska’s climate. Then there is the whole question of the standard of living: uncomfortable and cramped housing, shortage of fresh food, few cultural amenities. Here the advantage is again with the Soviet employers, since there can be a shortage of these things also in southern regions. To attract labour to Alaska, it is necessary to provide northern centres with many of the things that make the standard of living high in the rest of the United States, and this is of course expensive. There are indications, however, that the rising standard of living in southern U.S.S.R. is confronting the Soviet employer with the same difficulty. Indeed, it is now accepted that living conditions as good as, or if possible better than, those in the

south must be the aim. But the aim is far from fulfillment. A third reason for dissatisfaction among Soviet workers in some parts of the north is disparity of wage rates for the same job. A building worker in Yakutia, for instance, got 50 per cent more pay if he was employed by a Moscow-based organization than if he were employed by a local authority in Yakutia. This anomaly, perhaps unexpected in a system as highly centralized as the Soviet, has a parallel of a kind in the Alaskan situation. There, Tussing has argued that the high pay of building workers is itself a factor in generating a high cost of living, and that this has been the fault of the federal government as the largest direct or indirect employer. In other words, the Washington-funded organizations pay high rates and so force wage levels up. They are both cause and victim of regional inflation. In Yakutia, the same mechanism may be at work. But no reports have yet been received which might show how far it has gone, or what countermeasures have been taken.

**Housing and Town Planning**

Unsatisfactory housing and limited cultural amenities are recognized as two of the main factors acting to dissuade Soviet workers from going north. The same deterrents also act in Alaska; there, though present standards reached are higher, the level of expectation is also higher.

In the Soviet north, there have been many accomplishments and even more plans. The normal approach in larger centres is to build concrete apartment blocks, up to five stories high, to a design that seems to be standard throughout the country. Less expensive, and also less commodious, are two-story wooden houses, generally containing 16 apartments. These have the advantage that they can be built with local materials by local labour (good carpenters are much more readily found in the north than good bricklayers or workers in concrete). Few of these wooden houses have drainage, but some have running water. Special efforts have been made in some cases, particularly at Noril’sk, where almost all the buildings are of concrete

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and most have main services. This town of over 100,000 is something of a showplace (although very few foreigners have been shown it), and it is significant that the annual turnover of population here was reported to be 13 per cent in the mid 1960's. That proportion is the average for the R.S.F.S.R. as a whole, whereas the neighbouring but less well-built town of Talnakh had an annual turnover of 40 per cent, which is closer to the average for the north, and the oil towns in northwestern Siberia had up to 200 per cent.  

Many towns in the Soviet subarctic sprawl or straggle over a large area. A strongly made point in recent Soviet writings is the need for compactness, especially near or north of the timberline, where heavier precipitation and stronger winds create greater problems. The advantages are that buildings can be sited to protect each other, services can be provided more economically, and pedestrian movement in blizzards and darkness can be made less hazardous. Acceptance of this idea leads towards concrete multistory blocks. 

Plans have been advanced for many sorts of neighbourhood unit embodying the advantages just listed. How many of these have been built yet is not known. The most spectacular idea is for a town with controlled microclimate. Residential blocks of 15 storeys, circular or elliptical in plan to minimize wind pressure and heat loss, are joined by totally enclosed streets to a totally enclosed recreation area under a huge plastic dome. Inhabitants might number anything from 5,000 to 18,000. The first such towns were to be Aykhal, in the diamond-mining district, and Deputatskiy, a tin-mining centre, both in Yakutia. But, in spite of rumors to the contrary, neither has been built, nor even, it seems, approved, although the idea was first advanced not later than 1962. The Soviet proposal may owe something to a rather similar Canadian plan (also unrealized) for Frobisher Bay. The newest proposal in this series is that made by Tandy Industries for Seward's Success, to be built across Knik Arm from Anchorage; and this one does not seem very likely to get further than the others. 

17 V.V. Yanovskiy, op. cit., p. 34, 50. 
Behind this whole matter of housing and town planning lies the question of how permanent the settlement is expected to be. Since the basic reason for Soviet development of the area is mineral exploitation, the life expectancy of the towns dependent upon it is finite. But there may be other reasons for the Soviet government wishing to encourage settlement: to establish sovereignty, to sovietize the northern peoples, to defend against attack. Up till now, permanent settlement has been encouraged, presumably because such noneconomic motives as these were seen as important. Now there is a questioning of this view because the permanent towns have been expensive to build. Temporary towns are envisaged, designed for the expected period of working the ore body, and workers would come up in shifts from permanent towns in the south. This view is not yet dominant, and, indeed, is hotly disputed by those favouring the traditional approach. But if it were to prevail, there would of course be radical changes in the housing and town planning program. In Alaska, it seems, these issues are now also being seriously raised. The intention there is to have no permanent towns on the North Slope. The small number of workers required will be housed in very comfortable quarters during their shifts of northern duty, but these centres will act as “camps” rather than “communities.” But this is because the oil industry can be operated in this way. A major mining development—say the copper at Kobuk—might require a relatively large permanent community.

Relations With Northern Native Peoples

While there are about a million natives in the Soviet north, the proportion of natives to immigrants is about one-to-five, or close to the Alaska level. There are more than twenty distinct national groups, comprising a wide range of sophistication. At one end of the scale, the Komi (282,000), one of the Finno-Ugrian language group,


or the Yakuts (236,000), whose language is Turkic, can do all the things Russians can do, while at the other end the Asiatic Eskimo (1,100) or the Nganasany (720) are hunters and fishers only recently emerging from a primitive subsistence economy (the numbers are from the 1959 census results).

Soviet relations with these peoples have been, in general, good, and much assistance has been given to them. It is, of course, rash to generalize for all the peoples and the whole area. But the history of the relationship over the last 50 years has positive and negative aspects. The most negative aspect was the introduction of collectivization, beginning in about 1930. This was attempted in a heavy-handed way, at a time when the same process in European U.S.S.R. was causing terrible bloodshed and suffering. In the north, the worst excesses were probably avoided (though no reliable account has ever been published), but an officially admitted drop of 450,000 reindeer out of 2 million between 1929 and 1933 is evidence of no small upheaval in the life of the herding peoples.

The positive aspects include the provision of health services, better housing, more consumer goods, more advanced technology, and, most important of all, an extensive educational program. Fundamental linguistic work (often based on prerevolutionary studies) led to the provision of written languages for several of the peoples. Many natives were trained as teachers, so that now a quarter of all teachers in the “national areas” of the north (1,500 out of 6,000) are natives. Although this proportion is a very creditable achievement, it must also indicate that a considerable number of native teachers do not return to posts in the north, since the total output from the teacher training colleges is greater than 1,500.21 For higher education, it is mostly necessary for natives to go to a southern centre, but there is one university in the north—Yakutsk—which is well attended, largely by Yakuts.

The more numerous of the northern peoples constitute viable national units whose culture should continue to survive, even in areas of massive southern immigration. For the smaller ones, however, it is difficult to see a national future. One would expect population numbers to rise sharply, as they have in other northern lands when medical services became fully effective; but the northern peoples of the Soviet Union increased in aggregate by only 8 per cent between 1926 and 1959, while the figure for the whole country, after adjustment for frontier changes, was 20 per cent. This disparity has not been explained by Soviet ethnologists; but one may guess that assimilation is taking place all the time, since the Soviet census records whatever nationality a citizen states himself to be.

Many natives occupy positions of responsibility in their own territory. The Soviet territorial administrative system calls for creation of “national areas” for minority peoples. These may be at several different levels, depending upon the numerical strength of the non-Russian group. Thus the Soviet north contains two “Autonomous Soviet Socialist Republics (A.S.S.R.);” for the Komi and the Yakuts, and seven “National Districts,” for the Nentsy, Khanty, Mansi, Dolgan, Tungus, Chukchi, and Koryak. An A.S.S.R. sends 11 deputies to the Supreme Soviet, and a National District one. The “autonomy” of these administrative units does not imply that policies in conflict with Moscow’s may be adopted; but it does mean that the members of the minority people concerned can have a real voice in the running of local affairs. Thus many, in some cases most, key positions in these areas are held by natives, the area Secretaryship of the Communist Party among them. In addition, there are writers, musicians, actors, and scholars among the northern peoples, some with reputations throughout the country and even beyond.

Apart from this obviously small group of native intellectuals, the great majority of the native population continued to follow its traditional pursuits of hunting, fishing, or tending reindeer or other domesticated animals. It was, at least until recently, official policy to encourage this, since these were jobs which incoming southerners would have greatest difficulty in doing. The authorities did not, therefore, seize upon the local inhabitants as the most convenient
labour force for the mine, or port, or whatever other enterprise they were trying to develop; but rather, kept the local people doing the sorts of things they had always done, as a matter of economic expediency. Soviet ethnologists were also glad because in this way the native culture was protected for the best possible reason—its usefulness to Soviet society. But in recent years this policy has been questioned on the ground that the standard of living of the pastoral group was lower than that of the industrial workers, and that it was therefore unfair not to offer a freer choice to the natives. On the other hand, the northern increment was made available to native wage earners in 1960, so those employed on state farms (but not those working on collective farms) are almost as well off as industrial workers. Mass movement out of agriculture is not to be expected.

Comparing the Soviet situation with the Alaskan, it is clear that the Soviet Union has gone considerably further than the United States in working out relations with the northern peoples. This is not surprising in view of the longer history of Russian contact with these peoples, of the greater Soviet interest in the north as a whole, of the much larger number of natives involved (nearly 20 times as many), and of the wide range of accomplishment among them. It would seem that education has been the most important single factor in the successes that the Soviet Union has achieved. In providing this, the Soviet motivation has been that of a missionary, and the missionary has had the full resources of the state behind him. Sheldon Jackson might provide a parallel here—but the Soviet mission has at times been more in the spirit of the sixteenth century Church in Spain. Such programs as Headstart, Upward Bound, and the Alaska Rural Schools Project show that energetic steps are being taken in Alaska to meet the problem.

A major difficulty in assessing Soviet achievement in this field is the total lack of any independent reports against which to check the statements published in the Soviet Union. It is hard to believe, for instance, that there are not some Soviet counterparts to the Eskimo and Indian villages of Alaska where no adequate economic base exists. Or if there are not, then how were they avoided? Again, are there natives such as Emil Notti (a leader of the Alaska Federation of Natives) and Willie Hensley (a state representative from Kotzebue) who are politically effective spokesmen for their people? In a
country where private ownership of land is almost nonexistent, land claims would be unlikely to arise (and if they did, would be regarded as counterrevolutionary). There must be many other issues, however, on which a minority may feel itself to be unjustly treated by Moscow: for instance, whether it was getting its fair share of centrally funded social benefits. Although nothing about such disputes reaches the Soviet press, perhaps there are leaders who can carry on the silent conflict within the rules imposed. These are points on which information would be especially interesting, and perhaps relevent to Alaska; but none is likely to be forthcoming just yet.

Conservation Problems

There is a natural curiosity on the part of Alaskans, indeed of many citizens of the United States, to know what attitude is taken in the Soviet Union towards two interrelated sets of issues: those concerning the “wise use of resources” (as conservation is now officially defined in the United States), and those concerning pollution of the natural environment. For the present purpose, the two may be considered together, though less is known about the wisdom of resource policy than about pollution.

The first and most obvious difference between the Soviet Union and the United States in this respect is that popular awareness of the problems is relatively less in the Soviet Union. There is no great surge of popular feeling of the kind recently felt in the United States; but feeling for the problems certainly does exist, and is growing. There are many reasons why one might expect the Soviet public to be less aware. The pressure of man on the environment is less in a country over twice the size of the United States, but with comparable population. Industrialization came later, and a smoking factory chimney was still, until very recently, a symbol of progress, not pollution. Unspoiled countryside, or, as a Soviet citizen might think of it, undeveloped countryside, recalls the past, and the past of Russia is not something a Soviet citizen admires. Further, national enrichment through development of resources seems a much more important issue than conservation or pollution when a large proportion of the population feels it could be better off materially. Finally, Soviet public opinion is not used to making itself heard on issues of this kind.
Yet there is awareness, and it is growing. Serious articles appear in the press. One such was by D.L. Armand, a Moscow University geographer, and appeared in Literaturnaya Gazeta for 25 February 1970. Armand had attended a UNESCO conference in Paris, and was reporting the worldwide concern expressed there. He drew attention to the serious soil erosion problems of the Soviet Union, where topsoil on 120 million acres has been washed out or blown away. He quotes encouraging cases where wildlife species have been rescued from possible extinction in the Soviet Union—elk (called moose in Alaska), sable, beaver, saiga (a species of antelope)—but fears that widespread poaching may threaten these achievements. As to river pollution, he believes the Soviet Union has a better record than many countries in the West, but admits that river sewers do exist. This last point is underlined by a recent joke in the comic magazine Krokodil, where a bather is shown emerging from a river, on the sandy beach on which is a notice “Wipe your feet.”

The great issue of recent years on this general topic has been the question of the Baykal pulp mills. This is just beyond the limits of the Soviet north, but the importance of the case justifies its inclusion here, since it will effect policy in the north. Never before in the Soviet Union had a pollution matter attracted so much publicity, and seldom had a public outcry of such strength been heard on any subject (apart from officially inspired expressions of opinion on political matters). In the early 1960’s it was learned, within the Soviet Union, that two pulp mills were to be built on the southern shore of Baykal. Now Baykal is a special place. It is the world’s deepest lake, its water is equivalent in purity to distilled water, 750 species of marine organism are endemic to it. It further holds a special place in Russian folk-consciousness, and ancient folk songs praise “Holy Baykal.” The developers had chosen a bad place to defile; but even so, the public objections were greater than anyone outside would have expected. First scientists, then other intellectuals, expressed strong disapproval. It is possible to speak even of a press campaign. The developers were not used to having to defend their actions, and little was heard of their side of the case. Argument was clearly going on behind the scenes, however. In the end, the mills were built, but severe restrictions were placed on the effluent they might allow to enter the lake; so something of a victory
could be claimed by each side. The latest information from the Soviet Union, however, indicates that argument continues. Scientists are still objecting, this time to the effect on the lake of organic matter which is eroded away from the logs as they are floated to the mills. The main objective of the protesters, no doubt, is to try to ensure that things like this do not happen in the future. In this they have apparently had some success, for a new government agency has been established within the Ministry of Agriculture of the U.S.S.R. with the task of examining all proposed factory sites from the pollution point of view. This body has some power of veto, but how effective it will be remains to be seen. Whether it has any jurisdiction over existing installations is also not clear. There has long been in existence a system of imposing fines on factories which pollute rivers. But such fines are not a powerful deterrent, since they are paid with money which belongs to no individual, and the only one to suffer (in the words of a Soviet scientist) is nature.

Perhaps because of the large size of the country and its sparser population (relative to the United States), the question of national parks and nature reserves has not yet become very important in the Soviet Union. Nature reserves have long existed there, but out of 88 functioning in 1969, only four were in the north: the Lapland and the Kandalaksha nature reserves, both in Murmanskaya Oblast', the Pechora-Ilych in Komi A.S.S.R., and the Kronotskiy in Kamchatka—the only one in Asiatic U.S.S.R. The motivation for their establishment has been scientific and economic, rather than any considerations of amenity or tourism. In Alaska, on the other hand, there is one National Park (McKinley), three National Monuments (Katmai, Glacier Bay, and Sitka), two National Forests (Tongass and Chugach), and five wildlife ranges and refuges (Nunivak, Clarence Rhode, Kenai, Kodiak, and Arctic). These constitute a much higher proportion of land classified for these purposes than in the Soviet north.

22 A short account in English appeared in New Scientist, 11 April 1968, p. 84-87, and fuller versions have no doubt appeared elsewhere.

Conclusion

From the series of topics discussed in this paper, two points emerge clearly. First, the highest-level decisions about northern development are not likely to be comparable as between the Soviet north and Alaska. It is no doubt true that both the Soviet Union and the United States want to get what they can (to use a broad, vague phrase) out of their northlands. But the overriding desire for self-sufficiency on the part of the Soviet Union provides strong motivation, and, even more important, a centralized command economy implements that motivation more effectively than any economic mechanism so far available on the Alaskan side. To compare the levels reached in the exploitation of particular resources would not therefore be very meaningful. But, secondly, it is clear that there is something to be gained from a lower-level comparison of techniques and methods employed to achieve particular ends. From the point of view of gain to Alaska, these might be in sea or river transport, in oil and gas technology, in local food production, or in relations with native peoples. From the Soviet point of view, there would also be something to be learned about oil and gas, but emphasis might be placed in addition on road transport, mechanical equipment of many kinds, and housing.

A good way to achieve a fruitful exchange of experience would be for specialists in a given subject from each country to meet, to visit together the relevant northern locations, and to explain to each other their methods. It should be possible to initiate a joint study of methods of northern development, which would be based on a series of such meetings of specialists, and would attempt to distil from their exchange of experience lessons helpful to both sides. Such an approach, if successful, should not only benefit those working in any part of the northern environment, but should also point a way for possible cooperation in other fields of human activity. Attempts to realize schemes of this kind have been made before, and have not been very successful. Difficulties, probably as much bureaucratic as political, seem to prevent the Soviet side from agreeing to this kind of information exchange. In fact, there is a true community of
interest here, as this paper has tried to show. This is recognized by some in Moscow, but the Soviet system renders it difficult for them to take the initiative. It is all the more essential, therefore, that those in the West interested in promoting exchanges of this kind should not be discouraged, but should continue to seek ways of starting them.