

# THE GROWTH OF THE SOVIET ARCTIC AND SUBARCTIC

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## I

THE physical indices essential to the study of the economic growth of the Soviet Arctic and Subarctic have long been rare, and have virtually ceased to appear. Those available are discontinuous, imprecise, and frequently conflicting. Yet, if these are collated from a wide range of periodicals and monographs, a crude pattern does emerge. From a study of this literature, recording years of research and experiment, it is also possible to gain some conception of the difficulties which have been encountered, and of the extent to which these have been overcome. To divorce the statistics from their context is to rob them of their full significance. Perhaps more important, to omit this context is to ignore the perspectives for the most probable current and future development of the Soviet North. Bearing this in mind, this paper will attempt to assemble only those data concerning claimed developments which appear to be consistent, and, finally, in the light of these, to examine the apparent growth of population.

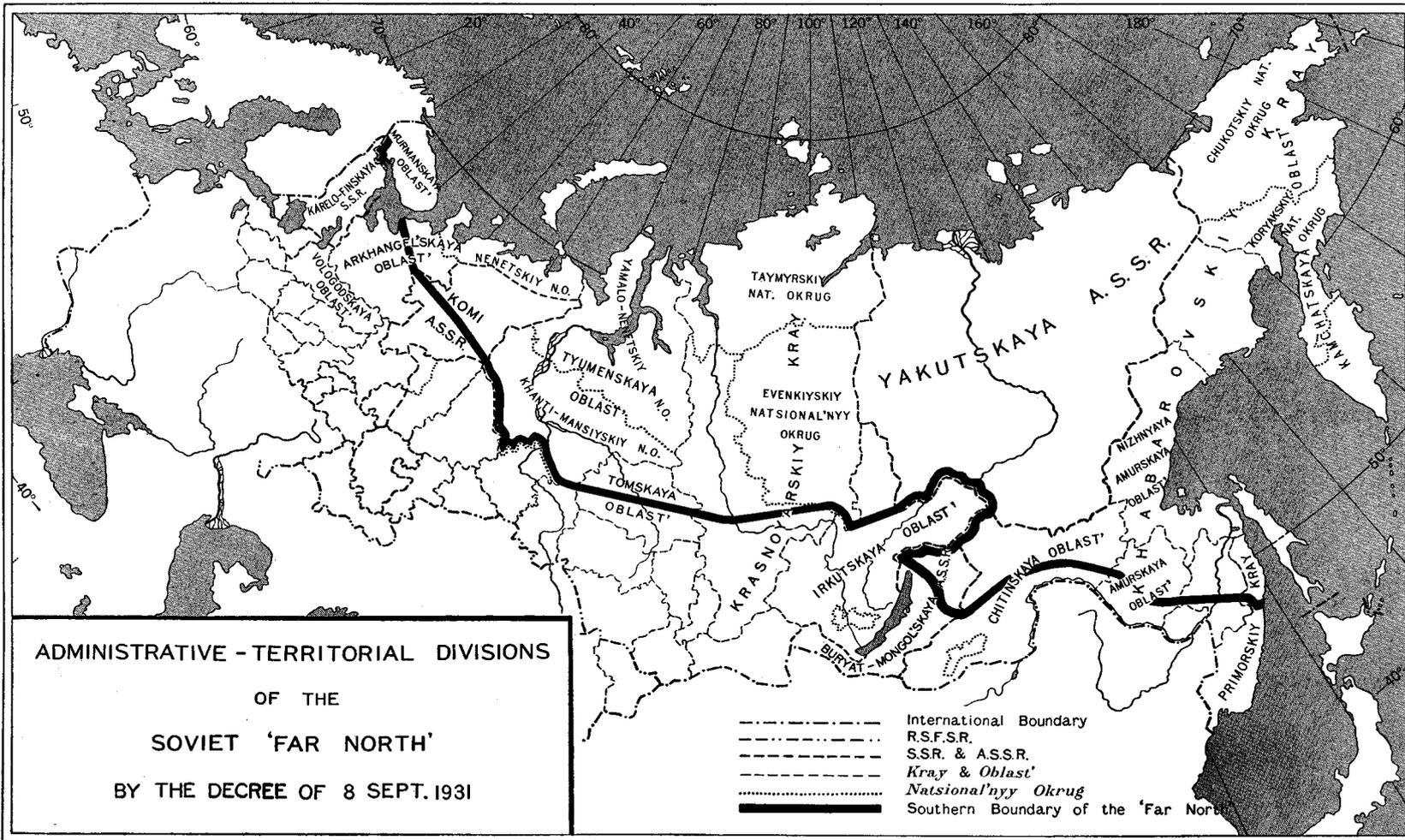
Under the term "Soviet Arctic", the government of the U.S.S.R. connotes all the lands and waters which lie north of the Soviet Union and between the meridians of 32° 04' 35E. and 168° 49' 36W.<sup>1</sup> Most Soviet writers accept the Arctic as extending south to the wooded tundra. For the purposes of this paper, a southern boundary for the Soviet Subarctic is less easily established. Soviet attempts at a definition of this line are of little help.<sup>2</sup> But assistance may legitimately be sought in that which has emerged in Soviet practice.

West of the Urals, conditions which may be termed "subarctic" prevail everywhere at least north of 60°N.; east of the Urals, the same conditions obtain everywhere throughout the R.S.F.S.R.<sup>3</sup> Within this subarctic zone lies the great boreal forest of Eurasia. During one thousand years of expansion north and east into this forest, the Russian population has met increasing resistance to its advance. In the European North, a region traversed from the ninth century by freight routes to the Arctic, some settlement probed on as far as the Arctic Circle; but widespread agricultural settlement ceased in the vicinity of 60°N. In Siberia, continuous settlement has been restricted to a narrow band along

<sup>1</sup>*Sobraniye Zakonov i Rasporyazheniy S.S.S.R.*, Vol. 1, No. 32 (1926).

<sup>2</sup>On the basis of radiation and atmospheric circulation, A. A. Grigor'yev has defined "physico-geographical" zones of equatorial, subtropical, subarctic, and arctic environment. By this method, he places the southern boundary of the Subarctic between 67° and 73°N., *Subarktika*, (1946) p. 6.

<sup>3</sup>Roberts, B., "Administrative divisions of the Soviet Arctic and Sub-arctic", *Polar Record*, No. 31 (1946) pp. 320-3.



the southern edge of the forest, through which the Trans-Siberian Railway has been built. North of these limits, Russia in 1917 remained a cold and virtually undeveloped wilderness, difficult of access, and inhabited mainly by non-Slav natives pursuing a primitive, nomadic subsistence economy. But this was territory which generations of warriors, traders, travellers, and explorers had revealed to contain immense wealth, only a little of which had begun to be exploited. In the conditions of international isolation and domestic reconstruction which followed on war, revolution, and intervention, the new government decided that it had urgent need of this wealth, and of the sea route through the Barents and Kara seas.<sup>4</sup> But to find and exploit this wealth it was necessary to develop transport and communications; to import Russian labour, food, and machinery; to found settlements; and to analyse the intricately balanced forest economy of the natives, if this was not to be disrupted by the imposition of a Russian pattern. Thus, in the years immediately following 1917, historical, demographic, and economic factors combined to define an immense region in the north of Russia, throughout which subarctic conditions prevailed, and in which the young Soviet government saw a special economic problem.

Towards the end of the First Five-Year Plan (1928-1932), when the planned development of the Russian North as a whole properly began, the government undertook the precise definition of this region. The "Far North" (*Kraynyy Sever*), henceforth a specific concept, was described by a decree of 8 September 1931 as consisting of the following units:<sup>5</sup>

Murmanskaya Oblast'

Northern portions of the Arkhangel'skaya Oblast', including the Nenetskiy Natsional'nyy Okrug

Northern portions of the Komi A.S.S.R.

Tyumenskaya Oblast', including the Yamalo-Nenetskiy and Khanti-Mansiyskiy *natsional'nyye okrugi*

Northern portions of the Tomskaya Oblast'

All of the Krasnoyarskiy Kray north of approximately 57°N., including the Taymyrskiy (Dolgano-Nenetskiy) and Evenkiyskiy *natsional'nyye okrugi* Yakutskaya A.S.S.R.

Northern portions of the Irkutskaya and Chitinskaya *oblasti*, and of the Buryat-Mongol'skaya A.S.S.R.

Virtually all of the Khabarovskiy Kray, south to (and including northern portions of) the Amurskaya Oblast'

Primorskiy Kray, north of the Khor and Samarga rivers

All islands of the Arctic Ocean, and of the Okhotsk, Bering, and Kamchatka seas.

<sup>4</sup>Yegorov, K., and S. Slavin, "V. I. Lenin i Razvitiye Sovetskoy Arktiki", *Sovetskaya Arktika*, No. 1 (1941) pp. 10-20.

<sup>5</sup>Soviet political geography in this region has been perhaps even more dynamic than normally. The text of the decree, giving the above units by the names by which these were known in 1931, is quoted in Taracouzio, T. A., "Soviets in the Arctic", 1938, App. XX, p. 455. A map showing the southern boundary of the "Far North" occurs in Khrupal', K., 'Sel'skoye Khozyaystvo Aziatskogo Severa', 1940, p. 1.

It would appear that the northern limit of relatively continuous Russian settlement has been used to define the southern boundary of the "Far North".<sup>6</sup> It will be noted that the larger portion of the European North is excluded. Yet the nature of this region, the bulk of which is accepted by the Academy of Sciences as a geographical unit,<sup>7</sup> is such that it demands inclusion in a study of the Subarctic. In Siberia, most of the "Far North" lies north of 60°N. On the other hand, to the east of Ozero Baykal, it extends south to beyond 55°N. and even 50°N. In this district, it may be argued that subarctic conditions are the result of continental rather than arctic influences. The "Far North", then, is not a completely satisfactory "Subarctic".

In order to expedite the development of the Siberian "Far North", the government has organized penetration from two directions: from the Arctic Ocean in the north, and from the railway in the south. The boundary between the two parts into which Siberia was thus divided was settled as roughly the latitude of the city of Yakutsk (approximately 62°N). After 1932, the development of all Siberian territory north of this latitude, which came to be oriented principally toward the Arctic basin, was made the responsibility of the Main Administration of the Northern Sea Route (G.U.S.M.P.).<sup>8</sup> South of this line, the development of the "Far North" was left to the normal organs of federal, republican, and local government. Since that date, most Soviet writers on the Siberian Subarctic have tended to concern themselves with the region north of 60°N.

For these reasons, that part of the U.S.S.R., both European and Asiatic, which lies north of 60°N., will be considered the "Subarctic" of this study.

## II

### *Transport*

The key to the economic development of the Soviet Arctic and Subarctic has been transport. Of the Northern Sea Route, it is sufficient to note that the government has built a chain of ports, meteorological stations, and coastal installations extending from the Kol'skiy Poluostrov eastwards to the Chukotskiy Poluostrov. By 1940 about one hundred navigational aids had been set up in the Kara Sea alone. The main ports appear to be Murmansk, Arkhangel'sk, Novyy Port, Ostrov Diksona, Igarka, Bukhta Tiksi, Ambarchik, and Bukhta Provideniya. Along this

<sup>6</sup>Pavlov, M., and V. Goroshchenko, 'Geografiya S.S.S.R.', 1946. The ethnographic map on p. 42, which shows the northern limit of relatively continuous Russian settlement, has been taken from a map at the end of this volume.

<sup>7</sup>Rikhter, G., 'Sever Yevropeyskoy Chasti S.S.S.R.', 1946, p. 7.

<sup>8</sup>Since 1939, the G.U.S.M.P. appears to have been relieved of much of its continental responsibilities.

route, over one hundred polar stations of various types have been established; of these, it is claimed that seventy operated throughout the Second World War. In 1938 a total of 104 vessels were active in these waters, exclusive of icebreakers. It is reported that, during the Second Five-Year Plan, a total of 1,188,000 tons of freight were shipped along this route. The target for the Third Five-Year Plan (1932-7) was 2,631,000 tons. Figures for the present Plan are not available; but it is claimed that the volume of freight increased by 80 per cent between 1940 and 1945. These figures represent a very small fraction of the freight traffic on the Trans-Siberian Railway; but they acquire interest when it is remembered that the bulk of this tonnage consists of shipments to and from the arctic ports, where supplies for, and some of the output of, the Subarctic is transhipped from the river fleets. As long ago as 1936, these fleets amounted to 60 vessels and 146 barges, which carried over 200,000 tons in the following year. Mention must also be made of the Stalin Canal<sup>9</sup> (Belomorsko-Baltiyskiy Kanal Imeni Stalina), which was opened in 1933, and which permits the passage of light naval units from the Baltic to the White Sea. Finally, although the ambitious plan for the "Southern Taymyr Water Route" to link the mouths of the Yenisey and Lena rivers has not been realized, the Pyasina waterway has been considerably improved.<sup>10</sup>

The European North is the only area of the Soviet North which is relatively well served by railways. That part of the "Kirov" line (the Leningrad-Murmansk Railway) which crosses the Kol'skiy Poluostrov has long been electrified, and the Arkhangel'sk-Vologda route has been double-tracked for many years. Early in the Second World War, the crucially important line to Vorkuta was rushed through from the vicinity of Kotlas.<sup>11</sup> A dirt road now exists along the Yenisey from the Trans-Siberian Railway to Igarka, and Dudinka is linked with Noril'sk by a narrow-gauge railway.<sup>12</sup> In the Soviet Far East, an unmetalled road joins Magadan with the headwaters of the Kolyma; around its northern terminus a complex net of communications has been developed throughout the gold-fields. In addition, a large number of deer-tracks have long been

<sup>9</sup>Owing to the length of the Russian name the English name has been given on the map on p. 32.

<sup>10</sup>Yanson, N., "Plan Raboty Sevmorputi v 1937 Godu", *Sovetskaya Arktika*, No. 2 (1937) pp. 14-23.

Mandel, W., "Some notes on the Soviet Arctic during the past decade", *Arctic*, Vol. 3 (1950) pp. 55-62.

Levichev, T., "Reki Kraynego Severa v Sluzhbe Sotsial'nogo Stroitel'stva", *Sovetskaya Arktika*, No. 9 (1937) pp. 19-22.

*Problemy Arktiki*, No. 1 (1938) pp. 99-102.

<sup>11</sup>Vol'fson, L., et al., 'Razvitiye Zheleznikh Dorog S.S.S.R.', 1939.

*Polar Record*, Vol. 4, No. 29 (1945) pp. 236, ff.

*Trudy Instituta Merzlotovedeniya*, Vol. 2 (1945) pp. 121-213.

<sup>12</sup>Suslov, S. P., 'Fizicheskaya Geografiya S.S.S.R.', 1947, map "Zapadnaya Sibir'."



used for overland travel, at least once by motor transport.<sup>13</sup>

Prior to the outbreak of the Second World War, air transport in the Soviet North does not appear to have been as developed as the spectacular transpolar flights of 1937, the landing of the Papanin North Polar Drift Expedition at the Pole, and the transarctic flights of Molokov in 1938 might seem to have implied. Regular lines do operate northward along the great rivers to the Arctic, and personnel and freight are delivered to many points in the interior. In the past fifteen years, aircraft have been increasingly used for various types of aerial surveys, to serve the sealing and fishing fleets, and, particularly, in the ice-forecasting service of the G.U.S.M.P.<sup>14</sup>

### *Mining*

In the Kol'skiy Poluostrov, a mining centre of national importance has been developed around Kirovsk, where the world's largest apatite deposit yielded 2,000,000 tons in 1938.<sup>15</sup> From Monchegorsk and Pechenga (Petsamo) much of the total Soviet output of nickel, as well as some platinum and cobalt, are obtained. It has been the intention that the Kandalaksha aluminium plant should use cyanite from Keiv (some fifty miles to the northeast) and nephelite from Kirovsk, which produced 500,000 tons of nephelite in 1942.<sup>16</sup> Quartzites, graphite, and mica are mined, and gypsum, cement, and bricks are manufactured locally. Reserves of monazite, niobium, and beryllium have been found in nationally important quantities; and it has been planned that the sulphuric acid industry would be established in this peninsula during the Fourth Five-Year Plan (1945-50). It is not clear that any progress has been made in the development near Leningrad of the "Northwest Metallurgical Combine", which was intended before the outbreak of the Second World War to use low-grade iron from the Kol'skiy Poluostrov and coal from the Pechora valley.

In the Karelo-Finskaya S.S.R., from the region between Kem' and Kandalaksha, the Soviet ceramics industry drew 80 per cent of its raw materials in 1940.<sup>17</sup> Copper is mined at Medvezh'yegorsk and some fifty miles to the north. Elsewhere, titanium, molybdenum, and zirconium are recovered.

<sup>13</sup> *Sovetskaya Arktika*, No. 9 (1939) p. 114.

<sup>14</sup> *Sovetskaya Arktika*, *Byulletin' Arkticheskogo Instituta, Lesnaya Promyshlennost', Gornyy Zhurnal, Problemy Arktiki*, etc., 1930-41.

Akkuratov, V., 'V Vysokikh Shirotakh', 1947.

Pavlov, M., and V. Goroshchenko, 'Geografiya S.S.S.R.', 1946.

<sup>15</sup> Tyrell, G. W., "Apatite, nepheline, and rare-earth mining in the Kola Peninsula", *Nature*, Vol. 141 (1938) p. 355.

<sup>16</sup> *Anglo-Soviet Journal*, Vol. 3, No. 4 (1942) pp. 214, ff.

Höfding, O., 'Die Nicht-Eisen-Metallwirtschaft der Sowjetunion', 1939, p. 62.

<sup>17</sup> *Anglo-Soviet Journal*, Vol. 1, No. 3 (1940) pp. 255, f.

Farther east, near Ukhta (formerly Chibyu), the output of oil reached 50,000 tons in 1937, and a cracking-plant of the same capacity was built.<sup>18</sup> It appears that the output will have increased to about 325,000 tons in 1950.<sup>19</sup> Radium has been recovered in this district since 1940.<sup>20</sup> About 7,000,000 tons of coal were produced by the Pechora valley in 1947;<sup>21</sup> in this field the effort put into exploitation has resulted in a rise in annual output of over 6.6 million tons in fifteen years, partly as a result of increased demand, partly because of the destruction of the mines on Svalbard, which the U.S.S.R. had been operating since the early 'thirties, and which had sent most of their output (500,000 tons in 1936) to the European North.

During the Second World War, the Urals mining industries expanded considerably, but pushed north only to the vicinity of Ivdel', barely across the 60°N. parallel. Twenty-five miles to the south, at Krasnaya Shapochka, the Northern Urals Bauxite Mine began operations, and three of the four adjacent iron-workings were founded in 1943. Manganese is obtained at Marsyata and Polunochnoye. The region also yields limestones, fireclays, and quartzites. On the Arctic coast to the north, the Amderma spar mine was already producing 8,890 tons of fluorspar by 1935, and Ostrov Vaygach by the same date had yielded 11,000 tons of lead and zinc.<sup>22</sup> The copper of Kostin Shar on Novaya Zemlya now appears in Soviet text-books as an important deposit.<sup>23</sup>

Except for small quantities of oil on the Malaya Kheta, the mineral wealth below the thick Quaternary sediments of Western Siberia has not yet been uncovered. In Central Siberia gold is mined in the Yeniseyskiy Kryazh (Yenisey Range), graphite at Kureyka and Noginsk, and the working of the Nizhnyaya Tunguska spar deposits began in 1942. The celebrated Noril'sk Combine (mine, refinery, and smelter) produces copper, nickel, platinum, gold, and coal. At Nordvik, the war forced up the production of salt from 2,400 tons in 1942 to 34,000 tons in 1944,<sup>24</sup> and by 1940 *Glavsol'*, the Main Administration of the Salt Industry, was extracting 3,000 tons a year at Kempendyay.<sup>25</sup> A small flow of oil has

<sup>18</sup> *Moscow News*, 24 March 1945.

<sup>19</sup> Estimate based on data published in *Planovoye Khozyaystvo* (February 1945); *Neftyanaya Promyshlennost'* (August 1946 and January 1947); *Pravda* (1 January 1947 and 1 March 1947).

<sup>20</sup> *Soviet War News*, 16 December 1943.

<sup>21</sup> Estimate based on data published in *Za Ekonomiyu Topliva*, *Pravda*, and *Izvestiya*, 1946-48.

<sup>22</sup> Kiselgof, Ye., "Amderma", *Sovetskaya Arktika*, No. 9 (1937) p. 97.

*Trudy Arkticheskogo Instituta*, Vol. 134 (1939) p. 10.

*Sovetskaya Arktika*, No. 2 (1935) p. 88; and No. 10 (1936) p. 26.

<sup>23</sup> Pavlov, M., and V. Goroshchenko, 'Geografiya S.S.S.R.', 1946, see map at end of volume.

<sup>24</sup> *Nedra Arktiki*, No. 2 (1947) pp. 147-74.

<sup>25</sup> *Sovetskaya Arktika*, No. 7 (1940) pp. 22-7.

been obtained on the Khara-Tumus and Yurung-Tumus peninsulas. Kangalasska yielded 14,000 tons of coal in 1936, and Sangar about 23,000 tons in the same year.<sup>26</sup> Near Bukhta Tiksi, along the Sogo River, ten shafts were sunk into brown coal in 1943.<sup>27</sup> A year later, the Botom iron works were reported to have an annual capacity of 250,000 tons of pig iron.<sup>28</sup>

There has been considerable mining activity for a number of years in the Far Northeast. Lead and silver have been mined at Endybal'sk since 1936. Tin has been obtained at Adzhakinsk in the upper Yana basin since 1939. In 1946, reference was made to a "polymetals combine" on the Yana, probably at Verkhoyansk.<sup>29</sup> The development of the Kolyma valley remains shrouded in secrecy. Former Polish prisoners have reported that some 66 gold-fields have been opened up.<sup>30</sup> That an enterprise of very considerable stature is located here is suggested by the advertisements for free labour run in the Soviet press in 1947 by *Dal'stroy*, the organization responsible for the development of the Kolyma valley.<sup>31</sup> This enterprise draws at least some of its coal from local deposits on the Ozhogina and Zyryanka rivers. There is little doubt that the enormous cassiterite deposits of the Chaunskaya Guba region, which were the object of increasing investment prior to 1941, are now exploited.<sup>32</sup> By 1940, Bukhta Ugol'naya was producing coal.

### *Fisheries*

The "Northern Basin" of the Soviet fisheries industry, comprising the waters of the Barents and White seas, are exploited by a state trust based on Murmansk, which probably possessed 50 to 80 trawlers in 1942. The coastal cooperatives responsible for the northern fishing were equipped in 1939 with some 300 powered craft.<sup>33</sup> In 1947, it is claimed that the trawlers took 135,000 tons; the 10,255 tons taken by the vessels of the cooperatives, which had been badly depleted by the war, had not regained the pre-war (1937) level of 14,306 tons.<sup>34</sup> Since the end of hostilities, the trawlers have endeavoured to extend the area of herring operations to the waters off Greenland and Iceland. East of the Urals, the picture has remained obscure. By the middle of the Second Five-Year Plan, 66

<sup>26</sup>*Sovetskaya Arktika*, No. 7 (1937) pp. 67, f.; and No. 6 (1940) pp. 70-3.

<sup>27</sup>*Nedra Arktiki*, No. 2 (1947) pp. 113-7.

<sup>28</sup>Gregory, J. S., and D. W. Shave, 'The U.S.S.R., a geographical survey', 1944, p. 320.

<sup>29</sup>*Nedra Arktiki*, No. 2 (1947) p. 117.

<sup>30</sup>Dallin, D. J., and B. Nicolaeovsky, 'Forced labour in Soviet Russia', 1947, pp. 108-46.

<sup>31</sup>*Trud*, 6 February 1947, 23 April 1947; *Vechernyaya Moskva*, 20 February 1947; *Pravda Ukrainu*, 12 March 1947.

<sup>32</sup>*Sovetskaya Arktika*, No. 3 (1938) pp. 111-7.

<sup>33</sup>*Rybnoye Khozyaystvo*, No. 8 (1947) p. 21.

<sup>34</sup>*Rybnoye Khozyaystvo*, No. 2 (1945) p. 4; No. 11 (1947) pp. 13-6. *Izvestiya*, 28 April 1948.

powered vessels and 221 barges were employed in the fisheries of the lower Ob'; thirteen years later, there appear to have been eighteen canneries in the region. Less progress has been made on the Yenisey and the Lena. During the war, the Union government assumed control of the industry on all the Siberian rivers, and the total catch is said to have risen from 54,000 tons in 1941 to 135,000 tons in 1943.<sup>35</sup> By the outbreak of war, the "Far North" supplied all its own canned fish, and about 20 per cent of the total Union catch. In 1950, it was planned that 220,000 tons would be taken, of which the bulk (100,000 tons) was to come from the Barents Sea, 80,000 tons from the Ob', and about 20,000 tons from other northern rivers.<sup>36</sup> The value of this output to a country, for which fish constitutes the principal protein element in a dominantly farinaceous diet, is obvious. Little is known of the present seal catch; 197,000 animals were taken in the Barents, White, and Kara seas in 1945.<sup>37</sup>

### *Timber*

In the 'thirties, the subarctic timber industry reached its maximum development in the European North. By the end of the decade about thirty mills lined the waterways between Leningrad and the Kol'skiy Poluostrov; a further twenty-six clustered around the estuary of the Severnaya Dvina.<sup>38</sup> From the European North came about one-third of the lumber destined for domestic use and export. The "Far North" exported most of its timber output, two-thirds of it through Igarka, where three mills had been built by the end of the Second Plan.<sup>39</sup> The post-war tendency is to use the timber from the European North for domestic purposes only and to switch production for export to Western and Central Siberia. To date, some increase in production in the Yenisey valley seems probable. At the same time production has shifted farther south, and the Angara forests, which in 1945 produced some 345,000 cubic metres out of the 510,000 cubic metres for the whole Yenisey basin, are being increasingly utilized to feed the Igarka mills.<sup>40</sup> Small mills are probably in operation at Salekhard, Samarovo, Predivinsk, and Peleduy, as well as in the central parts of the Khabarovskiy Kray.

### *Furs and Game*

The available statistics throw no light on the exploitation of furs and game. That the G.U.S.M.P. in 1937 was responsible for 391 fur factories,

<sup>35</sup> *Rybnoye Khozyaystvo*, No. 2 (1947) pp. 1-7.

<sup>36</sup> *Rybnoye Khozyaystvo*, Nos. 4-5 (1946) pp. 3, f.; No. 2 (1947) pp. 13-6; No. 11 (1947) pp. 13, ff. (80,000 tons from the Pacific and the Black and Caspian basins).

<sup>37</sup> *Rybnoye Khozyaystvo*, No. 8 (1946) pp. 25, ff.

<sup>38</sup> *Sovetskaya Arktika*, No. 7 (1940) pp. 91-3.

<sup>39</sup> *Sovetskaya Arktika*, No. 10 (1936) p. 41.

<sup>40</sup> *Les*, No. 2 (1947) pp. 23-9.

113 of which were mobile, 20 P.O.S. and P.P.S.,<sup>41</sup> and 6 breeding farms, shows that the industry was not entirely neglected. The larger type of breeding farm has been reported from the islands of Kolguyev, Kil'din, and the Solovetskiye group only. Beaver have been established in the Chuna Tundra reserve on the Kol'skiy Poluostrov, in the Konda and Sos'va valleys of the Severnyy Ural', and near Ozero Onega. A reserve did exist on the Pechora. Muskrat have been set out on the Yeloguy, Podkamennaya Tunguska, and the Kolyma rivers. Thousands of geese and ptarmigan are taken every year by the natives on the tundra; however, there is no evidence as to the scale and nature of modern exploitation of the several million wildfowl of Novaya Zemlya, historically an important source of food and down.

### *Agriculture*

Ever since the adoption of a planned economy, the Soviet government has tried hard to reduce the large quantities of food which must annually be imported into the "Far North". The effort to develop local agriculture has called for protracted study, much experimentation, the collectivization of the natives, the supply of implements through the establishment of Machine-Tractor Stations (M.T.S.), and the organization of research stations and state farms. The disastrous effect of the early attempts to collectivize the natives is seen in the drop in the number of reindeer in the Siberian portion of the "Far North" from 1.6 million in 1926 to 1.1 million in 1933; by 1937 the figure was still only 1.3 million.<sup>42</sup> However, by the end of the Second Plan, it was claimed that two-thirds of the natives had been collectivized, and that 704 tractors were in use north of 60°N.; but the process was still under way on the tundra in 1947.<sup>43</sup>

By 1939, it was claimed that the All-Union Institute of Polar Agriculture, Animal Husbandry, and Industrial Economy, with its headquarters at Igarka, controlled twenty-five research stations, of which six specialized on reindeer, six on agriculture, and the remainder on problems of industrial biology. In the extreme north, most of the locally produced food appears to come from state farms, of which there were 70 in 1940. Twenty-eight of these were devoted to breeding reindeer; the remainder concentrated on the production of vegetables, cattle, or cereals. All farms seem to grow some grains. The largest farms are the "Polyarnyy" at Igarka and the "Industriya" at Kirovsk. The total sown area, which was

<sup>41</sup> *Sovetskaya Arktika*, No. 11 (1937) pp. 18, f.; No. 2 (1938) pp. 15-8: "P.O.S." and "P.P.S." appear to be "promyslovo-okhotnich'ya stantsiya" and "promyslovo-proizvodstvennaya stantsiya", or "hunting-production stations", a sort of subarctic variant of the Machine-Tractor Stations (M.T.S.), which are characteristic of the collectivized agriculture of the U.S.S.R.

<sup>42</sup> Khrapal', A., 'Sel'skoye Khozyaystvo Aziatskogo Severa', 1940, p. 128.

<sup>43</sup> *Soviet Weekly*, 10 April 1947.

*Soviet Monitor*, 2 April 1947.

43,850 hectares in 1926, rose to 257,581 hectares in 1937, and to about 350,000 hectares in 1949. Of this total, the state farms accounted for over 250,000 hectares.<sup>44</sup> Hot-beds are in general use (over 25,000 frames in 1938), and there are hot-houses on Ostrov Diksona, at Bukhta Tiksi and at Bukhta Provideniya.

### III

From the existing data, it is impossible to make more than a rough estimate of the past growth and present size of the population of the Soviet Arctic and Subarctic. The following table gives a crude indication of the situation north of 60°N.<sup>45</sup> in 1926 and 1939, the two years for which some census material is available. Figures for 1947 have been added from a recent estimate by Theodore Shabad.

<i>European North</i>	1926	1939	1947 <sup>55</sup>
Murmanskaya Oblast'	23,006 <sup>46</sup>	291,200 <sup>48</sup>	450,000
Karelo-Finskaya A.S.S.R.	269,734 <sup>46</sup>	469,000 <sup>48</sup>	600,000
Arkhangel'skaya Oblast'	429,184 <sup>46</sup>	1,199,000 <sup>48</sup>	1,050,000
Komi A.S.S.R.	207,302 <sup>46</sup>	319,000 <sup>48</sup>	450,000
Vologodskaya Oblast'	500,000 <sup>47</sup>	800,000 <sup>47</sup>	750,000
	1,429,226	3,078,200	3,300,000
<i>Siberia</i>			
Western Siberia	55,784 <sup>49</sup>	115,000 <sup>52</sup>	150,000
Central Siberia	60,000 <sup>50</sup>	120,000 <sup>53</sup>	120,000 <sup>50</sup>
Yakutskaya A.S.S.R.	289,085 <sup>46</sup>	401,000 <sup>48</sup>	450,000
Soviet Far East	35,000 <sup>51</sup>	100,000 <sup>54</sup>	190,000
	439,869	736,000	910,000
<i>Total</i>	1,869,095	3,814,200	4,210,000

<sup>44</sup>Khrupal', A., 'Sel'skoye Khozyaystvo Aziatskogo Severa', 1940, pp. 102, 111. *Moscow Radio*, 11 November 1947.

One hectare equals 2.47 acres.

<sup>45</sup>A portion of the Yakutskaya A.S.S.R. lies south of 60°N. Figures for the whole of the Yakutskaya A.S.S.R. are included in the table, as is generally the practice of Soviet writers.

<sup>46</sup>1926 Census.

<sup>47</sup>Since the 60°N. parallel divides this *oblast'* into two almost equal parts, and the population is distributed relatively smoothly throughout the *oblast'*, the total population given in the Census has been approximately halved.

<sup>48</sup>1939 Census.

<sup>49</sup>*Sovetskaya Arktika*, No. 11 (1937) p. 137.

<sup>50</sup>An estimate based on data given by Lamont, C., 'The peoples of the Soviet Union', 1946, p. 213, and allowing for the subsequent growth of Igarka, Dudinka, and Noril'sk.

<sup>51</sup>Based on Lorimer, F., 'The population of the Soviet Union: history and prospects', 1946, p. 70.

<sup>52</sup>Based on an estimate of 113,255 for 1937, *Sovetskaya Arktika*, No. 11 (1937) p. 137.

<sup>53</sup>An estimate allowing for the growth of Igarka, Dudinka, and Noril'sk.

<sup>54</sup>Based on an estimate by Lorimer, F., 'The population of the Soviet Union: history and prospects', 1946, p. 166.

<sup>55</sup>From Shabad, T., 'Geography of the U.S.S.R., a regional survey', 1951.

<sup>56</sup>Shabad estimates only 25,000 for the Taymyrskiy and Evenkiyskiy *natsional'nyye okrugi* (each), and only 25,000 for Noril'sk. He does not estimate the population in the remainder of the Krasnoyarskiy Kray north of 60°N. The 1939 estimate has therefore been retained.

With these figures may be compared Soviet statements that:

- a) The population of the "Far North" in 1931 was about 1,000,000.<sup>57</sup>
- b) The "Far North" in 1939 contained about 2,500,000 people.<sup>58</sup>
- c) The Soviet North, "lying between Finland and the Pacific", by which is meant presumably that part of the U.S.S.R. lying north of 60°N., contained about 4,000,000 people in 1939.<sup>59</sup>

Some impression of the pace and nature of this growth may be derived from the following table showing the population of a number of arctic and subarctic settlements.

Murmansk	1926: 8,777 <sup>60</sup>	Ostrov Diksona	1937: 100 <sup>72</sup>
	1940: 160,000 <sup>61</sup>		1944: 200 <sup>73</sup>
Kirovsk	1930: 5,000 <sup>62</sup>	Igarka	1928: 43 <sup>74</sup>
	1944: 150,000 <sup>63</sup>		1941: 30,000 <sup>75</sup>
Monchegorsk	1935: (founded)	Noril'sk	1935: (founded)
	1938: 36,000 <sup>64</sup>		1944: 30,000 <sup>75</sup>
Petrozavodsk	1926: 47,361 <sup>60</sup>	Yakutsk	1934: 23,000 <sup>76</sup>
	1939: 91,678 <sup>65</sup>		1944: 50,000 <sup>77</sup>
Arkhangel'sk	1926: 76,774 <sup>60</sup>	Sangar	1936: 130 <sup>78</sup>
	1939: 281,091 <sup>65</sup>		1940: 3,000 <sup>79</sup>
Nar'yan Mar	1926: 5,200 <sup>66</sup>	Verkhoyansk	1934: 4,000 <sup>76</sup>
	1936: 7,000 <sup>67</sup>		1944: 5,000 <sup>80</sup>
Vorkuta	1936: 1,000 <sup>67</sup>	Anadyr'	1934: 1,000 <sup>76</sup>
	1947: 30,000 <sup>68</sup>		1937: 1,250 <sup>74</sup>
Amderma	1932: (founded)	Magadan	1928: (founded)
	1937: 2,000 <sup>69</sup>		1947: 70,000 <sup>81</sup>
Salekhard	1926: 1,872 <sup>70</sup>		
	1938: 10,000 <sup>71</sup>		

<sup>57</sup>Taracouzio, T. A., 'Soviets in the Arctic', 1938, p. 455.

<sup>58</sup>Khrapal', A., 'Sel'skoye Khozyaystvo Aziatskogo Severa', 1940, p. 6.

<sup>59</sup>*Soviet Weekly*, 13 February 1947.

<sup>60</sup>1926 Census.

<sup>61</sup>*Polarforschung*, No. 2 (31 December 1940) p. 2.

<sup>62</sup>*Sovetskoye Olenevodstvo*, No. 4 (1935) p. 111.

<sup>63</sup>Gregory, J. S., and D. W. Shave, 'The U.S.S.R., a geographical survey,' 1944, p. 278.

<sup>64</sup>*Izvestiya*, 18 April 1936.

<sup>65</sup>1939 Census.

<sup>66</sup>*Trudy Polyarnoy Kommissii*, No. 29 (1936) p. 33.

<sup>67</sup>*Trudy Polyarnoy Kommissii*, No. 30 (1937) see Nenetskiy Natsional'nyy Okrug.

<sup>68</sup>*Polarforschung*, Vol. 2 (1947) p. 81.

<sup>69</sup>*Sovetskaya Arktika*, No. 9 (1937) p. 97.

<sup>70</sup>*Sovetskaya Arktika*, No. 5 (1937) p. 79.

<sup>71</sup>*Izvestiya*, 8 February 1938.

<sup>72</sup>*Sovetskaya Arktika*, No. 10 (1937) p. 89.

<sup>73</sup>Gregory, J. S., and D. W. Shave, 'The U.S.S.R., a geographical survey,' 1944, p. 304.

<sup>74</sup>*Sovetskaya Arktika*, No. 3 (1935) p. 24.

<sup>75</sup>*Anglo-Soviet Journal*, Vol. 2, No. 2 (1941) pp. 125, ff.

<sup>76</sup>*Sovetskaya Arktika*, No. 7 (1937) p. 85.

<sup>77</sup>Lamont, C., 'The peoples of the Soviet Union,' 1946, p. 133.

<sup>78</sup>*Sovetskaya Arktika*, No. 7 (1937) pp. 67, f.

<sup>79</sup>*Sovetskaya Arktika*, No. 6 (1940) pp. 71, f.

<sup>80</sup>Gregory, J. S., and D. W. Shave, 'The U.S.S.R., a geographical survey,' 1944, p. 243.

<sup>81</sup>Dallin, D. J., and B. Nicolaevsky, 'Forced labour in Soviet Russia,' 1947, p. 132.

The tempo of growth is obviously too great to be explained by natural increase, and must be ascribed to in-migration.<sup>82</sup> Nor can it be explained by voluntary resettlement, consequent on a wide response to new economic opportunities. First, an ample labour market existed in more temperate, more attractive regions.<sup>83</sup> Second, since the establishment of the All-Union Migration Committee in 1925, government policy for free migration has been concerned almost exclusively with stimulation of the flow to new farming areas beyond the Urals, that is, to southern Siberia. In the Subarctic, resettlement on the basis of agriculture in general is impossible; nor does the literature on the subject contain any program for free northward movement, except to the southeastern portions of the European North. Until the latter half of the Second Five-Year Plan, subsidized and directed migration actually declined;<sup>84</sup> but in the Subarctic, growth appears to have remained fairly steady, if not to have intensified, after the middle 'thirties. This was a period when the G.U.S.M.P. began to pay more attention to its continental enterprises, and when both party and government began an intensive effort to achieve an efficient distribution of labour throughout the country. The latter culminated in 1936 in the delegation to the N.K.V.D. (now the M.V.D.) of the responsibility for colonization.

Between 1926 and 1939, the greatest increase in urban population in the U.S.S.R. took place in the sparsely settled regions north of continuous Russian settlement and east of the Volga.<sup>85</sup> The classification of a community as "urban" by Soviet demographers is based on its economic function, and does not denote a specific size or density of population. Moreover, it appears that any prison camps, operated by the M.V.D., containing 3,000 or more inmates are included in this class. Most of the locations of these camps reported by Dallin's sources lie in the region of maximum urban growth and consistently coincide with the districts of intensive development in the Subarctic.<sup>85</sup>

It is therefore concluded that a very high percentage of the labour-force in the Subarctic has been supplied by enforced migration. How much of this force consists of strictly regimented prison labour, it is impossible to say, since not enough information is available on the nature and number of sentences imposed by court and administrative orders. Certainly, since 1926, the industrial labour-force has been augmented by the commitment of persons whose liberty has been restricted by the state in lumbering, mining, industrial and engineering projects, particularly in

<sup>82</sup>Cf. Lorimer, F., 'The population of the Soviet Union: history and prospects', 1946, pp. 148, 169.

<sup>83</sup>Dobb, M., 'Soviet economic development since 1917', 1948, p. 241.

<sup>84</sup>Lorimer, F., 'The population of the Soviet Union: history and prospects', 1946, p. 172.

<sup>85</sup>Dallin, D. J., and B. Nicolaevsky, 'Forced labour in Soviet Russia', 1947, pp. 51-84.

remote areas.<sup>86</sup> In an inaccessible region, where the delivery of heavy equipment, even if in good supply, is extremely difficult, the value of cheap, mass manpower is obvious. The construction of the Stalin Canal from the Baltic to the White Sea is a familiar example of the use of prison labour. The Tuloma hydro-electric power station was thus built,<sup>87</sup> and *Dal'stroy* appears to be an integral trust of the M.V.D., operating largely with forced labour. Soviet writers have referred to the use of *Ispravitel'nyye Trudovyye Rabochiye* (Corrective Labour) at Amderma and Igarka. Again it seems very likely that the Vorkuta mines may be operated by the M.V.D. It is therefore probable that the assignment of prison labour to the Subarctic has been a very important factor in the growth of the population of the region.

On the other hand, probably all of the directional and operational staffs of the G.U.S.M.P. have been recruited from free labour. By the middle of the Second Five-Year Plan, the core of this organization consisted of 35,000 to 40,000 men, and it employed a further 100,000.<sup>88</sup> In 1936, the staffs of its polar stations totalled 572 men; in 1937, this figure rose to 623.<sup>89</sup> The remainder of the free labour in the Subarctic consists of resident trappers and fishermen who have been organized in the machinery of the cooperatives. Natives appear to make up the bulk of this group.

It is not clear how many of the group of free workers have voluntarily sought work in the "Far North". Even before the decree of 1940, which authorized the direction of labour throughout the U.S.S.R., there appears to have been considerable compulsory assignment to work in the region. Many of those "commandeered" for the supply and trade organizations of the "Far North" (who amounted to 90 per cent of the total employed in these branches), were found unsuitable for such service.<sup>90</sup> Since the end of the war, *Dal'stroy* has advertised for a surprising variety of metallurgical specialists and workers for its enterprises in the Far Northeast.<sup>91</sup>

The reduction of labour costs, the increase of labour productivity, the development of equitable wage-scales, and the application of incentives for this group of free workers have been serious problems. Since the decree of 10 May 1932, special rates of pay and privileges have been granted to workers in the "Far North".<sup>92</sup> The trade union of the

<sup>86</sup>Lorimer, F., 'The population of the Soviet Union: history and prospects', 1946, pp. 172, f.

<sup>87</sup>*Pravda*, 4 November 1936.

<sup>88</sup>*Sovetskaya Arktika*, No. 1 (1935) p. 18.

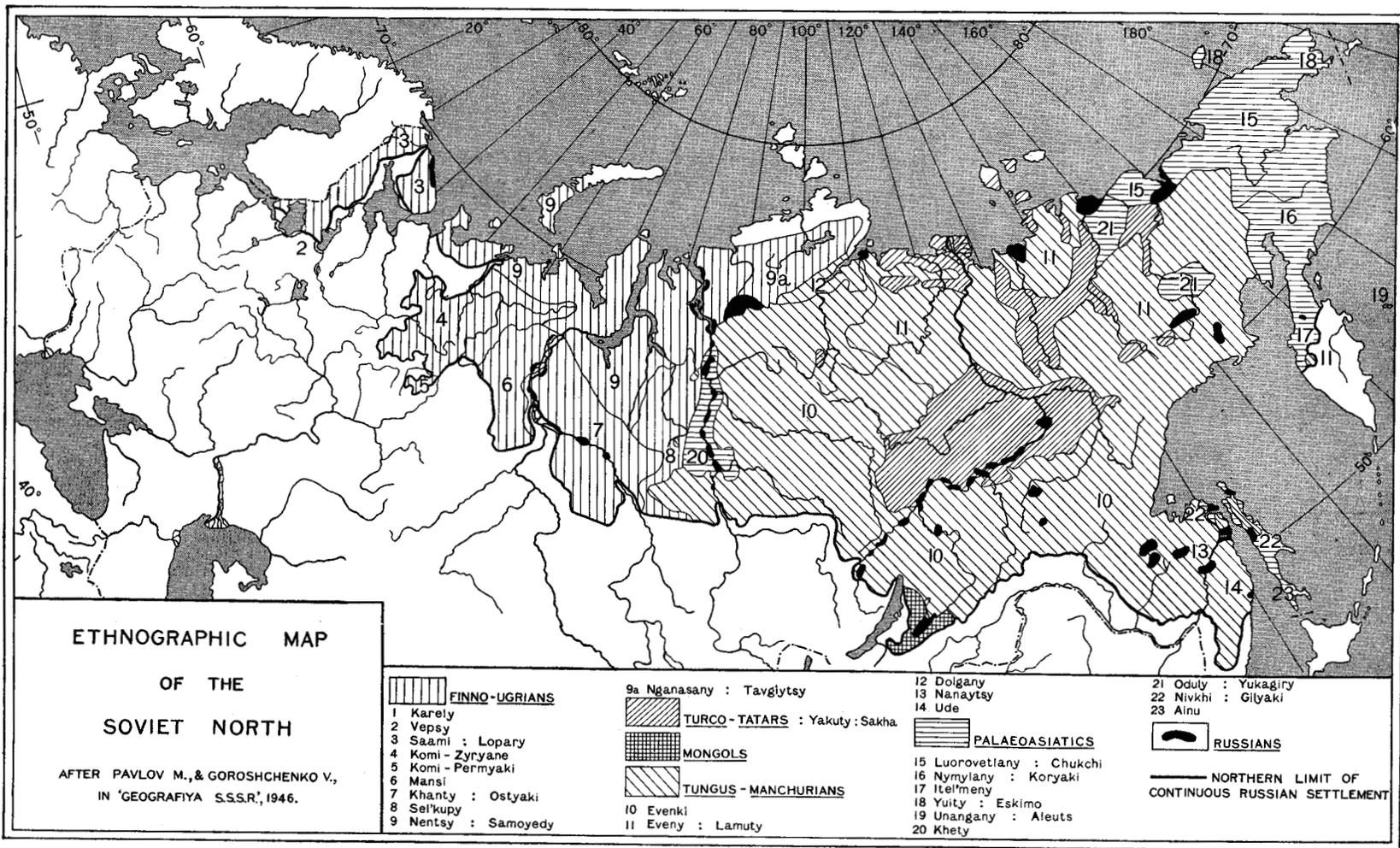
*Byulletim' Arkticheskogo Instituta*, No. 4 (1936) p. 11.

<sup>89</sup>*Problemy Arktiki*, No. 2 (1937) p. 182.

<sup>90</sup>Kantor, Ye., "Kadry v Kraynem Severe", *Sovetskaya Arktika*, No. 2 (1935) pp. 26-9.

<sup>91</sup>*Izvestiya*, 21 May 1938; *Trud*, 6 February 1947 and 23 April 1947; *Vechernyaya Moskva*, 20 February 1947; *Pravda Ukrainu*, 12 March 1947.

<sup>92</sup>Taracouzio, T. A., 'Soviets in the Arctic', 1938, App. XXXIII, pp. 491, ff.



G.U.S.M.P., formed in 1936, has introduced stakhanovism and "socialist emulation", and has initiated measures to improve working and living conditions. But, until 1939, little progress had been made towards the evolution of a fair and systematic wage policy,<sup>93</sup> and the high wage-bill in the enterprises of the Subarctic remained a serious problem.<sup>94</sup>

The pace of the development of the Subarctic has long outstripped the supply of specialists of all kinds. The Arctic Institute and various departments of the G.U.S.M.P. have been responsible for most of the training of technical personnel, which has been centred at Moskva, Leningrad, and Arkhangel'sk. The few women who have found employment in the Arctic appear to have been absorbed largely into scientific and technical "cadres". By 1937, there were 71 in the polar stations,<sup>95</sup> and about 150 were reported in 1940 to be employed at the Peleduy ship-yard on the Lena.<sup>96</sup> Local trades training has been organized by various enterprises. It was estimated that the demand for specialists and tradesmen in the G.U.S.M.P. by 1937 would reach 1,000 technicians and 9,000 tradesmen.<sup>97</sup> As late as 1938, technical personnel were being employed with only three to four years of junior secondary school training, followed by seven to nine months of tuition in courses for mechanics, radio-technicians, and "geophysicists" (meteorologists, surveyors, etc.)<sup>98</sup> The "Far North" has also been very short of less highly trained labour. It was anticipated that the shortage of labour would continue to become more acute during the Third Five-Year Plan, even assuming substantial success in the mechanization of the industries of the region. At the outset of the plan, even the timber trust, *Onegoles*, which operates as close to civilization as in the European North, was able to recruit only 1,100 workers, out of a required total of 11,000; and the Northern River Steam Shipping organization was under-staffed by 2,500 men.<sup>99</sup> It is unlikely that the supply of free labour to the "Far North" has greatly improved.

For centuries, over 20 small minorities, which Soviet ethnographers still find it convenient to group only linguistically, have inhabited the Soviet North. To say what has happened to the numbers of these peoples, in the face of a considerable Russian in-migration, is impossible. Each of the last three censuses taken in the U.S.S.R. (1897, 1926, and 1939) has attempted to include these people. As yet, however, after more than

<sup>93</sup> *Sovetskaya Arktika*, No. 7 (1940) pp. 27-9.

<sup>94</sup> Various writers state that the cost of labour in the "Far North" is twice that in temperate regions. In the Kol'skiy Poluostrov, this is stated to be 80 per cent higher than in the settled regions of the European U.S.S.R. (Brodskiy, A., "Metallurgicheskiy Kombinat Severo-Zapada", *Tekhnika-Molodyozhi*, No. 6 (1947) pp. 15-8.

<sup>95</sup> *Sovetskaya Arktika*, No. 4 (1937) p. 57.

<sup>96</sup> *Sovetskaya Arktika*, No. 1 (1940) p. 96.

<sup>97</sup> *Sovetskaya Arktika*, No. 8 (1937) pp. 68, f.

<sup>98</sup> *Sovetskaya Arktika*, No. 8 (1939) pp. 21-4.

<sup>99</sup> *Izvestiya*, 4 April 1937.

thirty years of the Soviet experiment in the North, no clear picture has emerged. In part, this fact is undoubtedly due to the tremendous difficulties of organizing a reliable machinery for counting small numbers of illiterate and nomadic peoples dispersed over thousands of square miles of wilderness. In part, it is also due to inaccurate and unsystematic classifications inherited by the Soviet government, clarification of which will probably require more field work. In part, this fact may be due to the government's embarrassment over a failure to arrest the decline in the numbers of these people. Because of changes in approach and in classification of these minorities, the 1897 census cannot be compared, for our present purposes, with that of 1926. Even the latter was disappointing, in that it embraced only 16,282 households out of a total of about 25,000 then living north of the Arctic Circle.<sup>100</sup> For the period between 1926 and 1939, such data as have appeared are ambiguous.<sup>101</sup> A census of the "Far North" attempted in 1937 was suppressed.<sup>102</sup> Finally, the census of 1939 contained no data on either the Buryaty, Yakuty, or the smaller peoples of the North. That Lappo, in 1945, was still quoting the figure of 160,000, which was derived from the 1926 census, as the total number of natives in the "Far North", probably indicates lack of later data.<sup>103</sup>

Of the fourteen minorities mentioned by Lappo, only nine can be more or less clearly identified in the 1926 census. The figures given in each source for these are compared below:

	1926 Census <sup>104</sup>	Lappo (1945) <sup>105</sup>
Saami (Lopary)	1,720	1,800
Komi-Zyryane	226,383	(no figure cited)
Nentsy (Samoyedy)	15,462	15,000
Khanty (Ostyaki)	22,306	22,000
Entsy (Yeniseyskiye Samoyedy)	—	400
Dolgany	656	"negligible"
Nganasany (Tavgiytsy)	—	600
Evenki	37,546	40,000
Yakuty (Sakha) <sup>106</sup>	240,709	250,000
Eveny (Lamuty)	—	12,000
Oduly (Yukagiry)	—	450
Etely (Chuvantsy)	—	700
Luorovetlany (Chukchi)	12,332	12,000
Yuity (Eskimo)	1,293	1,300

<sup>100</sup> *Sovetskiy Sever*, No. 2 (1933) pp. 39-51.

<sup>101</sup> Lorimer, F., 'The population of the Soviet Union: history and prospects', 1946, p. 137.

<sup>102</sup> Vagonov, A., "Perepis' Naseleniya Kraynego Severa", *Sovetskaya Arktika*, No. 7 (1939) pp. 10-4.

<sup>103</sup> Lappo, S. D., 'Spravochnaya Knizhka Polyarnika', 1945, p. 341.

<sup>104</sup> Lorimer, F., 'The population of the Soviet Union: history and prospects', pp. 55, 60.

<sup>105</sup> Lappo, S. D., 'Spravochnaya Knizhka Polyarnika', 1945, p. 344-52.

<sup>106</sup> In general, Soviet ethnographers prefer the nomenclature used by the minorities. The older names by which these peoples have been known are given in brackets; an exception is the Yakuty, who call themselves "Sakha".

Lappo's figures suggest a slight increase in the numbers of Saami, Evenki, Yakuty, and Yuity. The total numbers of Nentsy in 1926 are probably to be compared with Lappo's totals for the Nentsy and Entsy combined. Similarly, the Dolgany and Nganasany were probably not differentiated in 1926. Even so, a decline in numbers is suggested for the Nentsy, Khanty, Dolgany, and Luorovetlany, although the possibility remains that this apparent decline may be explained by re-grouping.

At least until the outbreak of the Second World War, the notion of the ultimate use of the natives of the "Far North" as pilots, navigators, zoologists, fur factory managers, teachers, and party officials, seems to have persisted. One or two races, especially the Yakuty, showed particular aptitude. The government has long realized that the training of native labour for use in the new economic machinery of the North is a project requiring many years and a comprehensive program of native education and welfare. It has attempted to combine with the economic functions of the native cooperatives the role of educational centres improving the simpler techniques of forest economy. At the same time, a federal teaching machinery has been established, centred on the Institute of the Peoples of the North (Leningrad), spreading out through some dozen normal schools, 500 primary and secondary schools,<sup>107</sup> and reinforced by many local newspapers, cinemas, and libraries.<sup>108</sup>

Prior to 1940, however, the numbers of natives actually trained and employed in the "Far North" represented only a small fraction of the total labour force. The G.U.S.M.P. was accused of having made little effort to draw these people into its enterprises, and only a small portion of its annual appropriation for technical training of natives was in fact invested.<sup>109</sup>

The actual increase in population in the Soviet Subarctic forms only a small percentage of the total increase in the U.S.S.R., but its importance lies in the fact that it represents the expansion of settlement into an inclement and hitherto undeveloped region. Although the northward movement is the smallest of the great shifts which have taken place during the Plans, it owes its rapidity to the search for exportable and scarce raw materials, and to that tendency in Soviet economy to give priority of consideration to productivity rather than to marginal costs. It is claimed that the growth of population in the North has already contributed greatly to the reduction of the numbers in the ten over-populated districts of old central Russia.<sup>110</sup>

<sup>107</sup>*Sovetskaya Arktika*, No. 11 (1937) pp. 44, ff. *Soviet News*, 8 September 1948.

<sup>108</sup>There were 22 newspapers published in the "Far North" in 1940 (G.U.S.M.P., *Pechatnyye Gazety Arktiki / Sbornik*, 1940, p. 6.)

<sup>109</sup>*Sovetskaya Arktika*, No. 7 (1938) pp. 36, f.

<sup>110</sup>These are the Ryazanskaya, Orlovskaya, Voronezhskaya, Tambovskaya, Penzenskaya, Kuybyshevskaya, Kalininskaya, Smolenskaya, Yaroslavskaya, and Vologodskaya *oblasti*, and the Mordovskaya A.S.S.R. (*Bol'shaya Sovetskaya Ensiklopediya*, Tom "S.S.S.R.", 1948, p. 55).