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GEOGRAPHIC INTELLIGENCE REPORT

THE BELOMORSK-POVENETS REGION

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THE BELOMORSK-POVENETS REGION

I. Introduction

This study is an analysis of selected geographic aspects of the Belomorsk-Povenets Region of the Karelo-Finnish SSR. In a north-south direction the region extends from the White Sea (Beloye More) coast to the northern shore of Lake Onega (Onezhskoye Ozero). On the west and east the region is bounded by lines that have been arbitrarily drawn to include a belt of land with a minimum width of 10 miles on each side of the Stalin (White Sea-Baltic) Canal.

II. Terrain and Vegetation

The entire Belomorsk-Povenets Region is part of a natural depression that extends in a north-south direction between Karelian hilly country to the east and west. Although low swampy terrain is characteristic of the greater part of the depression, it can be divided into two distinct sections. The especially high proportion of swampland along the White Sea coast distinguishes it from the remainder of the region, which, for convenience, may be called the Lake Vyg (Ozero Vygozero) Basin. The latter is relatively homogenous, with a slightly rolling terrain consisting of a complicated mixture of low ridges, hillocks, and depressions. Coniferous forest, in which pines are the dominant species, covers a large part of the higher, drier land in the Belomorsk-Povenets Region.

A. The White Sea Coastal Belt

The northern part of the region consists of a strip of low swampy land along the coast of the White Sea, most of which averages

about 12 miles in width. Near Letnyaya Pervaya, however, the central part of the belt bulges an additional 8 to 10 miles inland, especially along the eastern bank of the Vyg River. More than 90 percent of the coastal strip is less than 200 feet above sea level. Elevations of more than 200 feet are found only along the inland margin of the coastal belt and in a small circular area, about 3 miles in diameter, located 8 miles north east of Letnyaya Pervaya. Even in these small areas, elevations do not exceed 300 feet. The coastal belt has an almost imperceptible slope (averaging less than 0.5 percent) toward the sea. Because of the lack of slope, the stream network on the coastal belt is poorly developed. There are numerous streams, but all except the Vyg are small, with weak currents.

The White Sea coastline is moderately irregular. The principal indentations are two small bays. The larger and more important, Sorokskaya Guba, is 5 miles wide and forms the entrance to the port of Belomorsk. The other bay, which lies to the southeast near the settlement of Sukhanavolotskoye, is not named. A large number of shallow coves further break up the coastline. Even the largest of the small coves, however, extends no more than half a mile inland.

A line of offshore shallows fringes most of the coastline. Beyond the shallows are numerous islands, islets, and rocks, both exposed and submerged, which further interferewith the navigation of larger vessels. Most of the islets are very small, the largest being only a few hundred yards long. The approaches to the port of Belomorsk, however, are relatively clear of these obstructions. One of the larger islands,

Ostrov Shuy-Ostrov, at the northwestern margin of the coastal belt, is over 6 miles in length. The greatest dimension of Ostrov Tumishche, 8 miles east-southeast of Belomorsk, is about 2-1/2 miles. All the islands are low, the highest elevation being 59 feet on Ostrov Tumishche. Most of the larger islands are wooded.

The entire length of the White Sea coast is characterized by a low shore. Most of the gentle slope toward the water's edge is covered by a strip of coniferous forest that averages about 300 to 500 yards in width. Directly behind this narrow forested strip begins the extensive swamp area that occupies well over three-quarters of the coastal belt.

Large-scale Soviet maps indicate that the greater part of the swamp is low, flat, and impassable. Bushes constitute the principal vegetative cover. The small irregular shaped areas of higher, drier ground that are scattered throughout the swamp are readily distinguishable by their cover of mixed forest. The few settlements located in the northern belt other than those along the coast and on the banks of the Stalin Canal are in these drier areas. Throughout most of the year these small areas provide the only natural routes for cross-country movement through the swampy lowland. During the spring thaws, the clayey soils of even these higher areas probably become water-soaked and difficult to traverse. In winter the frozen surface of the numerous streams and the few "winter roads" (tracks over the frozen ground) provide supplementary routes, and cross-country movement on the frozen surface of the swamp is also possible.

If it becomes necessary to cross the swamp during the warm season, the wetter areas, which are generally recognizable by the bright-green color of the moss, should be avoided as much as possible. Such areas are especially difficult to traverse because of the danger of sinking in up to the knees. These areas are often linked with very wet quagmires, also bright green, which have only a thin moss covering over deep, soft, but tough decayed swamp matter. Since a breakthrough in such places can be disastrous, it is recommended that a long pole be carried. Danger spots can usually be recognized by small open pools and surfaces of brown decayed matter. When moving through such areas it is advisable to keep as much as possible to the shrub growth and to brown-red and other dark-colored mosses, which are indicators of drier land. The presence of small mounds is also an indication of safe passage.

B. The Lake Vyg Basin

The distinctive characteristics of the southern area include a more rolling terrain and a somewhat lower proportion of swampland than are found in the White Sea Coastal Belt. The terrain is also marked by a characteristic northwest-southeast trend of low ridges and depressions (Figure 1), especially south of the latitude of Verkhniy Idel'. Even on a map with no representation of relief, this trend is clearly apparent in the outlines and distribution of the islands in Ozero Vygozero, as well as in the shape of the lake itself. The Lake Vyg Basin is also characterized by a higher proportion of forest cover than is found to the north (Figure 2).

All of the southern region is lowland. Since the lowest areas, which are located along the shores of Lake Vyg and Onega, lie at 130 to 200 feet above sea level and the highest elevation is only 800 feet, the maximum difference in elevation is less than 700 feet. Elevations above 500 feet are found in less than 10 percent of the southern region, the greater part of the higher land being located to the east of the canal. On the western side of the canal, elevations in excess of 500 feet are found in only three areas. Two of these are on the southern shores of the small lakes near the settlements of Sel'ga and Verkhniy Idel'. The third area, which is 15 miles long -- considerably larger than the first two -- begins about 6 miles north of Medvezh'yegorsk. Absolute elevations, however, are a poor index of either slope or relative relief. Throughout the area the local differences in relief generally amounts to less than 100 or 200 feet, and much of the land lying above 500 feet is quite flat and poorly drained swamp.

In many areas the northwest-southeast alternation of ridges and depressions is so well marked that it can serve as an orientation feature for cross-country movement. The linear ridges are low, probably averaging no more than 25 feet in height. In the depressions between the ridges are innumerable small streams, lakes, and swamps. The drier ridges are generally composed of sand and gravel deposits and covered by coniferous forest, in which pine predominates. The swampy depressions are somewhat drier than the swamps of the northern

coastal belt, and many of the swampy areas are capable of supporting a forest cover. Numerous patches, both in the depressions and on the ridges, have been stripped of trees by forest fires or logging operations.

The dominant northwest-southeast trend of the terrain becomes somewhat obscured in the area northeast of Segezha, along the eastern margin of the region. Between 64°N and the latitude of the settlement of Unezhma, on the northeastern shore of Lake Vyg, the terrain is very heterogeneous. There is a hodgepodge of numerous small and irregularly shaped hillocks; depressions of all sizes and shapes; ponds, marshes, and a disorganized drainage system. The soil is a complex mixture in which clays, sands, and gravels are side by side. In general, however, the flatter tracts are probably composed of sand and the small hills are more likely to be gravel. Many boulders also are found in this area. The few forest lanes that cut across the area in approximately north-south and east-west directions are the only terrain features that have a semblance of regularity.

Movement will be considerably less difficult across the Lake Vyg Basin than in the northern coastal belt. The swamps are smaller and less wet and are generally passable on foot throughout most of the year. The few areas of impassable swamp are small and in most cases can be readily bypassed.

III. Climate

The climate of the Belomorsk-Povenets Region is characterized by long severe winters with much snow, and short cool summers. Because of the moderating influence of the White Sea in the north and Lake Onega in the south, the climate is less severe than that at similar latitudes farther east.

A. Temperature

From mid-October until the last week of April, temperatures average below freezing. In January, the coldest month, the average temperature is 11°F. In December, January, and February, temperatures may remain considerably below -15°F for 3 or 4 days. Temperatures above 20°F, however, may prevail for several days, even in midwinter. Thawing begins during the first week of May, but frosts may occur until the end of May. Warm weather begins in June. In July, the warmest month, the average temperature is 60°F. The highest temperature seldom exceeds 70°F, even on the hottest days of summer. Fall sets in at the beginning of September, and the frequency of frosts increases as the month progresses.

B. Precipitation

The annual precipitation of the region averages 14.2 inches, most of which occurs in summer. August is the wettest month, but fall months are also wet. January and February have the least precipitation, and the spring months of April and May have less than September and October. Most summer precipitation occurs in the form of thundershowers, with much rain falling within a comparatively

short time. Fall, winter, and spring precipitation is characterized by light, steady falls of rain or snow (mostly the latter), which may last 3 or 4 days. Snow occurs as early as 10 October, but the frequency of snowstorms is not high until late October. By November most precipitation is in the form of snow. Snow may fall until the 15th of May, but after mid-April the frequency of snowstorms is usually low.

C. Winds

The prevailing direction of surface winds from October to March is westerly. In both April and September, southwesterlies are predominant. From May through August, surface winds are mostly from the northeastern quadrant. The average wind velocity for the year is 10 miles per hour, but winds exceeding 33 miles per hour are not infrequent. Spring and fall are especially windy; gales average two a month during March, September, and October. Strong winds are most infrequent in June and July.

D. Visibility and Cloud Cover

The principal restriction to visibility in the region is fog, which occurs on 25 to 30 days a year, chiefly in early spring and late fall. The White Sea coast in the north and the Lake Onega region in the south are especially subject to fog. Fogs and haze sometimes occur also in the interior of the region, particularly in the early morning hours during spring and fall. Most fogs are dissipated by midday, but sometimes fog remains throughout the day, especially on the coast of the White Sea. Visibility is best in

summer, when there are fewer fogs, but dust is sometimes a minor limitation at that season during ground storms, blowing snow often reduces visibility.

The frequency of cloudy days is high throughout the year. The period with the most cloudiness is October to February, when there is an average overcast of 81 percent. The smallest amount of cloudiness occurs in the period from May to July, when it ranges between 54 and 62 percent. In fall and winter an extensive cover of low stratus clouds, lasting 3 or 4 days, is typical. Stratus clouds are also characteristic in spring, but periods of extensive cloud cover are short. In summer, clouds are of a cumulus type and extensive cloudiness is usually restricted to late afternoon.

E. Length of Day

Winter days are very short. Daylight lasts for approximately 4 hours in December, increasing steadily thereafter to 12 hours in March. The longest days occur during June, when there is an average of 21 hours of daylight. The length of day decreases at the rate of approximately 3 hours a month thereafter.

F. Snow and Ice Cover

Although the frequency of snow and below-freezing weather increases rapidly during October and early November, the snow cover is not established until mid-November. The depth of the snow cover (Figure 3) increases as the season progresses and reaches its greastest depth, which averages 15 to 20 inches, in late February and early March. Drifts 4 to 5 feet deep, which may impede road and railroad traffic, are not uncommon, however, especially in open places.

In forested areas, sleds may be used on the roads and "winter roads" from mid-November to mid-May. Movement on foot without snowshoes or skis is difficult and exhausting. The depth of the snow cover decreases during March and April, and by 15 May most of the snow is melted.

Ice closes the northern part of the Stalin Canal between 18 October and 11 November. The southern part is usually closed a few days later. In most years, however, the canal is ice-bound by 26 October. The average date of the breaking up of the ice is 20 May, but ice may melt as early as 27 April in the south and as late as 9 June in the north. In midwinter the frozen surfaces of the streams and lakes are often used as routes of travel by sled and motor vehicle.

IV. The Stalin Canal

Completed in June 1933 by over 100,000 forced laborers, the Stalin Canal was heralded by the Soviets as being of great economic importance to the Soviet people. This statement was scarcely justified, however, since the economic significance of the canal as a peacetime commercial route is not particularly great. There is little doubt that the fundamental reason for the project was to provide an inland route between the Baltic and White Seas for transferring naval vessels up to destroyer size without observation by or interference from foreign powers. This is not to say that no economic advantage has resulted from the construction of the canal. The movement of bulk cargoes via water has reduced the burden on the limited rail facilities to the north, but this beneficial effect has been primarily a useful by-product of strategic planning. Commodities flowing from north to south include lumber, apatite, nephelite, and feldspar. Petroleum, grain, and manufactured articles are the principal products transported in the opposite direction.

The canal route extends approximately 140 miles from the northern tip of Lake Onega to the White Sea. The excavated sections of the canal amount to only 30 miles, the remainder consisting of regulated lakes or rivers. Buoys mark the channel in the lake portions of the route. Seven locks, closely grouped within a 9-mile section, raise vessels 230 feet from Lake Onega to Vol Ozero, the highest point along the canal. The descent from this high point starts at lock 8 and ends near Belomorsk at lock 19 (sea level), a total fall of about 336 feet.

The dimensions of the lock chambers restrict the use of the canal to vessels with drafts of less than 11.5 feet. However, by the use of pontoons to raise the ship partially out of the water, vessels that normally draw more than 11.5 feet can be towed through the locks. It has been reported that many such pontoons are available and that ships normally drawing as much as 22 feet can be moved by this means. The canal is limited chiefly, therefore, by the length and width of the locks, which permit the passage of medium-sized Soviet destroyers and submarines of all classes but not of large destroyers, cruisers, or battleships. Despite a few recent reports that the canal installations have been rebuilt and enlarged in the last few years, analysis of the best information available leads to the conclusion that there probably has been no extensive rebuilding of the canal's facilities.

At the end of 1942, the Stalin Canal was reportedly in poor condition. The walls of several lock chambers were broken, canal banks had worn away at some points, and, in spite of dredging each spring, the channel was in many place too shallow for use. Some of the machinery had fallen into such disrepair that manual labor had to be used to operate the locks. During World War II the canal was completely closed by German bombers, but all damage was reported to have been repaired after the war, and the canal was reopened to navigation on 28 July 1946.

The length of time during which the canal may be used each year depends upon ice conditions. The longest period during which the

canal has been confirmed as navigable is 215 days, and the shortest period is 160 days. On the average, the canal is open about 180 days a year, from 26 October to 20 May.

The canalized portions of the canal include 19 locks, 15 sluice dams, and 49 retaining dams (Figures 4 to 6). Thirteen of the locks are double chambered, the remaining six are single chambered. The use of concrete as a construction material was restricted to a minimum. The majority of the locks have rock foundations and wooden gates and walls. Practically all of the dams are built of earth.

In addition to the locks, at least one ferry and a number of bridges permit east-west movement across the canal. A 2-car, manually operated pontoon ferry reportedly crosses the Stalin Canal north of lock No. 2 near Povenets, serving the road between Medvezh'yegorsk and Gabsel'ga. A pontoon bridge spans the canal south of lock No. 9 (south of Ozero Telekino). Footbridges, apparently of a permanent type, cross the canal north of lock No. 10 at Stantsiya Nadvoitsy. Bridges are also reported near lock No. 12 (about 3 miles south of Letnyaya Pervaya) and lock No. 15 (south of Sosnovets). The railway bridge used by the line running southeast from Belomorsk crosses the canal about 700 yards northeast of lock No. 18 at Shizhnya. According to a number of prisoners-of-war, a permanent railway bridge was being constructed in 1948 to replace the existing one, which apparently was of temporary construction.

V. Population and Settlement

The population density in the Belomorsk-Povenets Region is generally low. The lowest density, 2.5 to 25 persons per square mile, is in the eastern half of the region, along the entire east bank of the Stalin Canal and Ozero Vygozero waterway. The same low density prevails immediately along the west bank of the canal, from Povenets to Segezha, but the remainder of the western half of the region has a density of 25 to 65 persons per square mile. The higher density in this area is primarily due to the concentration of population along the Leningrad-Murmansk railway. Population density is even higher in the vicinity of urban centers. Around Belomorsk, Medvezh'yegorsk, and Povenets, it is 250 persons per square mile, and densities vary from 25 to 125 in the vicinities of Segezha and some of the smaller towns.

Although a few very small villages, barracks, cabins, and lumber camps are scattered throughout the forests of the region, most of the population is concentrated in the towns, industrial centers, and special settlements located along the railroad and the northern reaches of the Stalin Canal waterway. The principal centers in the region are Belomorsk, at the northern terminus of the Stalin Canal; Letniy (Letnyaya); Segezha, at approximately the half-way mark; Medvezh'yegorsk, on the Leningrad-Murmansk railway; and Povenets, the southern terminus of the canal, at the northern tip of Lake Ladoga.

Belomorsk (64°32'N, 34°7'E) has a population of about 15,000. it is situated at the head of a small bay, Sorokskaya Guba, on the

south side of the White Sea (Figure 7). The town is spread over a considerable area, covering about 2.5 miles from north to south and about 2 miles from east to west. Three sides of the town are shut in by forest, and to the east is the White Sea. Skirting the town to the north is the Murmansk railway, and on the west and south a factory spur line circles the town.

The town is the northern terminus of the Stalin Canal and an important sawmilling center. It has the largest sawmill in the entire region. The export of lumber and pulpwood is the principal activity of the port. Power for the town is supplied by the power plant at the lumber factory. Other industries and installations at Belomorsk are a furniture factory, cannery, chemical plant, fish processing plant, printing shop, railroad-equipment repair shop, miliary motor-vehicle repair shop, vitamin factory, radio station, an airport at the southern edge of the town, a small shipyard, and a seaplane base. Shallow depths in the breakwater-protected inner harbor limit the use of the wharves to medium-sized cargo vessels, but anchorage for larger vessels is available in the roadstead. Belomorsk is closed by ice from the middle of October until the middle of May.

There is very little agriculture in the area. Only a few berries, mushrooms, and small vegetables are grown locally in the summer. Most of the bread grains and other foods are shipped in from more southern regions. Since the railway line is often blocked by snow, supplies are stockpiled in summer and the town consequently contains sizable storage facilities.

Letniy (Letnayaya) is a small penal town about 40 miles north of Segezha. The population in 1948 was estimated to be about 3,000, composed almost entirely of exiled persons or penal detainees. The town stretches over a considerable distance from north to south along the Leningrad-Murmansk railway line and the canal. It is made up of several separate settlements, each of which has its own name. The surrounding area is rich in forests, but it is so far north that the meager food crops consist only of wild berries and mushrooms and a few hardy species of potatoes. Industries include a sawmill, brick factory, cement factory, and a prefabricated-house factory.

Segezha (63°44'N, 34°19'E) is a town with 3,000 to 4,000 inhabitants. It stretches about 2 miles from its northern to its southern outskirts and a little over a half mile from east to west. The Murmansk railway line virtually forms the town's western border, and the uneven shore of Lake Vyg is the eastern border. Segezha obtains its water supply by aqueduct from Lake Vyg. The water is filtered and chlorinated and then pumped to central points in the town. Most of the houses do not have running water; the city residents draw their water from faucets located in the center of town. Some of the public and the larger private buildings in and near the center of Segezha do have modern water facilities, but the water supply is irregular and the entire system is unreliable.

The port of Segezha is one of the main Soviet naval installations situated along the Stalin Canal. It is connected with the town of Segezha by a rail line. Storage facilities include (1) the vast

Lesoperevalotchnaya Baza (timber-floating base), which extends along the railroad for about 11 miles, turning southwest towards Ozero Segozero; and (2) underground concrete and metal cisterns for fuel oil, alcohol, and gasoline for military planes. The underground fuel dumps are in the northwestern part of town and are connected with the port by a pipeline.

Most of the industries of Segezha are operated by hydroelectric power. They include a chemical combine, sawmills, and other plants. A landmark visible throughout the town and probably for a considerable distance offshore is the paper factory in the northern part of the town, which is situated on somewhat higher ground than the rest of the area. White-stuccoed factory buildings and a high yellow smokestack clearly distinguish this huge cellulose-paper combine, the largest of its kind in the Soviet Union.

Although there is a state farm (State Farm No. 15) within a mile of the town, agriculture is only of local significance and the town is dependent upon imports of staple foods.

Medvezh'yegorsk (62°55'N, 34°7'E) is located at the northwestern tip of Lake Onega on the Leningrad-Murmansk railway. Forests border the town. In 1941 its population was estimated to be about 17,000. The town is the administrative center for the Stalin Canal route and a rayon center. It is a major water-rail transfer point and has a number of industries and installations, including nickel-processing plants, lumber mills, furniture, trunk, and barrel factories, a tool factory, auto repair shop, oil storage tanks, and locomotive repair

shop. The town has two thermoelectric power plants, the larger of which supplies electricity to the town while the smaller one supplies the factories in the vicinity.

Medvezh'yegorsk is also a port. It has a wooden landing pier for passenger vessels and a wooden quay about 395 feet long, which is separated by a canal from an equally long wooden wharf and a number of warehouses.

Agriculture in this area consists of animal husbandry for meat and milk and the cultivation of vegetables, rye, oats, and potatoes. The State Farm B.B.K. Vichka is located northeast of the town.

Pindushi (62°55'N, 34°34'E) just east of Medvezh'yegorsk, has a population of about 500. The town has a shipyard where river and lake barges are made.

Povenets (62°52'N, 34°50'E) is a port town at the southern terminus of the Stalin Canal, about 12 miles east-southeast of Medvezh'yegorsk. It is the center of Povenets Rayon. The population of the town is about 2,000, according to prewar population data, but with the further development of this area since the war the population has undoubtedly increased. Economic installations include port facilities, a power plant, and a radio station. Dairying and some crop cultivation are carried on in the surrounding area.

In the northern part of the Belomorsk-Povenets Region, small rural settlements, consisting of 10 to 20 buildings, are located at various distances from 20 to 30 miles apart along the major roads. Occasionally single houses with small clearings are found along the

roads, and there are scattered abandoned dwellings. The clearings, some of which are completely surrounded by forest, are used for growing vegetables and grains, mostly potatoes, barley, and oats and in some years wheat.

Nearer to the larger towns are farms of 40 to 60 acres where a few dairy cows, hogs, and sheep are raised for local consumption. Native grasses serve as natural pasture (Figure 8).

Typical rural homes are one story high, constructed with an exterior of rough lumber or logs (Figure 9) and an interior finish of either wooden boards or plaster. The houses have no basements, and roofs are of wooden shingles. The houses usually have two bedrooms, a living room, and a combination kitchen and dining room. The exteriors of outbuildings usually resemble the houses in appearance.

In the southern part of the region, settlements of the village type are very small, sometimes comprising only 5 to 10 households and are scattered very sparsely along the banks of rivers or lakes (Figure 10). The houses are fairly large, many having two stories. In swampy areas, houses are often built on piles driven into the ground. The building materials are similar to those used in other parts of the region.

VI. Ethnic Composition of the Population

The two dominant ethnic groups in the Belomorsk-Povenets Region are Great Russian and Karelian. Great Russians with small admixtures of other Soviet peoples, are most numerous along the Leningrad-Murmansk railway and eastward, whereas Karelians comprise the major group westward. Even as early as several decades ago, the original Karelian population was being crowded westward. A large proportion of the people consists of workers from the ranks of political criminals banished to Karelia to work in the vast lumber enterprises.

The Great Russians are medium to tall in stature and of medium build. Their heads seem to be small in comparison to the rest of their bodies. Faces are wide in brow, cheek, and jaw, the jaws being conspicuously heavy. Noses are fairly wide and rather shapeless. Hair is brown, either straight or wavy, and beard growth is heavy. Eyes are brown, small, and wide set. Those who practice religion are Russian Orthodox Christians, and there are several Orthodox churches in the cities of the region.

In physical appearance the Karelians have broad heads and faces, with a steep foreheads and wide-set eyes. Their noses are short and rather wide. They are of medium stature, slender, and well proportioned. Gray eyes and light hair predominate. The Karelian language is a Baltic Finn dialect closely related to Estonian and mutually understandable with Finnish. Most religious adherents among the Karelians are Russian Orthodox Christians.

VII. Transportation

A. Railroads

In the Belomorsk-Povenets Region, only the area west of the canal is adequately served by rail. The most important railroad line, the only narrow-gauge line, and all but one branch line of the region are found in the area west of the canal. East of the canal the region is crossed by rail only in the extreme north. There are no important rail centers. Little traffic originates in the region; most of the traffic that passes through is going north to the port of Murmansk on the Barents Sea or south to Petrozavodsk and Leningrad.

The main rail line is a part of the Leningrad-Murmansk trunk line of the Kirovsk System and traverses the region in a north-south direction. The line is Soviet broad gauge (5 feet), and, except for a comparatively short double-tracked, electrified section from Belomorsk northward, it is steam operated and single tracked. From this line connections can be made with the Moscow-Arkhangel'sk line to the east, the Finnish rail system to the southwest, and the dense railroad net of European Russia to the south.

The main railroad enters the region approximately 17 miles north of the Stalin Canal terminus at Belormorsk. Between Belomorsk and Segezha the line closely parallels the route of the canal, but south of Segezha its route is 3 to 20 miles west of the canal. The line leaves the region approximately 16 miles south of Medvezh'yegorsk. Within the region, the line makes 27 bridge crossings over water bodies.

According to the 1950 Soviet timetable, at least two scheduled passenger trains operate daily in each direction on the main line. One is a fast train, the other is slow. Six and eight hours of running time, respectively, are required between the two principal railroad stations in the region -- Belomorsk in the north and Medvezh'yegorsk in the south. Southbound freight consists of minerals, timber, fish, and imports received at Murmansk. Northbound freight is mostly manufactured goods and foodstuffs.

The most important branch line runs southeastward from Belomorsk and continues beyond the limits of the region. It connects the Leningrad-Murmansk line with the Moscow-Arkhangel'sk line beyond the region to the east. A short spur leads from Belomorsk to the harbor area south of the city, and a narrow-gauge line, approximately 5 miles long, runs northeastward to Pristan' Razvolok.

There are three other branch lines in the region. The first starts about 8 miles south of Stantsiya Idel' and extends west beyond the limits of the region to Rugozero. The second leads northwestward from Masel'skaya and terminates at Velikaya Guba, on the eastern shore of Lake Segozero. The third branch line starts at a point about 4 miles south of Masel'skaya and leads eastward to the Morskaya Masel'ga area on the Stalin Canal. At the junction of the Morskaya Masel'ga branch line and the Leningrad-Murmansk trunk line, available maps show short spurs leading to the north and the west. The western spur has apparently been abandoned, and an examination of available World War II aerial photographs of the terminal area of the northern spur

fails to reveal any trace of a rail line. About midway on the route to Morskaya Masel'ga another short spur line goes to the north, and there are also several spurs from the main line eastward to industrial plants near Segezha. From Stantsiya Vozhma, near the easternost point of Lake Vyg, a narrow-gauge line extends for a short distance beyond the eastern limit of the region. All the branches and spurs of the main line belong to the Kirovsk System, and, except for the narrow-gauge line from Belomorsk to Pristan' Raznovolok, they are Soviet broad gauge, single tracked, and steam operated.

At Belomorsk are two freight yards and a railroad repair yard, as well as other railroad facilities. At Medvezh'yegorsk there is a track triangle for turning locomotives, as well as a railroad repair yard and a freight yard. Other small freight yards in the region are located at Sosnovets, Letniy (Letnyaya), Zalivy, and Segezha.

There are strong indications that strict security measures are in force on the railroads and that all trains are guarded. Railroad installations and stations are especially closely watched.

B. Roads

In the Belomorsk-Povenets Region the road system is poor and lacks development. Although there are some comparatively long routes, none traverse the region from north to south. Most roads are short and of local importance only. The basic pattern consists of a few roads radiating from the larger settlements. Unimproved

dirt roads ranging in width from 10 to 15 feet are characteristic. The roads are generally incapable of bearing heavy traffic without improvement, and maintenance is difficult. Corduroy roads provide access to some isolated settlements in boggy areas (Figure 11).

Most of the longer roads are found on the western side of the canal, especially in the northern and southern parts of the region. In the northern part three roads radiate from Belomorsk. The first parallels the main rail line leading north to Shuya, beyond the limits of the region. The second road crosses to the east side of the canal and roughly parallels the shore of the White Sea to the southeast of Belomorsk, passing beyond the limits of the region near Virma and continuing on to Suma. The third runs southwest about 12 miles along the Stalin Canal to Sosnovets, where it turns and leads west to settlements both within and beyond the region. The roads from Belomorsk cross land dominated by swamp.

In the southern part of the region, most of the longer roads adjoin the Povenetskiy Zaliv (Bay) of Lake Onega, and the majority of the shorter roads provide access from the shore to points inland. Medvezh'yegorsk, at the northern end of Povenetskiy Zaliv, is the most important road junction. Pindushi, also at the northern end of the bay, and Povenets, the southern terminus of the Stalin Canal, are less important road centers.

Three roads emanate from Medvezh'yegorsk. One runs south along the western shore of the bay. Just west of Perguba it forks, one branch continuing along the shore, the other leading southwest to

Lesopunkt Unitsa. Both branches pass beyond the southern limit of the region. The second road from Medvezh'yegorsk leads west along the Kumsa River valley to Chebino, at the western margin of the region. The third road leads southeastward, paralleling the northern shore of Povenetskiy Zaliv at distances ranging from 1 to 5 miles. It passes through both Pindushi and Povenets and continues beyond the limits of the region.

From Povenets a road (Figure 12) which is only partly shown on the orientation map parallels the canal northward to lock No. 9, where it crosses the canal by bridge and continues northeastward. After skirting the eastern shore of Lake Vyg, the road goes north to Korosozero, where it crosses the eastern margin of the region and continues north to Suma.

Elsewhere in the Belomorsk-Povenets Region, the road junctions are minor, but a number of local roads originate at the larger settlements along the canal route or on the north-south rail line.

Weather strongly affects the condition and trafficability of the roads in the region. During the spring, most roads are made impassable by mud and floods for 2 to 4 weeks after the melting of the snow cover. In the deep forest the snow and ice last longer, and sleds can be used in some parts of the region until the end of May. Bridges (Figure 13) are sometimes weakened by floods and are dangerous to cross. The frequent and prolonged light rains in September and October also change the roads into tracts of soft ground and mud, but the condition of the roads is not as serious in

the fall as in the spring. In summer, when surfaces are usually dry and firm, conditions for travel by road are best, although flash floods sometimes occur after heavy showers and road washouts are common in some places. In winter most roads are passable only by sled, but motor vehicles may be used on well-cleared roads. "Winter roads" across frozen surfaces are characteristic in the region and are generally usable until late April.

VIII. Military Installations*

According to the available data, most military installations in the region are located in the northern part, principally at Belomorsk.

The known air facilities consist of 10 airfields and one seaplane anchorage. The airfields are small, and all except one have sod or rolled-earth surfaces. Most of them appear to be of no great importance and were probably used for the defense of the transportation system between Leningrad and the Murmansk area during World War II. Some are probably inactive at the present time.

The most important air base is located in the northern part of the region, at the southern edge of Belomorsk. It has concrete runways and is used by bombers and fighters of the Soviet Air Force and the Soviet Navy. There may be two other airfields in the Belomorsk area, but information concerning them is not available. The Belomorsk

*Data on military installations are based entirely upon information readily available to the Geography Division of CIA. In most cases, only approximate locations can be given.

seaplane anchorage, located on the northern breakwater, is used by the seaplanes of the Soviet Naval Air Force, probably for patrol purposes.

There are three other airfields in the northern part of the region. The first is located at the southern limits of Sosnovets, on the west bank of the Vyg River. The second is on the northeastern edge of Letnyaya Pervaya. A third field is reported on the southeastern edge of Ozero Idel. There are also a number of airfields in the central part of the region. Three of these are located 2.2 miles east, 4.3 miles southeast, and 9.3 miles northwest of the settlement of Kyargozero on the western side of Ozero Kyargozero. The last is near the Segezha River just west of Popov Porog. Other airfields are located 1.3 miles northwest of Segezha and 1.8 miles west of Ayta Lamba. In the southern part of the region, there is an airfield 3 miles east-northeast of Pindushi.

Part of the Belomorsk harbor serves as a base for submarines and other light naval craft. Segezha is reported to contain naval warehouses for food and other supplies, as well as dumps for marine and aircraft fuel.

A 1948 report of unknown reliability indicated the presence of coastal defense guns north and south of Belomorsk, but the number and caliber of the guns is unknown. According to another report, there was an armored train with rocket launching ramps at Belomorsk in July 1952.

No up-to-date comprehensive information is available about antiaircraft defenses in the region, but Belomorsk is known to have been strongly defended by antiaircraft guns during the war, and several antiaircraft batteries were reported at Belomorsk during military exercises in the summer of 1952.

Prewar large-scale maps show numerous barracks in the forested parts of the region, but which are penal camps and which are military camps is not known. All military installations are probably surrounded by tight security zones.

IX. Analyst's Note

The reliability of the information given in this report on terrain, vegetation, and climate ranges from good to excellent. Data on population, transportation, and military installations are generally reliable but incomplete.

The place names used conform with those given on the 1:250,000 orientation map. The Russian 1:100,000 series provides the largest-scale map coverage for the region. The Russian maps for this locality are all based on surveys of the period 1935-39. A careful comparison of a sample area on the Russian 1:100,000 series with available World War II aerial photographs indicates that the reliability of the maps is only fair. Both the physical and cultural features on the maps are in need of revision. One small lake was found to have been omitted, and some discrepancies in the character of the vegetation cover were also noted. The map presentation of the secondary road network was

found to be inadequate, with numerous roads and lanes not shown. In many cases, alignments were also found to be somewhat inaccurate. Numerous dispersed houses and even a small settlement were omitted. The results of this detailed photographic study is contained in a sketch map of the Ayta Lamba area, compiled at a scale of approximately 1:20,000, obtainable from the CIA Map Library (CIA 12524).

The photomaps accompanying the report are mosaics prepared from aerial photographs made during World War II. The mosaics have lost much of their usefulness because of excessive reduction, but General Photo Interpretation Reports that provide indexes to the individual photographs may be obtained from the Graphics Register.

A reproduction of Russian Hydrographic Chart No. 4346, which covers the northern part of Lake Onega, is also supplied with the report. The chart should be reliable, having been compiled in 1942 and corrected in 1943. The White Sea coast of the region is covered by British Admiralty Chart No. 2275, with corrections to November 1948, a reproduction of which can be obtained from the U.S. Navy Hydrographic Office.

Figure 1. Alternation of ridges and lowland in the Kumsa Valley west of Medvezh'yegorsk.

Figure 2. Stands of coniferous forest bordering rapids of the Segezha River, not far from Ozero Segozero.

Figure 3. Snow covering a construction site, apparently of the Stalin Canal.

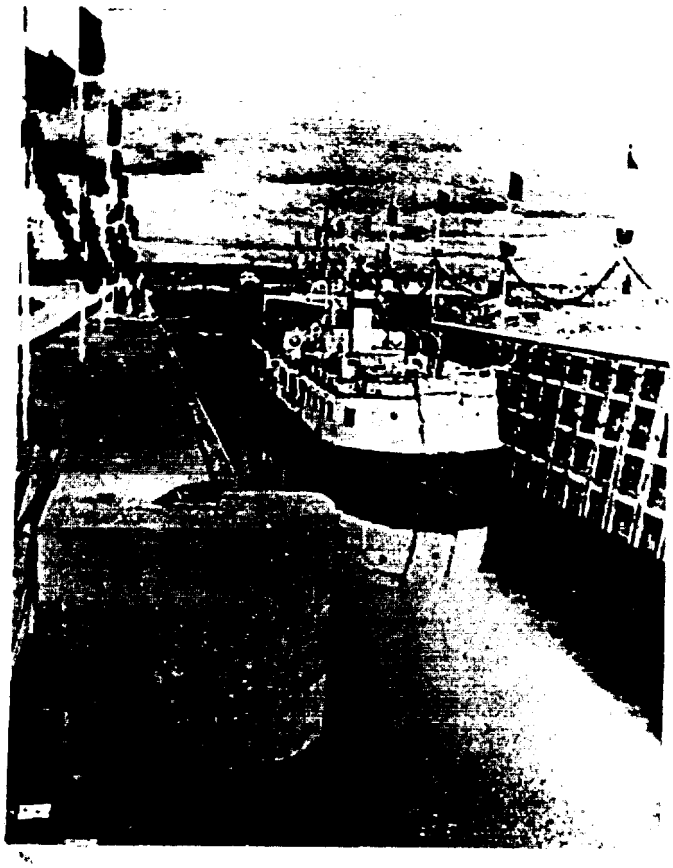
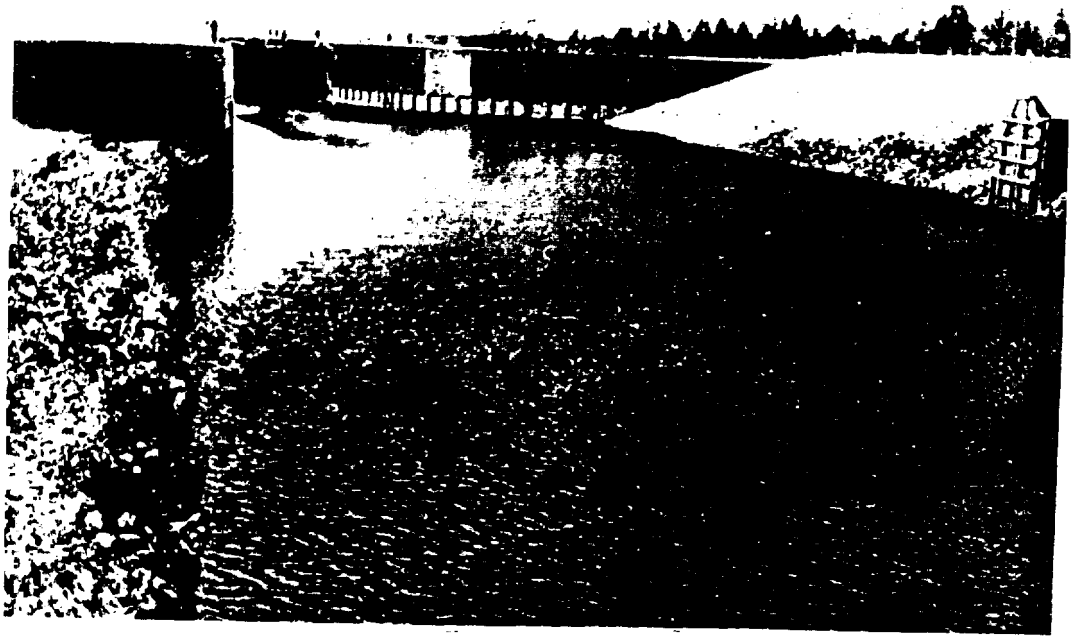


Figure 4. Passenger vessel passing through a lock on the Stalin Canal at the time of its opening in 1933.

Figure 5. A group of smaller vessels in a lock of the Stalin Canal.



A lock of the Stalin Canal.

Figure 8. Natural meadow near Nasel'skaya, southeast of Ozero Segozero

Figure 9. Small settlement near Belomorsk.

Figure 10. Village of Lis'ya Guba on the southeastern shore of Ozero Segozero (before 1921).

Figure 11. Corduroy road over typical swampy terrain of the northern coastal belt.

Figure 12. Road between Povenets and Suma

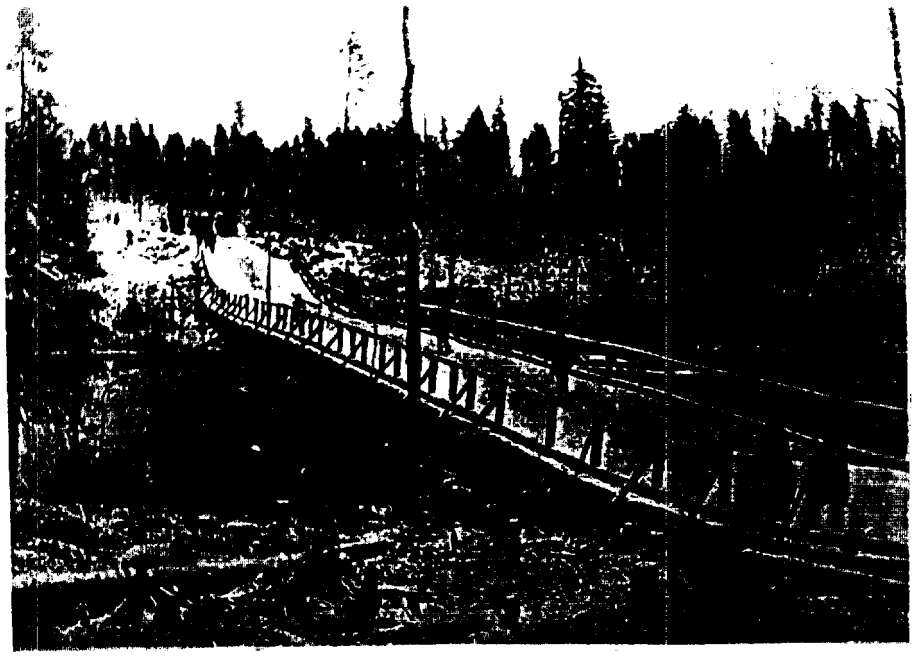


Figure 13. Road bridge across stream near Povenets.

CONFIDENTIAL

ITÄ-KARJALAN KARTASTO

1936 г.

Q—36—140 (ВЕРХ ИДЕЛЬ)

КАРЕЛЬСКАЯ АССР

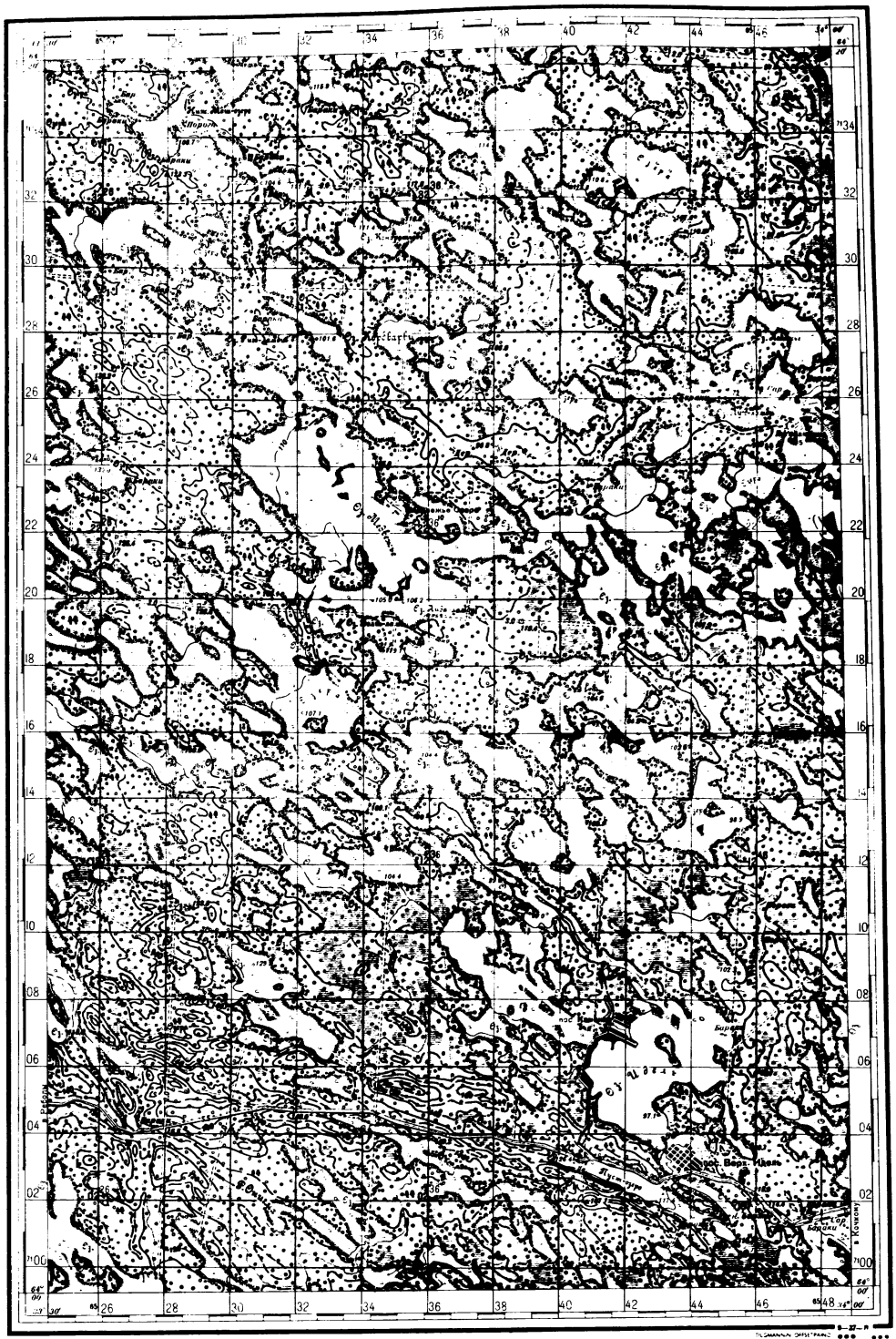
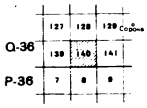
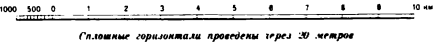


СХЕМА РАСПОЛОЖЕНИЯ ЛИСТОВ

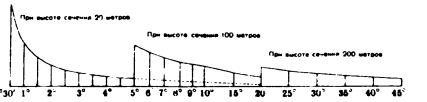


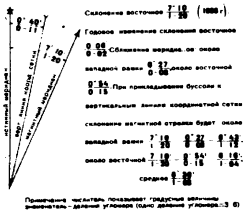
1:100.000

1 см. на карте соответствует 1 км. на местности



Сплошные горизонтали проведены через 20 метров





Склонение восточное 7°-10° (1933 г.)

Годовое изменение склонения восточное 0°-05'. Сближение меридианов около западной рамки 0°-12' около восточной 0°-15'. При прикладывании буссоли к вертикальным линиям координатной сетки склонение магнитной стрелки будет около западной рамки 7°-18' 8°-24' 9°-30' около восточной 7°-06' 8°-12' 9°-18' средняя 8°-00'

Примечание: числитель показывает градусное значение, знаменатель - деление угломера (одно деление угломера = 3')

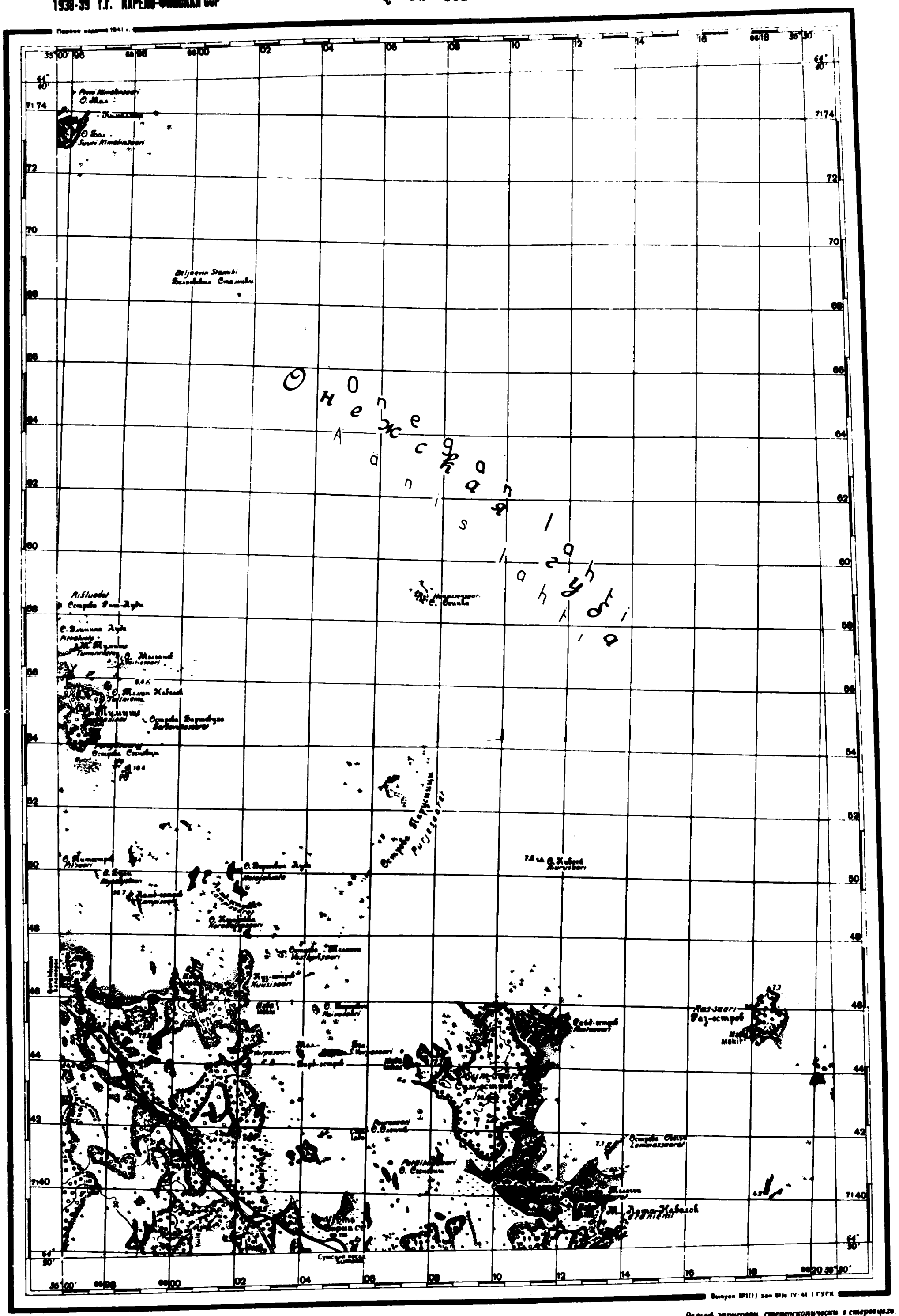
Составляли Мартынова и Горбатова.
Редактировал ст. лейтенант Телеуш.
Нач-к отделения ст. лейтенант Инспекторов.
Вычерчен в Ленингр. карт. части в 1937 г.
Начальник карт. части майор Ямщиков.

ITÄ-KARJALAN KARTASTO

1938-39 г.г. КАРЕЛО-ФИНСКАЯ ССР

Q—36—131

БЕЛОМОРСКИЙ РАЙОН.

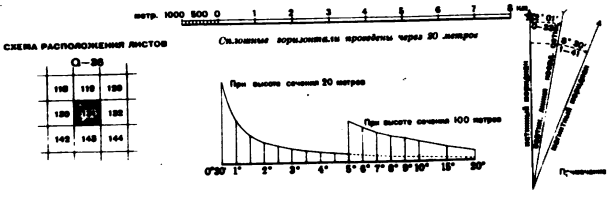


Глав. инж. Сев.-Зап. АГП В. Ан[illegible]
Нач. ОТК Щиткин
Нач. партии Дмитриев Н. М.

1:100000

1 см на карте соответствует 1 км на местности

Рельеф зарисован стереоскопически в стереоцикле.
Дешифрировала Селюкова. Составила в 1939 г.
Саксина. Чертила Минина.



Склонение восточное $\frac{0°20'}{1-01}$ (1938 г.). Годовое изменение склонения восточное $\frac{0°06'}{0-02}$. Сближение меридианов: около западной рамки $\frac{1°40'}{0-28}$, около восточной рамки $\frac{2°10'}{0-37}$. При прикладывании буссоли к вертикальным линиям координатной сетки склонение магнитной стрелки будет: около западной рамки $\frac{0°20'}{1-01}$ − $\frac{1°40'}{0-28}$ = $\frac{0°40'}{1-11}$; около восточной $\frac{0°20'}{1-01}$ − $\frac{2°10'}{0-37}$ = $\frac{0°10'}{1-34}$; среднее $\frac{0°30'}{1-08}$.

Примечание: Числитель показывает градусные величины, знаменатель деления угломера (одно деление угломера 3'6).

827687

08

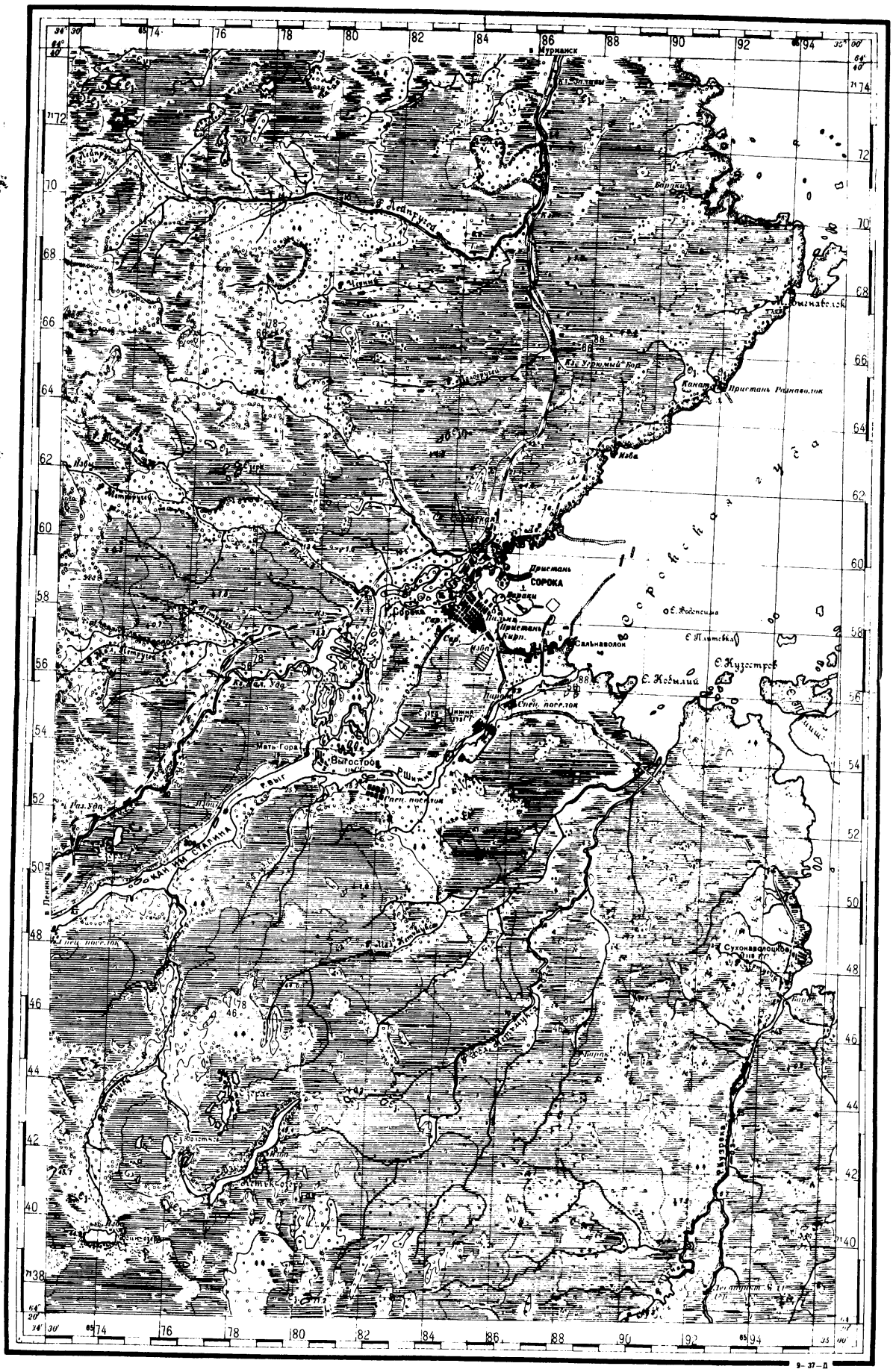
УПРАВЛЕНИЕ ВОЕННЫХ СООБЩЕНИЙ КРАСНОЙ АРМИИ

НЕ ПОДЛЕЖИТ ОГЛАШЕНИЮ

1936 г.

О-36-130 (СОРОКА)

РСФСР КАРЕЛЬСКАЯ АССР



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1 см на карте соответствует 1 км на местности

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Основные горизонтали проведены через 20 метров

ITÄ-KARJALAN KARTASTO

1935 г.

Q-36-129 (РАМОЕ)

РСФСР КАРЕЛЬСКАЯ АССР

1:100.000

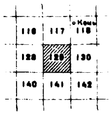
1 см на карте соответствует 1 км на местности

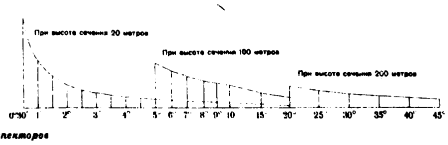
метр. 1000 500 0 1 2 3 4 5 6 7 8 9 10 км

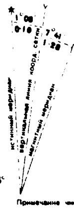
Сплошные горизонтали проведены через 20 метров

СХЕМА РАСПОЛОЖЕНИЯ ЛИСТОВ

Q—36







Склонение восточное $\frac{7^\circ 41'}{1-28}$ (1935 г.)

Годовое изменение склонения восточное $\frac{0^\circ 10'}{0-03}$

Сближение меридианов около западной рамки $\frac{0^\circ 54'}{0-15}$ около восточной $\frac{1^\circ 21'}{0-23}$

При прикладывании буссоли к вертикальным линиям координатной сетки склонение магнитной стрелки будет: около

западной рамки $\frac{7^\circ 41'}{1-28}$ $\frac{0^\circ 54'}{0-15}$ $\frac{6^\circ 47'}{1-13}$

около восточной $\frac{7^\circ 41'}{1-28}$ $\frac{1^\circ 21'}{0-23}$ $\frac{6^\circ 20'}{1-05}$

среднее $\frac{6^\circ 34'}{1-09}$

Примечание: числитель показывает градусные величины, знаменатель – деления угломера (одно деление угломера=3'6)

Составлен в 1 А. Т. отряде

Корректировал лейтенант Шнитин

Начальник отделения ст. лейтенант Инспекторов

Нач. Ген. карт. части майор Эммануилов

Р 36–45 (МЕДВЕЖЬЯ ГОРА)

РСФСР КАРЕЛЬСКАЯ АССР

1935 г.

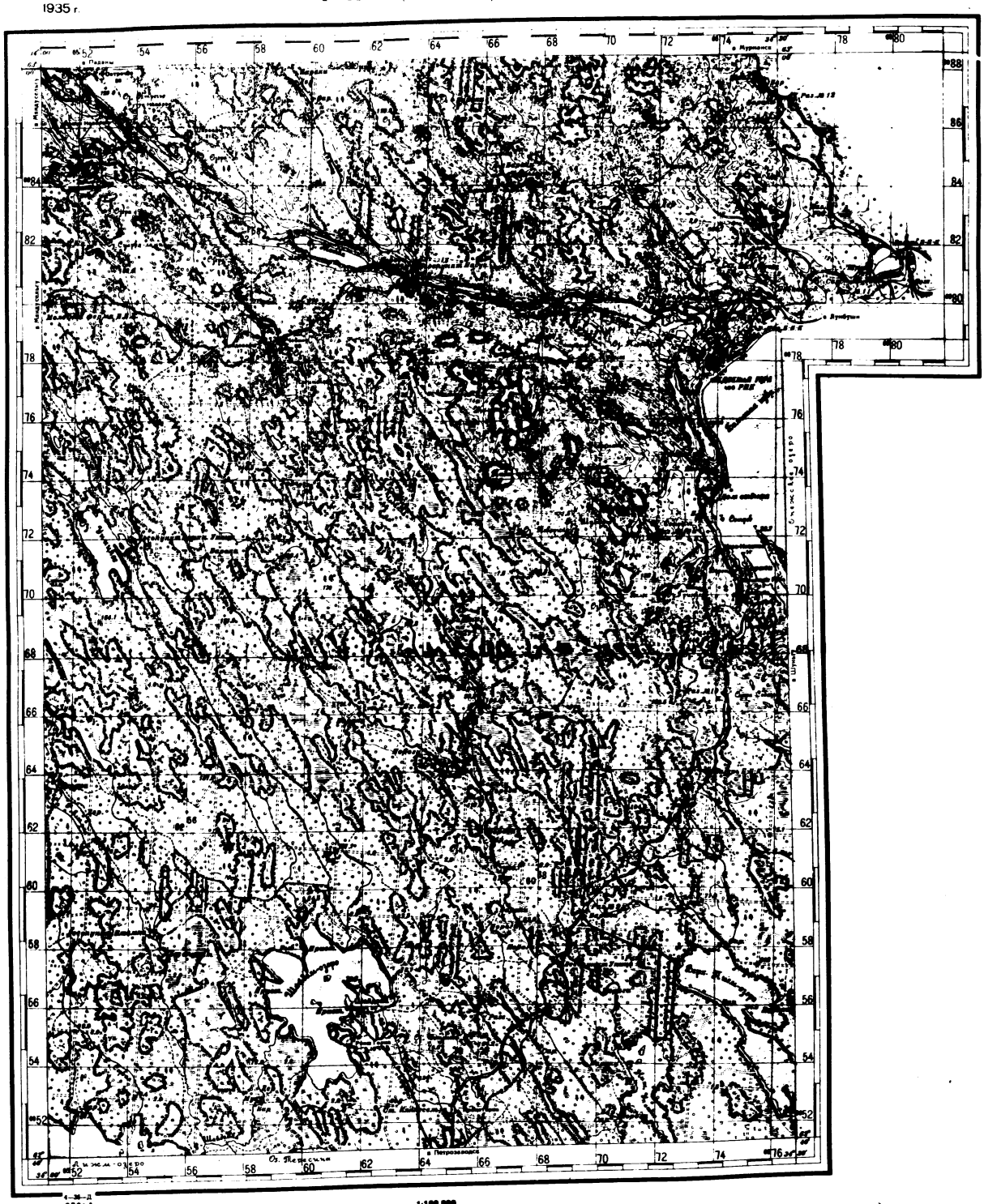


СХЕМА МАГНИТНЫХ СКЛОНЕНИЙ
масштаб 1:200.000

1:100.000
1 см на карте соответствует 1 км на местности

Составлял Тулин
Вычерчивал Калугин
Там определял Неклюдов
Кам ГГО.180 Золотарев

СХЕМА РАСПОЛОЖЕНИЯ ЛИСТОВ
Р—36

Среднее 7° 00'

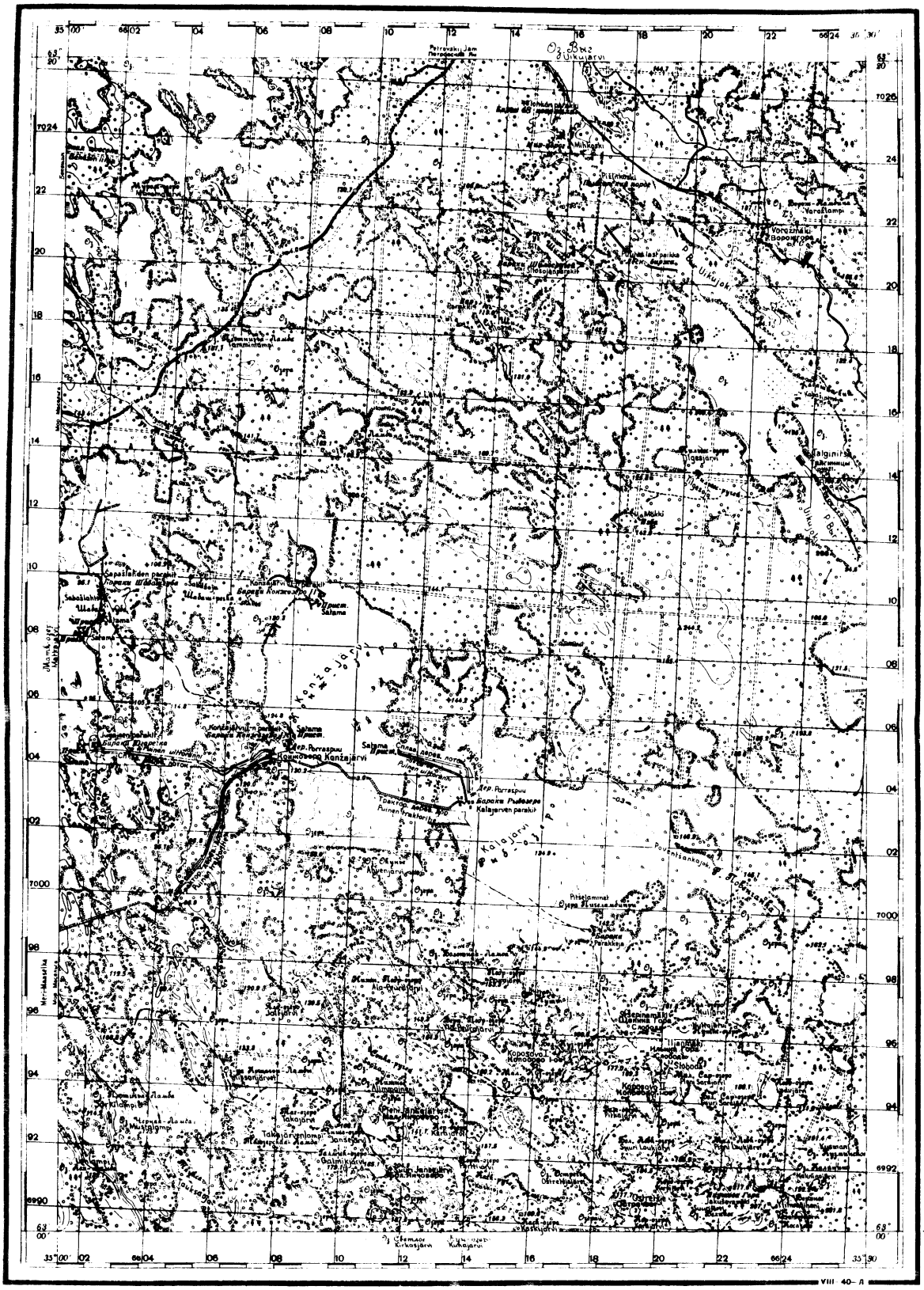
Основные горизонтали проведены через 20 метров

ITÄ-KARJALAN KARTASTO

1937 - 1938 г.г. РСФСР КАРЕЛЬСКАЯ АССР

P—36 35

МЕДВЕЖЕГОРСКИЙ РАЙОН



VIII 40—Л

Глав. инж. Сев-Зап. АГП

Нач. ОТК

Нач. партии Дюбин

1:100000

1 см на карте соответствует 1 км на местности

метр. 1000 500 0 1 2 3 4 5 6 7 8 км.

СХЕМА РАСПОЛОЖЕНИЯ ЛИСТОВ

22	23	24
34	35	36
46	47	48

Сплошные горизонтали проведены через 20 метров

При высоте сечения 20 метров

При высоте сечения 100 метров

0°30' 1° 2° 3° 4° 5° 6° 7° 8° 9° 10° 15° 20°

Дешифрировали и рисовали рельеф на фотопланах в 1936 г. топографы Звержинев, Белкович, Тихонов, Кирпин и Мацуто. Рельеф закончен стереоскопически в стереопункте в 1937 г.

Репродуцировал в 1938 г. топограф Волын

Чертил ю. Круглова.

Склонение восточное $\frac{8°\ 30'}{1-41}$ (1938 г.) Годовое изменение склонения восточное $\frac{0'\ 06'}{0\ \ 05}$ Сближение меридианов около западной рамки $\frac{1°\ 47'}{0\ \ 30}$ около восточной рамки $\frac{2°\ 14}{0\ \ 37}$ При прикладывании буссоли к чертикальным линиям координатной сетки склонение магнитной стрелки будет около западной рамки $\frac{8°\ 30'}{1-41}$ $\frac{1°\ 47'}{0-90}$ $\frac{6°\ 43'}{1-11}$ около восточной $\frac{8°\ 30'}{1-41}$ $\frac{8°\ 14'}{0-37}$ — $\frac{2°\ 18'}{1-04}$ среднее $\frac{6°\ 30'}{1-18}$

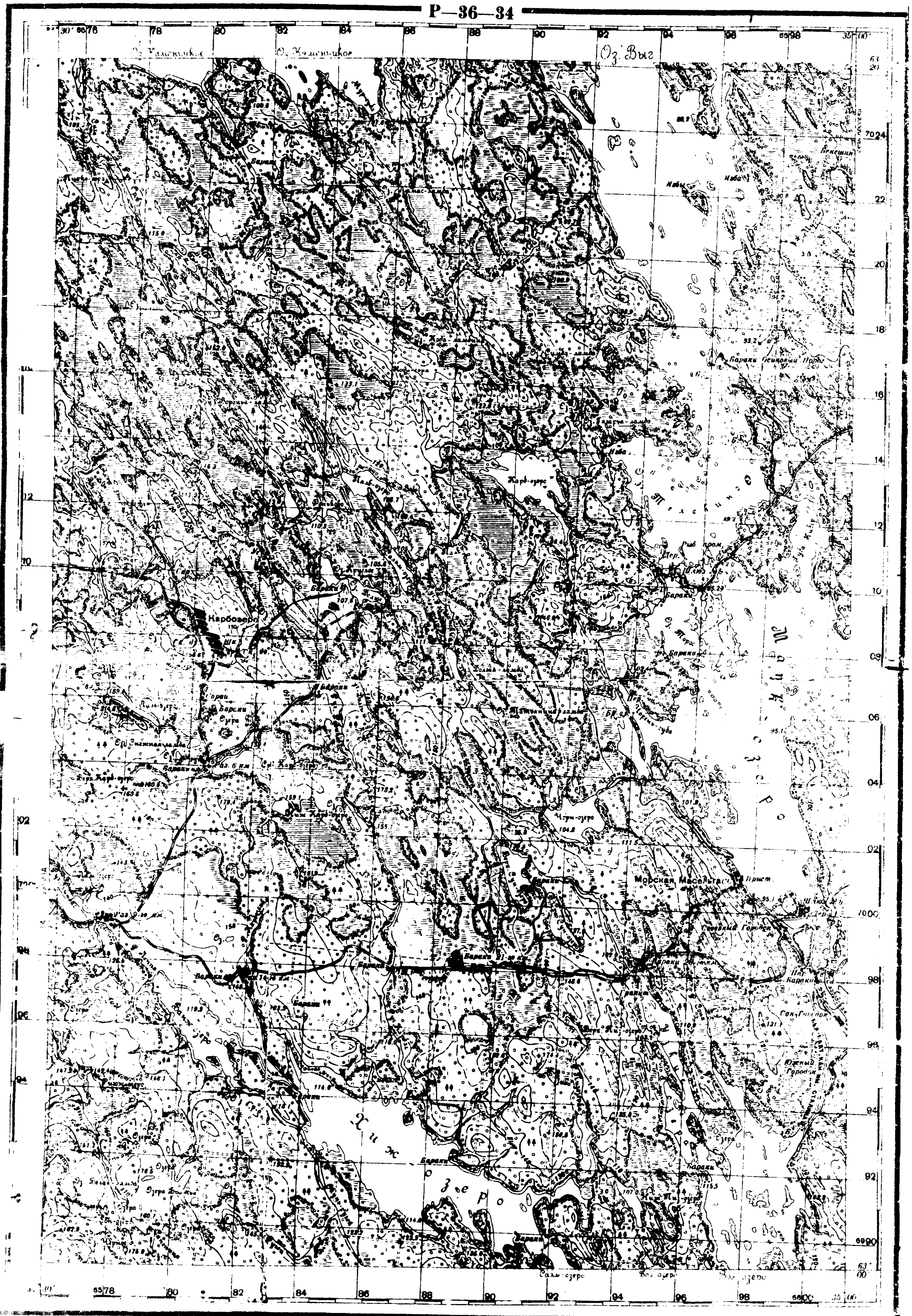
Примечание. Числитель показывает градусные величины, знаменатель деления угломера (одно деление угломера 3').

1937-38 г. КАРЕЛО-ФИНСКАЯ ССР

ГЛАВНОЕ УПРАВЛЕНИЕ ГЕОДЕЗИИ И КАРТОГРАФИИ при СНК СССР

МЕДВЕЖЕГОРСКИЙ РАЙОН

P—36—34



VIII 40 Я

Лист переиздан 40 МТО ОВТС Штаба
Карельского фронта в 1941 г.

1:100000

1 см на карте соответствует 1 км на местности

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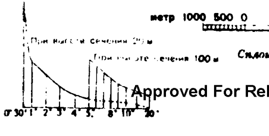
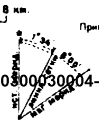
Сплошные горизонтали проведены через 20 метров





Карта получена стереофотограмметрическим методом

Склонение восточное 8°00 (1-33) Среднее сближение меридианов восточное 1°34' (0-26) При прикладывании буссоли к вертикальным линиям координатной сетки среднее склонение магнитной стрелки восточное 6°27' (1-07).

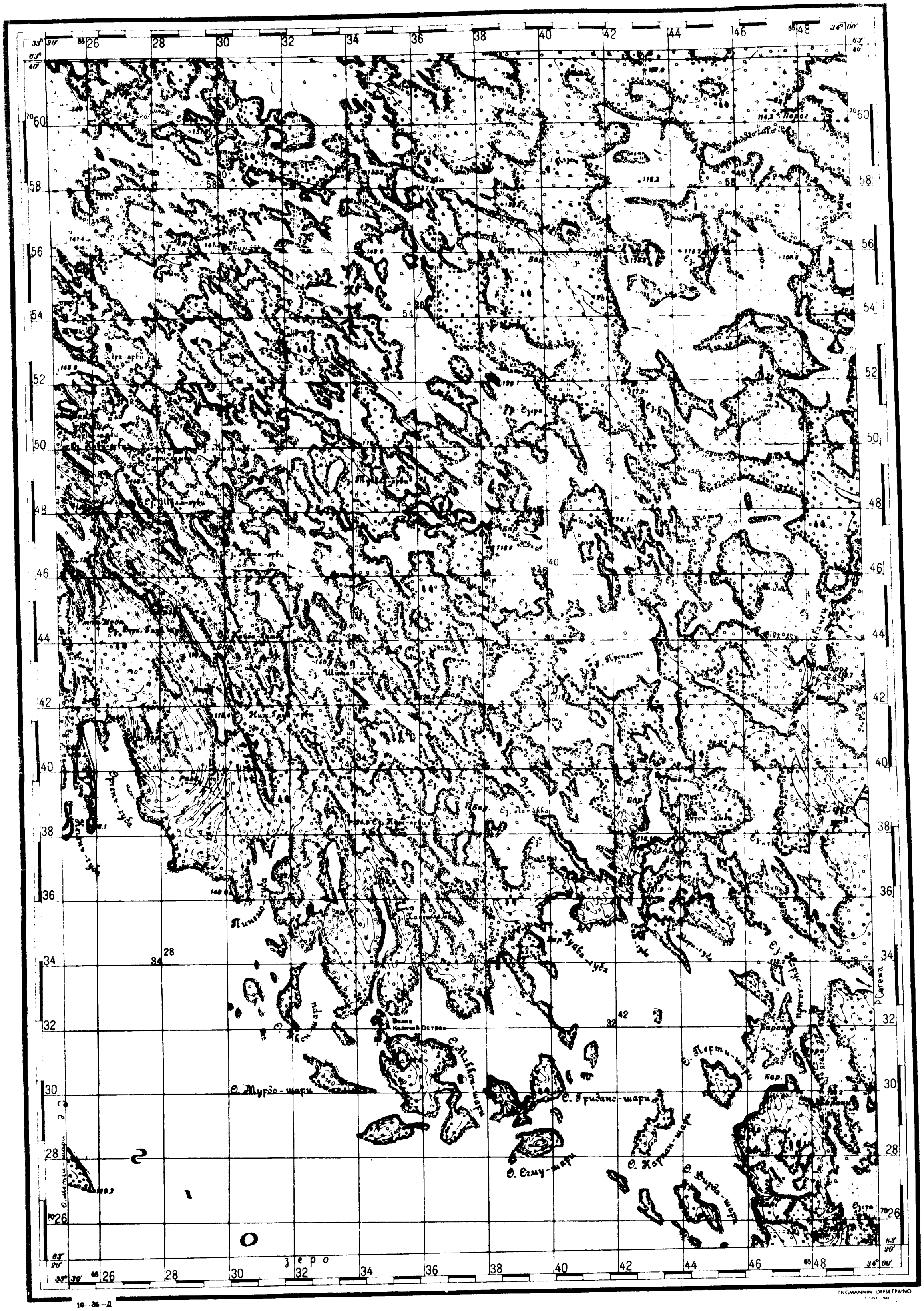
Примечание Числитель показывает градусные величины, знаменатель деления угломера (одно деление угломера 3'6)

ITÄ-KARJALAN KARTASTO

P—36—20 (ВОЛНА)

1935 г.

РСФСР КАРЕЛЬСКАЯ АССР



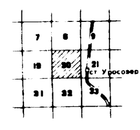
TILGMANNIN OFFSETPAINO

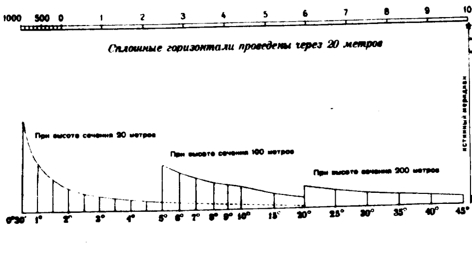
10-36—Д

1:100.000

1 см на карте соответствует 1 км на местности

СХЕМА РАСПОЛОЖЕНИЯ ЛИСТОВ





Сплошные горизонтали проведены через 20 метров

Склонение восточное $\frac{6°16'}{1\ 04}$ (1936 г.)

Годовое изменение склонения восточное 0°10′

Сближение меридианов: около западной рамки $\frac{0°27'}{0\ 08}$, около восточной $\frac{0°54'}{0\ 15}$ При прикладывании буссоли к вертикальным линиям координатной сетки склонение магнитной стрелки будет около

западной рамки $\frac{6°16'}{1\ 04} - \frac{0°27'}{0\ 08} = \frac{5°49'}{0\ 96}$

около восточной $\frac{6°16'}{1\ 04} - \frac{0°54'}{0\ 15} = \frac{5°22'}{0\ 89}$

среднее $\frac{5°35'}{0\ 93}$

Примечание: числитель показывает градусные величины, знаменатель — деления угломера (одно деление угломера=3′ 6)

Составлен в 3-ем В. Т. отряде

Корректировал капитан Сыгее

Нач. отделения капитан Валицкий

Нач. Лен. Карт. Части майор Эммануилов

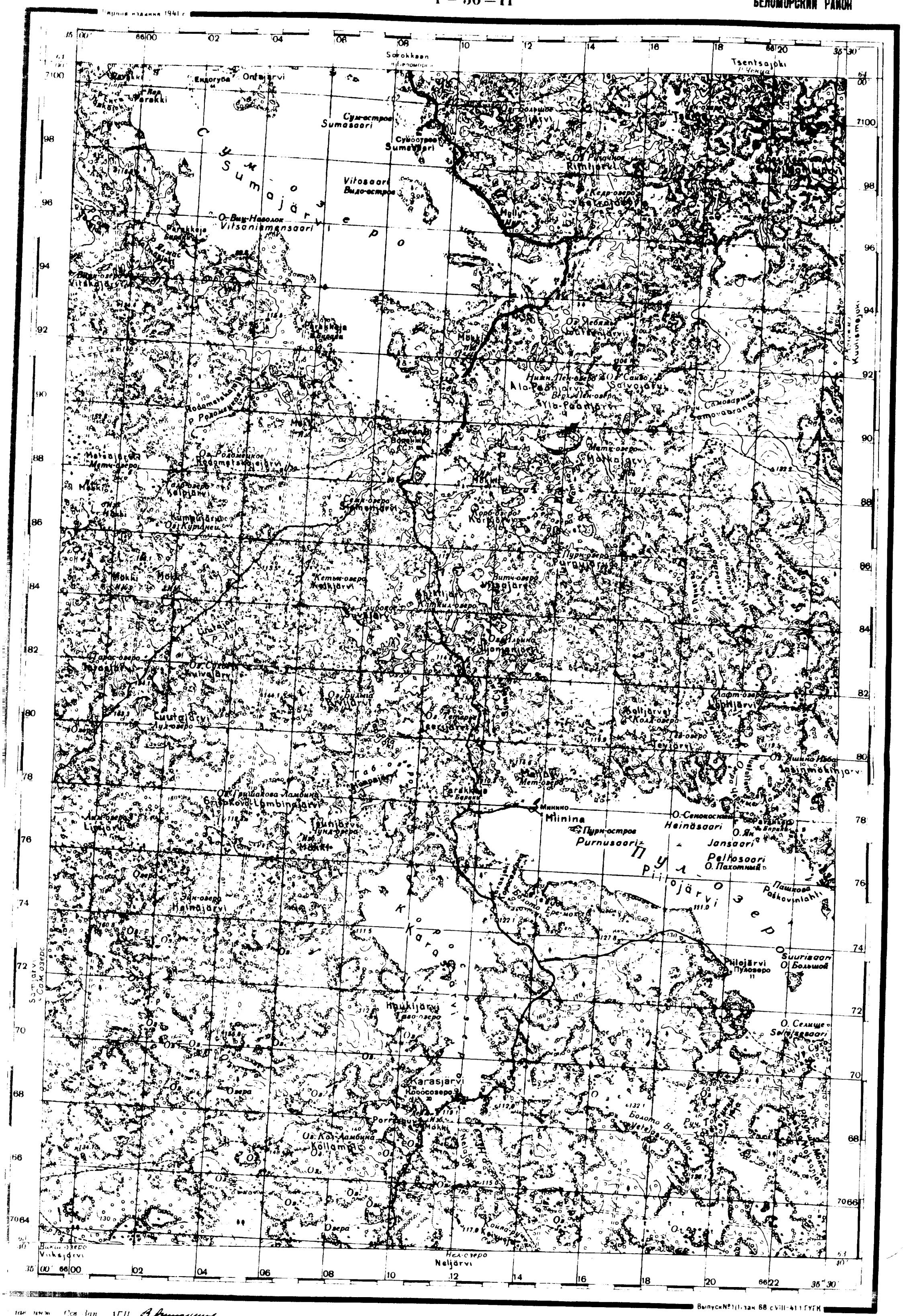
ITÄ-KARJALAN KARTASTO

1938 г КАРЕЛО-ФИНСКАЯ ССР

P – 36 – 11

БЕЛОМОРСКИЙ РАЙОН

Первое издание 1941 г



Выпуск №1 (1-зак 68 с VIII-41) ГУГК

Глав инж Сев Зап АГП В. Никашин

Нач ОТК Щебитин

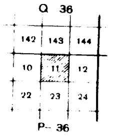
Нач партии Дмитриев Н М

1:100000

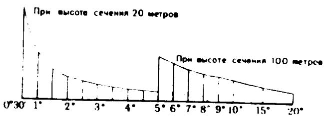
1 см на карте соответствует 1 км на местности

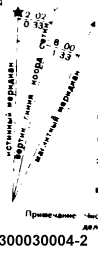
метр 1000 500 0 1 2 3 4 5 6 7 8 км

СХЕМА РАСПОЛОЖЕНИЯ ЛИСТОВ



Сплошные горизонтали проведены через 20 метров





Рельеф зарисован стереоскопически в стереощете

Дешифрировали топограф Сорокова

Чертила Лукьянова

Склонение восточное $\frac{8°00}{1-33}$ (1937 г) Годовое изменение склонения восточное $\frac{6'}{0\text{-}02}$ Сближение меридианов около западной рамки $\frac{1°48}{0\text{-}30}$ около восточной рамки $\frac{2°18'}{0\text{-}37}$ При прикладывании буссоли к вертикальным линиям координатной сетки склонение магнитной стрелки будет около западной рамки $\frac{8°00}{1\text{-}33}$ $\frac{1°48}{0\text{-}30}$ $\frac{6°12}{1\text{-}03}$ около восточной $\frac{8°00}{1\text{-}33}$ $\frac{2°15}{0\text{-}37}$ $\frac{5°45}{0\text{-}96}$ среднее $\frac{5°58}{0\text{-}99}$

Примечание Числитель показывает градусные величины знаменатель деления угломера (одно деление угломера 3'6)

SUOMENMAANMITTAUS OFFSETPAINO

P004647

1935 г.

Р—36—21 (УРОСОЗЕРО)

РСФСР КАРЕЛЬСКАЯ АССР

1:100 000

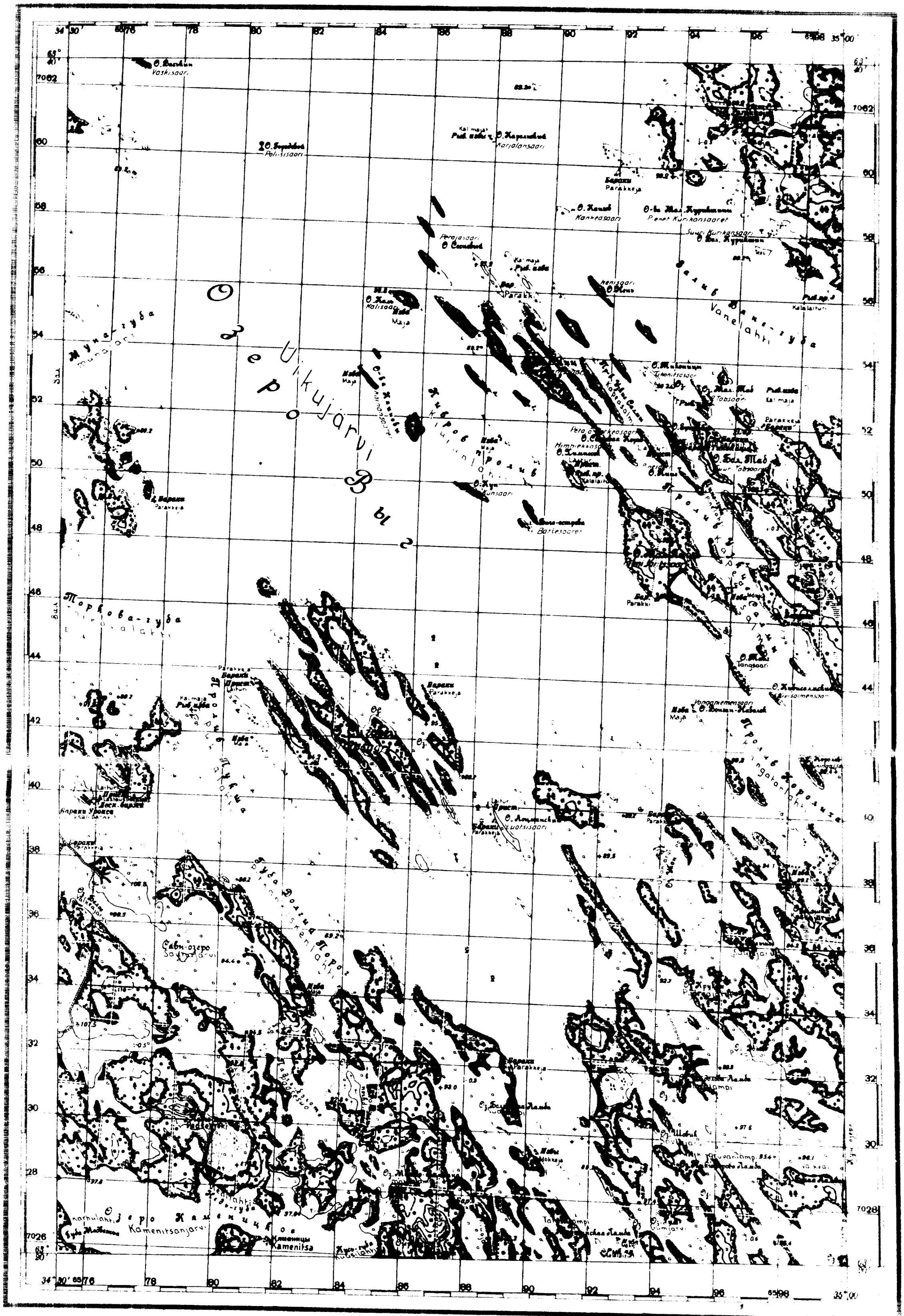
1 см на карте соответствует 1 км на местности

ITÄ-KARJALAN KARTASTO

1938 г. КАРЕЛЬСКАЯ АССР

P—36—22

МЕДВЕЖЕГОРСКИЙ РАЙОН



VIII 40

Главн. инж. Сев.-Зап. АГП В Никушин

Нач. ОТК Щеитин

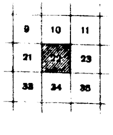
1:100000

1 см на карте соответствует 1 км на местности

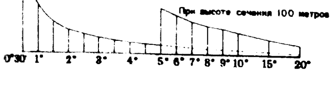
метр. 1000 500 0 1 2 3 4 5 6 7 8 км.

СХЕМА РАСПОЛОЖЕНИЯ ЛИСТОВ

P—36



Сплошные горизонтали проведены через 20 метров



Дешифрировали, рельеф рисовали стереотопографы в стереоцехе в 1937 г. Рекогносцировал с 5 по 25 июля 1938 г. топограф Федоров. Чертила Ильина

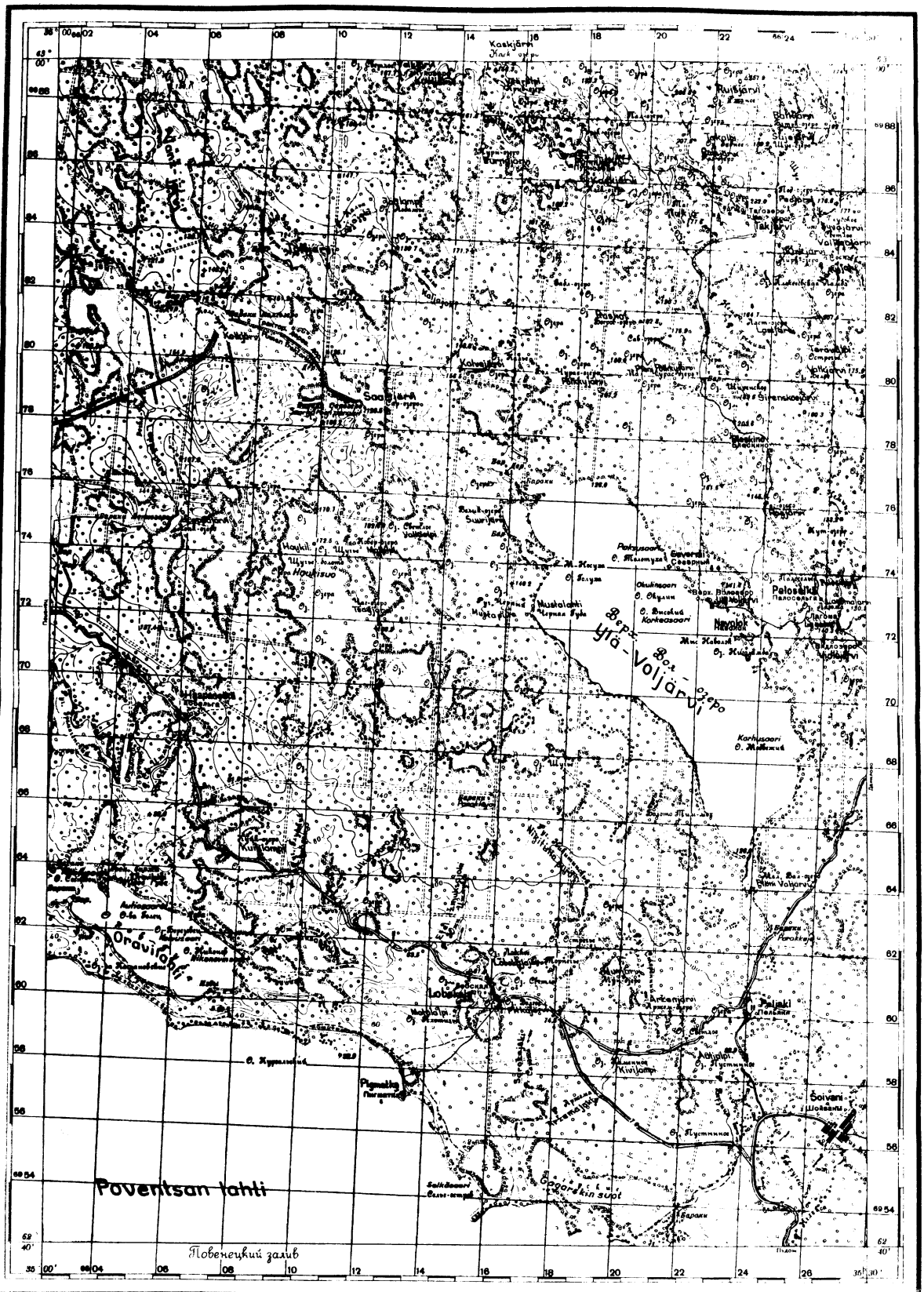
Склонение восточное $\frac{8°40'}{1-44}$ (1938 г.) Годовое изменение склонения восточное $\frac{0°03'}{0-01}$. Сближение меридианов около западной рамки $= \frac{1°20'}{0-22}$, около восточной рамки $= \frac{1°47'}{0-30}$. При прикладывании буссоли к вертикальным линиям координатной сетки склонение магнитной стрелки будет около западной рамки $\frac{8°40'}{1-44} - \frac{1°20'}{0-22} = \frac{7°20'}{1-22}$, около восточной $\frac{8°40'}{1-44} + \frac{1°47'}{0-30} = $ [illegible]

Примечание. Числитель показывает градусные величины, знаменатель — деления угломера (одно деление угломера = 3,6').

0802826

ITÄ-KARJALAN KARTASTO

1938 г. РСФСР КАРЕЛЬСКАЯ АССР | P—36—47 | МЕДВЕЖЕГОРСКИЙ Р-Н



Главн. инж. С-З. АГП

Нач. ОТК

Нач. работ Веллес

TILGMANNIN OFFSETPAINO

1:100000

1 см на карте соответствует 1 км на местности

метр. 1000 500 0 1 2 3 4 5 6 7 8 км

СХЕМА РАСПОЛОЖЕНИЯ ЛИСТОВ

P-36

34	35	36
46		48
58	59	60

Сплошные горизонтали проведены через 20 метров

При высоте сечения 20 метров

При высоте сечения 100 метров

0°30' 1° 2° 3° 4° 5° 6° 7° 8° 9° 10° 15° 20°

1)Дешифрировал и рисовал рельеф на фото... лане в 1938 г. топограф Яковлев

2)Дешифрировано произведено в 1936 Рельеф зарисован стереоскопически в стереоцезе в 1936 г

Рекогносцировал в 1937 г. нач. партии Ефимов

Чертили Петрова и Попалина

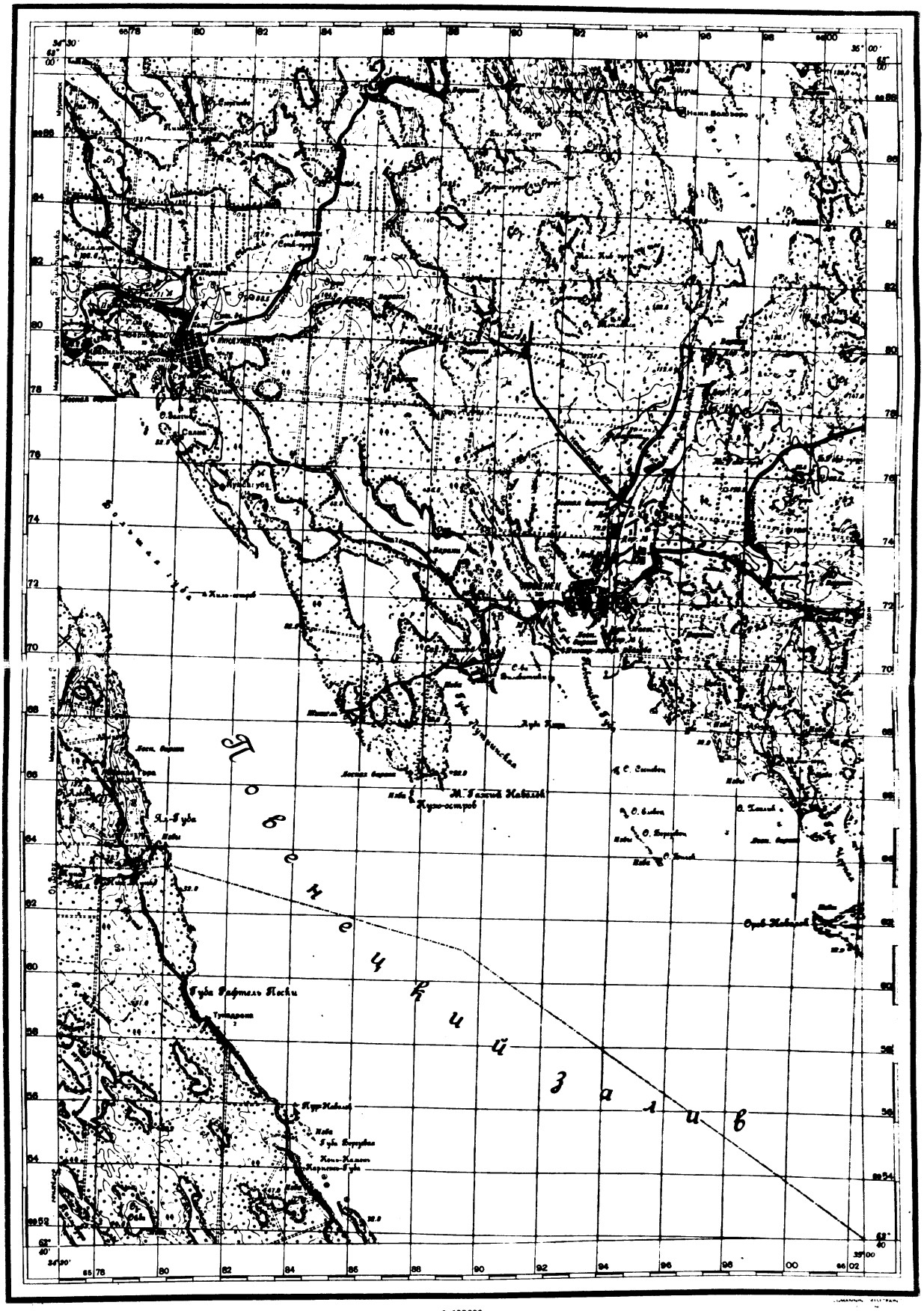
Склонение восточное $\frac{8°26}{1-40}$ (1938 г.). Годовое изменение склонения восточное $\frac{0°6'}{0\ 02}$ сближение меридианов около западной рамки $\frac{+47}{0-30}$ около восточной рамки $\frac{2°14}{0-37}$. При прикладывании буссоли к вертикальным линиям координатной сетки склонение магнитной стрелки будет около западной рамки $\frac{8°26}{1-40}$ $\frac{1°47}{0\ 30}$ = $\frac{6°39'}{1-10}$ около восточной $\frac{8°26}{1-40}$ $\frac{0°14'}{0-37}$ = $\frac{8°12}{1-03}$ среднее $\frac{6°26}{1-07}$

Примечание. Числитель показывает градусные величины, знаменатель деления угломера. Годно деление угломера 3 б.

VIII-40-Л

ITÄ-KARJALAN KARTASTO

P–36–46



1:100000

1 см на карте соответствует 1 км на местности

метр 1000 500 0 1 2 3 4 5 6 7 8 км

Сплошные горизонтали проведены через 20 метров

СХЕМА РАСПОЛОЖЕНИЯ ЛИСТОВ

P–36

33	34	35
45	46	47
57	58	59

При высоте сечения 20 метров

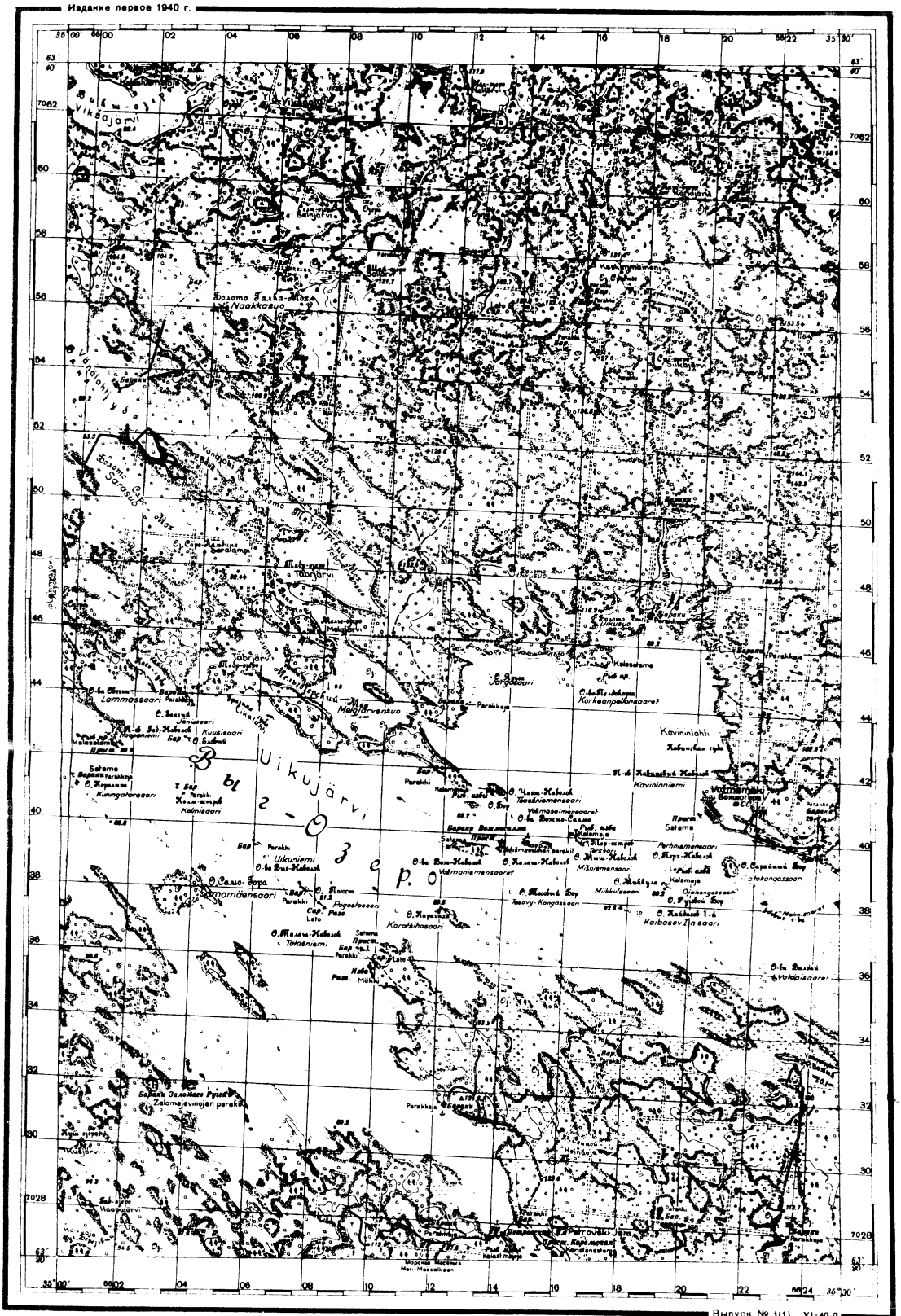
При высоте сечения 100 метров

0°30' 1° 2° 3° 4° 5° 6° 7° 8° 9° 10° 15° 20°

ITÄ-KARJALAN KARTASTO

1937-38 г.г. КАРЕЛЬСКАЯ АССР — P—36—23 — МЕДВЕЖЬЕГОРСКИЙ РАЙОН

Издание первое 1940 г.



Выпуск № 1(1) XI-40 Л

Глав. инж. Сев.-Зап. АГП *В. Янтусенко*

Нач. ОТК *Мухтинский*

Нач. партии Дмитриев

1:100000

1 см на карте соответствует 1 км на местности

метр 1000 500 0 1 2 3 4 5 6 7 8 км

СХЕМА РАСПОЛОЖЕНИЯ ЛИСТОВ

10	11	12
22	23	24
34	35	36

Сплошные горизонтали проведены через 20 метров

При высоте сечения 20 метров

При высоте сечения 100 метров

0°30' 1° 2° 3° 4° 5° 6° 7° 8° 9° 10° 15° 20°

Рельеф зарисован стереокиносъемкой и стереопостр

Дешифрировал Бердинович.

Рекогносцировал с 24 июня по 8 июля 1938 г.

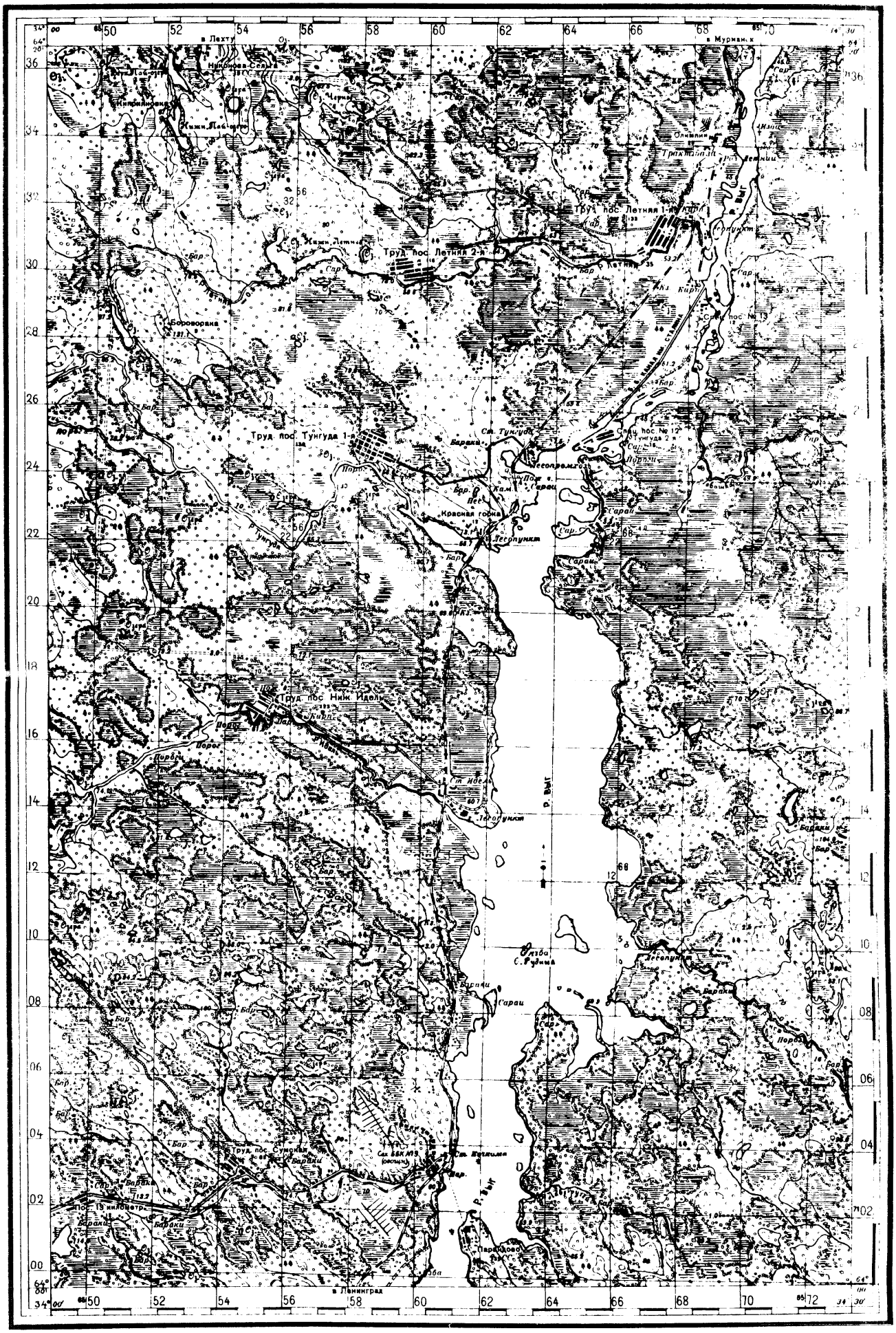
тел. Волков.

Чертили Мельникова и Петрова

Склонение восточное $\frac{8°\ 00'}{1-38}$ (1938 г.) Годовое изменение склонения восточное $\frac{0°\ 06'}{1-39}$ Сближение меридианов около западной рамки $\frac{1°\ 47'}{0-30}$ около восточной рамки $\frac{2°\ 14'}{0-37}$ При прикладывании бессоли к вертикальным линиям координатной сетки склонение магнитной стрелки будет около западной рамки $\frac{8°\ 00'}{1-38} - \frac{1°\ 47'}{0-30} = \frac{8°\ 13'}{1-08}$, около восточной $\frac{8°\ 00'}{1-38} - \frac{2°\ 14'}{0-37} = \frac{5°\ 46'}{0-68}$; среднее $\frac{8°\ 00'}{1-00}$

Q–36–141 (Ст. КОЧКОМА)

РСФСР КАРЕЛЬСКАЯ АССР



1:100,000

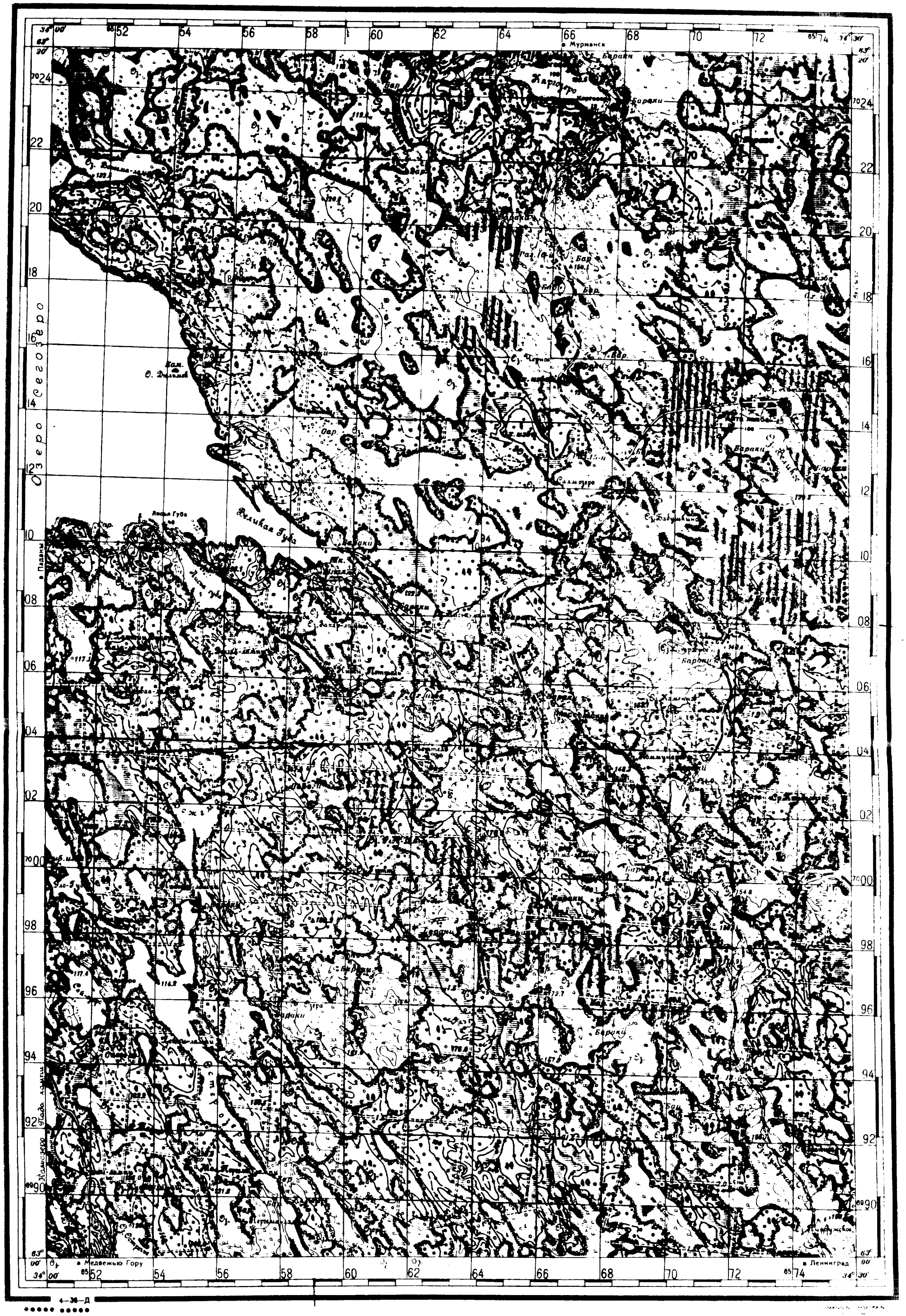
1 km 0 1 2 3 4 5 km

ITA-KARJALAN KARTASTO

1935г.

P—36—33 (МАССЕЛЬСКАЯ)

РСФСР КАРЕЛЬСКАЯ АССР



4—36—Д

ставлял Тюлин
рректировал Комаров
ам. отделения Носков
ам. ТГО ЛВО Золотарев

СХЕМА РАСПОЛОЖЕНИЯ ЛИСТОВ

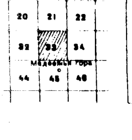
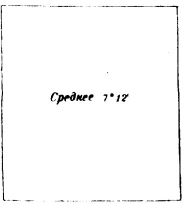
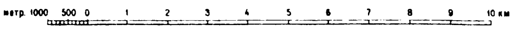


СХЕМА МАГНИТНЫХ СКЛОНЕНИЙ
масштаб 1:800.000

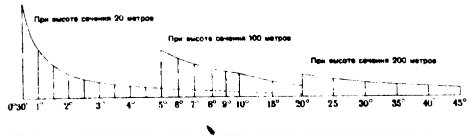


1:100.000

1 см на карте соответствует 1 км на местности



Сплошные горизонтали проведены через 20 метров



Склонение восточное $\frac{7°12'}{1-20}$ 1935 Годовое изменение склонения восточное $\frac{0°10'}{0-03}$ Сближение меридианов около западной рамки $\frac{0°54'}{0-15}$ около восточной $\frac{1°20'}{0-23}$

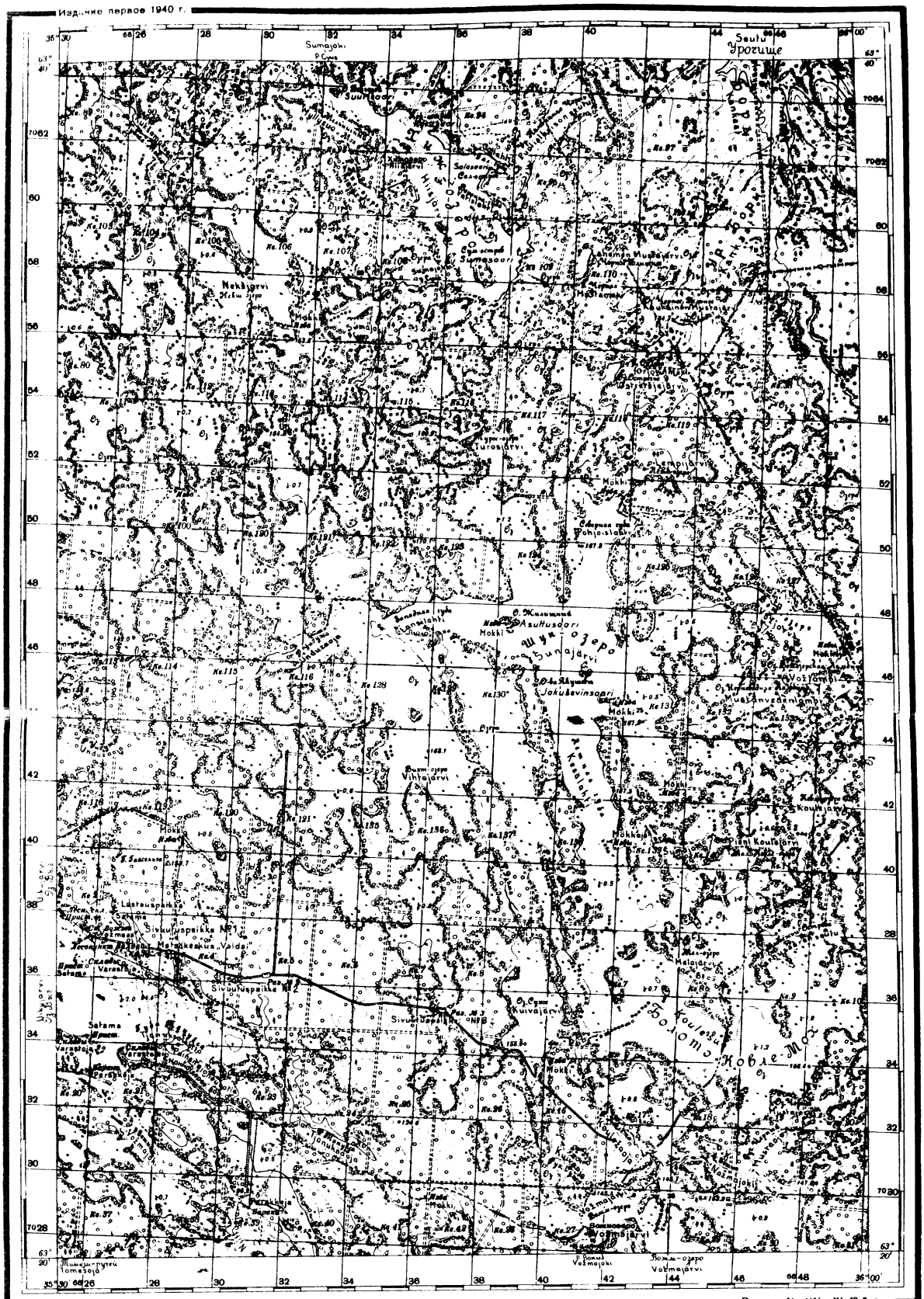
При прикладывании буссоли к вертикальным линиям координатной сетки склонение магнитной стрелки будет около западной рамки $\frac{7°12'}{1-20}$ $\frac{0°54'}{0-15}$ $\frac{6°18'}{1-05}$ около восточной рамки $\frac{7°12'}{1-20}$ $\frac{1°20'}{0-23}$ $\frac{5°52'}{0-57}$ среднее $\frac{6°05'}{1-01}$

Примечание: числитель показывает градусные величины, знаменатель — деления угломера (одно деление угломера ≈ 3

ITÄ-KARJALAN KARTASTO

1938 г. АРХАНГЕЛЬСКАЯ ОБЛ. и КАРЕЛО-ФИНСК. ССР — Р—36—24 — МЕДВЕЖЕГОРСК., БЕЛОМОРСК. и ОНЕЖСКИЙ Р—НЫ

Издание первое 1940 г.



Выпуск № 1(1) XI-40-Л

Глав. инж. Сев-Зап. АГП В. Ващенин
Нач. ОТК Щеглин
Нач. партии Ефимов

Рельеф зарисован стереоскопически в стереопехе
Деинфрировал топограф Карпеленя
Чертила Луне

TECHMANN OFFSET PAPER

1:100000

1 см на карте соответствует 1 км на местности

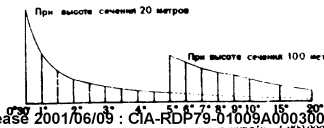
метр 1000 500 0 1 2 3 4 5 6 7 8 км.

Сплошные горизонтали проведены через 20 метров

Схема районов

Карело-Финская ССР
1) Медвежегорский район
2) Беломорский район
Архангельская область
3) Онежский район

СХЕМА РАСПОЛОЖЕНИЯ ЛИСТОВ



Склонение восточное 8°10' (1938 г.) Годовое изменение склонения восточное 0°06' Сближение меридианов около западной рамки — 2°14' около восточной рамки — 2°41' При прикладывании буссоли к вертикальным линиям координатной сетки склонение магнитной стрелки будет около западной рамки 8°10' 2°14' 5°56' около восточной 8°10' 2°41' 5°29' среднее 3°43'

Точность типографского соответствует масштабу 1:100000

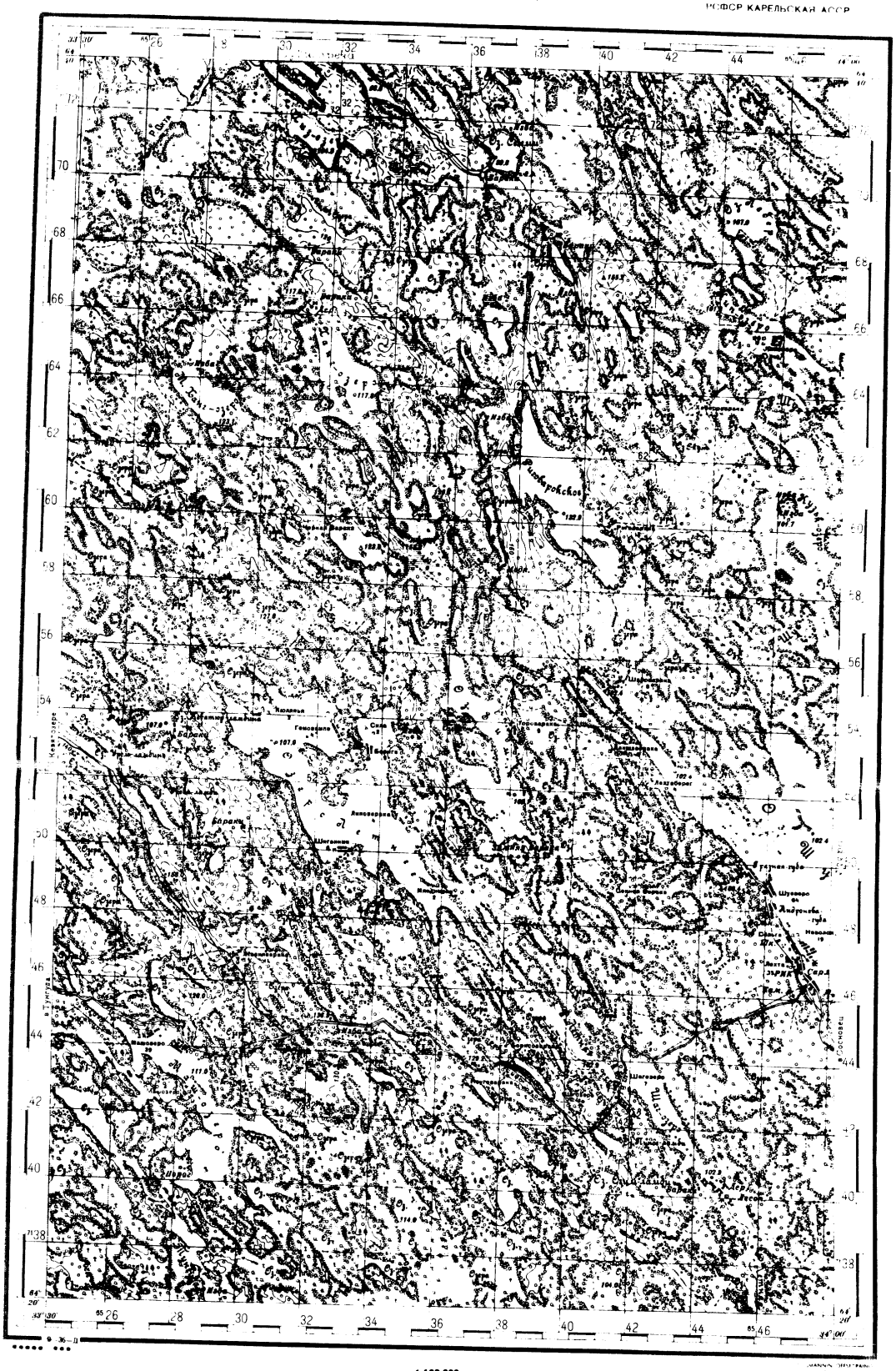
Примечание Числитель показывает градусные величины, знаменатель делений угломера (одно деление угломера 3'6)

ITÄ-KARJALAN KARTASTO

1935 г.

Q 36 128 (ЛЕХТА)

РСФСР КАРЕЛЬСКАЯ АССР

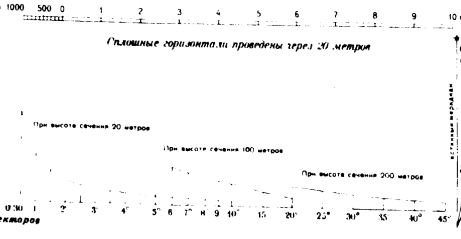


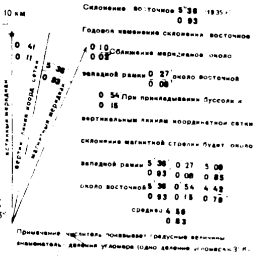
1:100.000

1 см на карте соответствует 1 км на местности

СХЕМА РАСПОЛОЖЕНИЯ ЛИСТОВ

Q—36





Склонение восточное 5°38 1935 г.
0 03

Годовое изменение склонения восточное
0 10 Сближение меридианов около
0 02 западной рамки 0 27 около восточной
0 08
0 54 При прикладывании буссоли к
0 15 вертикальным линиям координатной сетки
склонение магнитной стрелки будет около

западной рамки	5 36	0 27	5 09
	0 03	0 08	0 05
около восточной	5 36	0 54	4 42
	0 03	0 15	0 19
средняя	5 36		
	0 03		

Составлен в 1 А. Т. отряде

Корректировал техник Шитиков

Начальник отделения ст. лейтенант Инспекторов

Нач. Лен. Карт. Часть майор Элмашилов

Примечание: числитель показывает годовое изменение, знаменатель двойное угловое годо двойное угловое 3 и.

ITÄ-KAIJALAN KARTASTO

1936 г.

Q—36—118 (КЕМЬ)

РСФСР КАРЕЛЬСКАЯ АССР

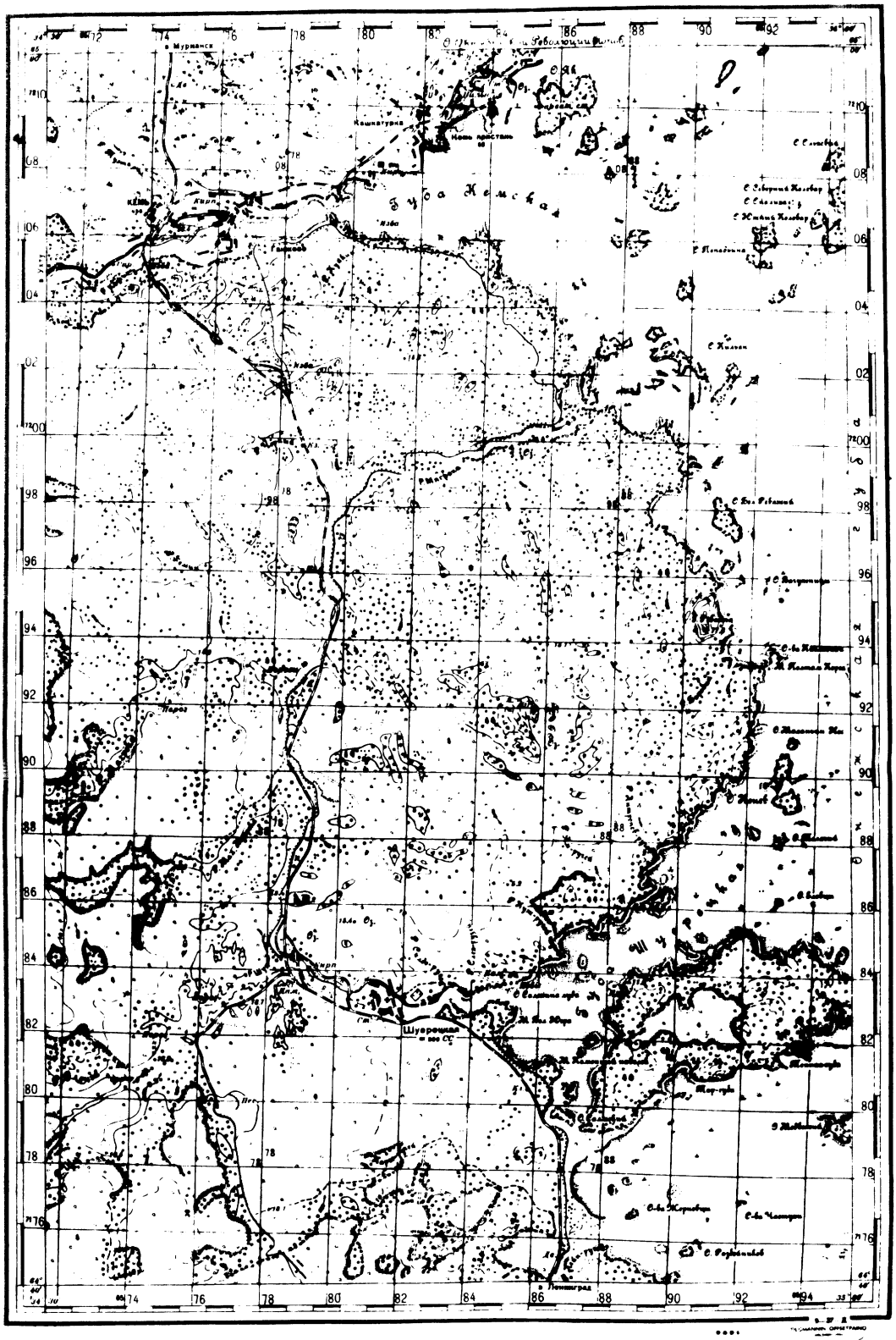


СХЕМА РАСПОЛОЖЕНИЯ ЛИСТОВ

Q-36

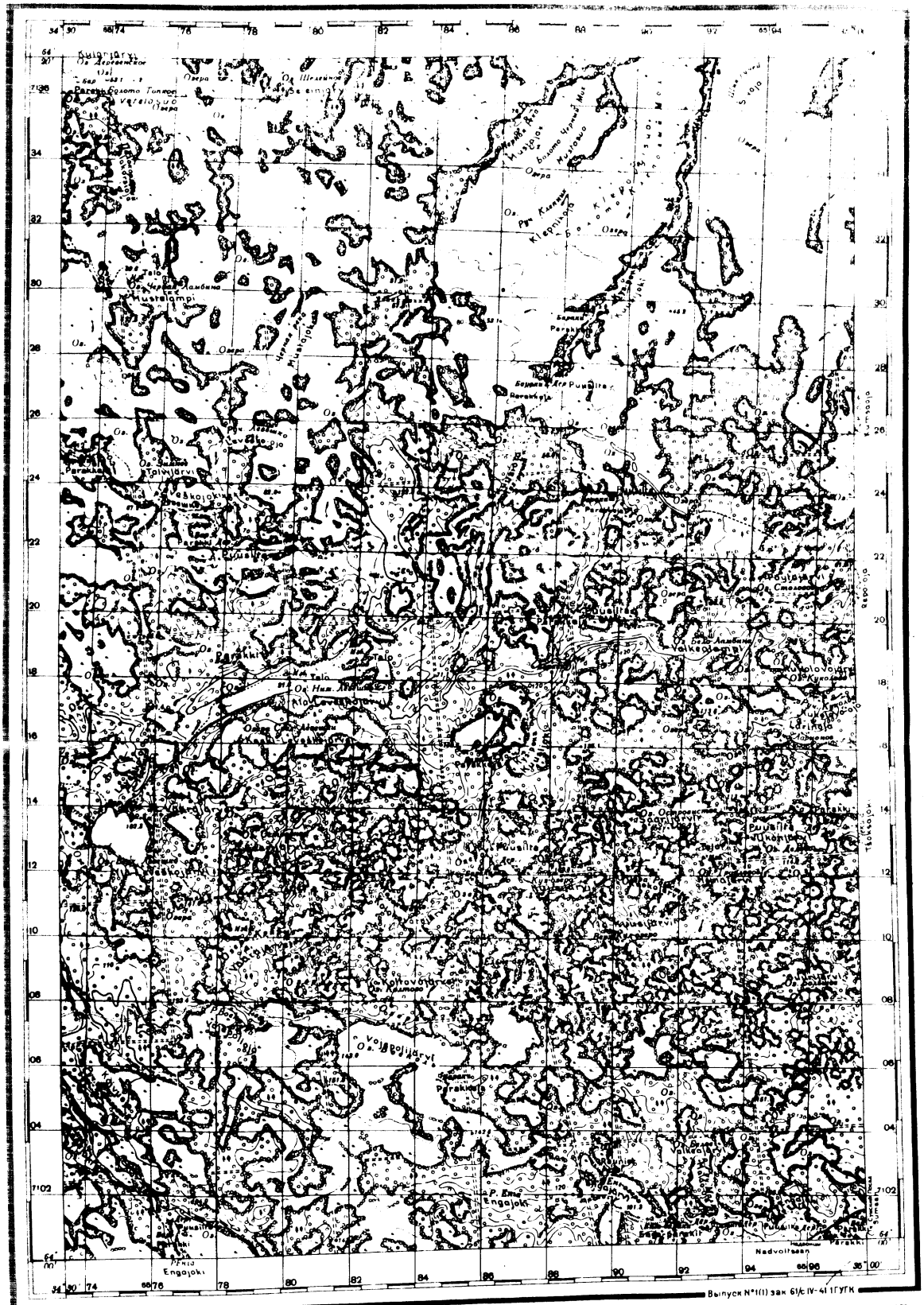
1:100 000

1 см на карте соответствует 1 км на местности

Сплошные горизонтали проведены через 10 метров

YLA-KARJALAN KARTASTO

O—36—142



Выпуск N°1(1) зак. 61/с IV-41 1ГУГК

Гл. инж. экс. Сев.-Зап. АГП

Нач. ОТК

Нач. карточ. Дмитриев П. Ф.

1:100000

1 см на карте соответствует 1 км на местности

метр 1000 500 0 1 2 3 4 5 6 7 8 км

Сплошные горизонтали проведены через 20 метров

При высоте сечения 20 метров

При высоте сечения 100 метров

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СХЕМА РАСПОЛОЖЕНИЯ ЛИСТОВ

O-36

129 130 131
141 142 143
9 10 11

P-36

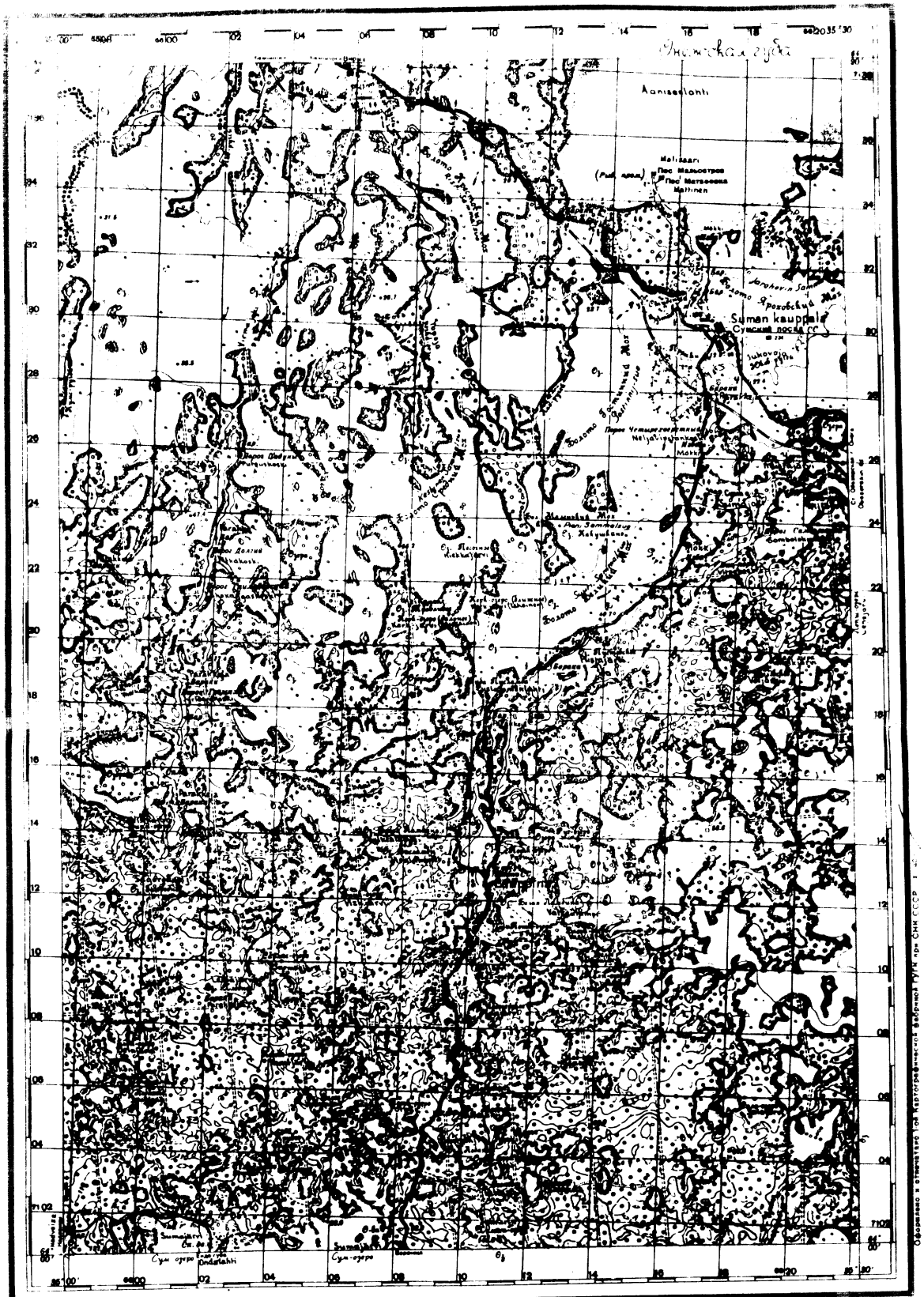
Рельеф нарисован стереотехническим в стерелиста.

Дешифрировать топографы Сапюков, Селю-ков и Бражников Чертила Лукьянова.

Склонение восточное $\frac{7°50'}{1·31}$ (1938 г.) Годовое изменение склонения восточное $\frac{6}{0·02}$ Сближение меридианов около западной рамки $\frac{1°21'}{0·23}$ около восточной рамки $\frac{1°48'}{0·30}$ При прикладывании буссоли к вертикальным линиям координатной сетки склонение магнитной стрелки будет около западной рамки $\frac{7°30'}{1·31} - \frac{1°21'}{0·23} = \frac{6°09'}{1·08}$, около восточной $\frac{7°50'}{1·31} - \frac{1°48'}{0·30} = \frac{6°02'}{1·01}$, среднее $\frac{6°10'}{1·04}$

Примечание. Числитель показывает градусные величины, знаменатель деления угломера (одно деление угломера 2 б).

TA-KARJALAN KARTASTO



Оформлено в отпечатке 104 картографической войсковой части Ордена Ленина Генерального штаба Вооруженных Сил СССР

Глав. инж. Сч. Зав. АГП
Нач. ОТК
Нач. карты Дмитриев

1:100000

1 см на карте соответствует 1 км на местности

метр. 1000 500 0 1 2 3 4 5 6 7 8 км

Сплошные горизонтали проведены через 20 метров.

СХЕМА РАСПОЛОЖЕНИЯ ЛИСТОВ

Q—36

130	131	132
142	143	144
10	11	12

P—36

При высоте сечения 20 метров

При высоте сечения 100 метров

0°30' 1° 2° 3° 4° 5° 6° 7° 8° 9° 10° 15° 30°

Рельеф нарисован стереоскопическим и стереографическим дешифрированием производили студенты Ленингр. Топ. Техникума Чернышев Гепнинг

185К

Склонение восточное 8°12' (1938 г.) Годовое изменение склонения восточное 8°-8°09' Сближение меридианов около западной рамки 1°40' около восточной рамки — 2°15'-2°07' При пользовании буссолью и вертикальными линиями координатной сетки склонение магнитной стрелки будет: около западной рамки 9°52'-9°45' около восточной 6°32'-6°25' среднее — 9°12'-8°59'

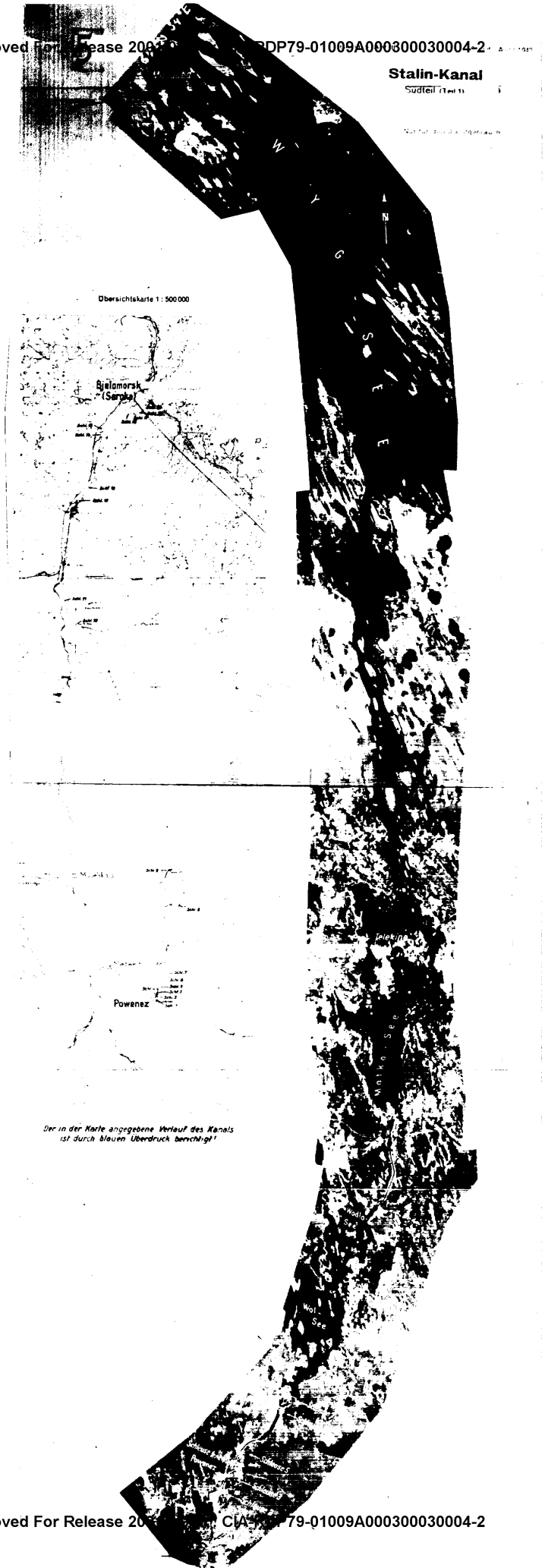
Примечание. Числитель показывает градусное направление, знаменатель — деление угломера (число делений угломера = 6000).

Печатать офсетным многокрасочным способом с 1 200 000

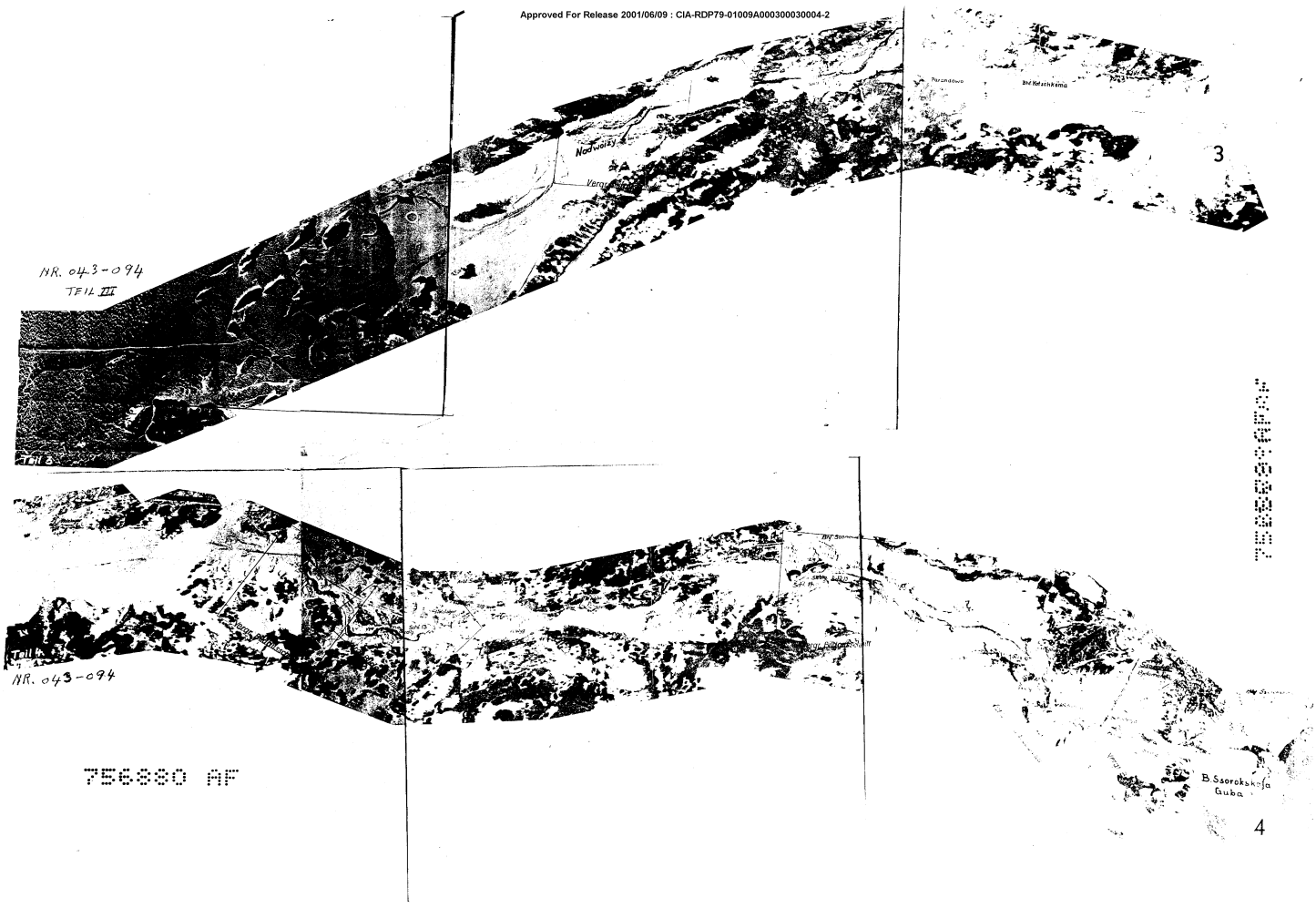
Approved For Release 2001/06/09 : CIA-RDP79-01009A000300030004-2

Stalin-Kanal

Südteil (Teil II)



Approved For Release 2001/06/09 : CIA-RDP79-01009A000300030004-2



756880 AF

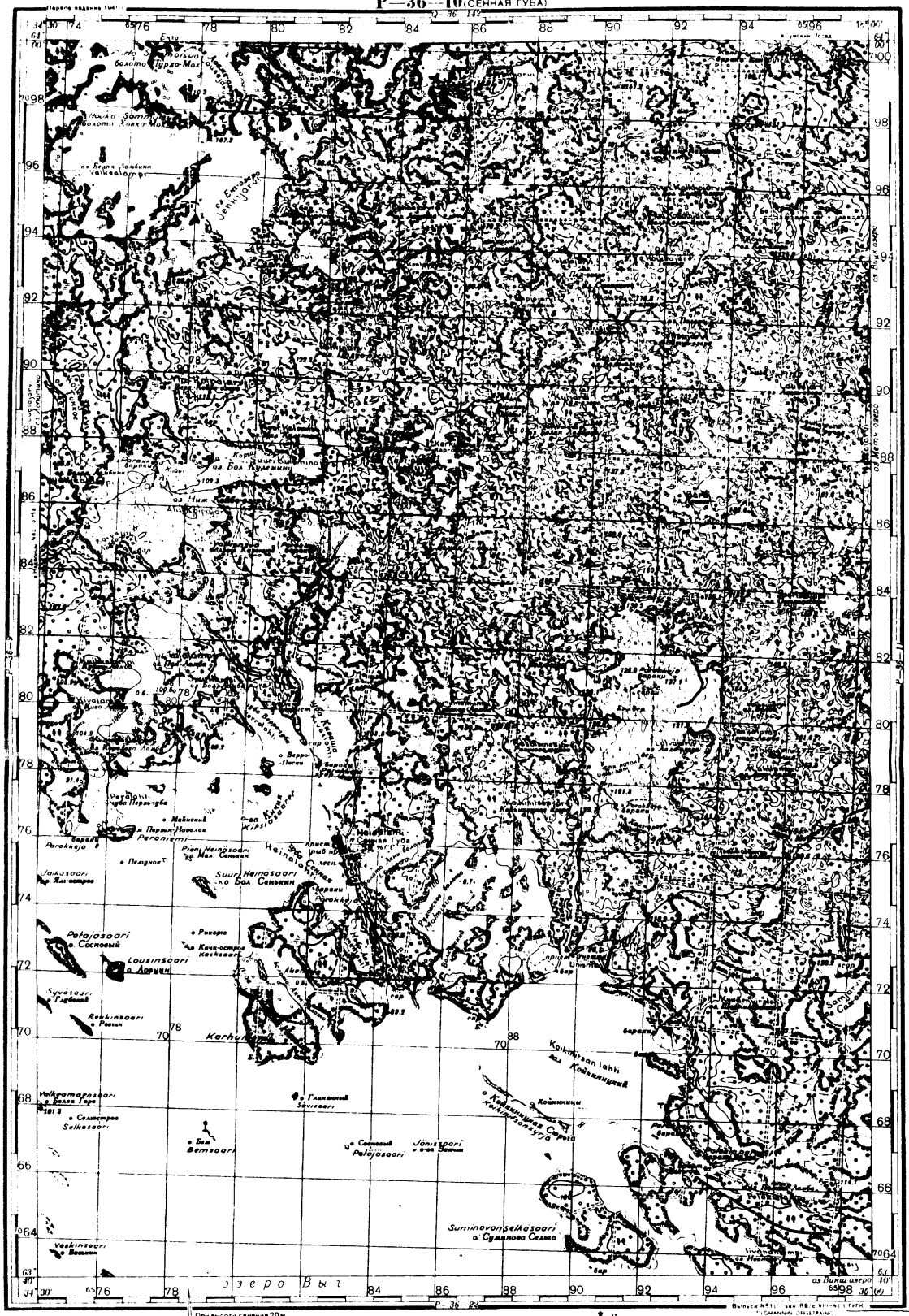
ITÄ-KARJALAN KARTASTO

1937-38 г

ГЛАВНОЕ УПРАВЛЕНИЕ ГЕОДЕЗИИ и КАРТОГРАФИИ при СНК СССР

ДЛЯ СЛУЖЕБНОГО ПОЛЬЗОВАНИЯ
КАРЕЛО-ФИН ССР

P—36—10 (СЕННАЯ ГУБА)



Нач отряда СЗ АГП Маркин П Н
Беляев С В. и Прокопов И.М
Нач. камер. проивв Первовванский В.В.

При высоте сечения 20 м
При высоте сечения 100 м
0°30' 1° 2° 3° 4° 5° 8° 10° 20°

1:100000

1 см на карте соответствует 1 км на местности

метр 1000 500 0 1 2 3 4 5 6 км

Сплошные горизонтали проведены через 20 метров

Карта получена стереофотограмметрическим методом

Склонение восточное 6°10' (1-38) Среднее сближение меридианов восточное 1°38 (0-27) При прикладывании буссоли к вертикальным линиям координатной сетки среднее склонение магнитной стрелки восточное 6°38 (1-09).

Примечание: в скобках показаны деления угломера (одно деление угломера 3.6')

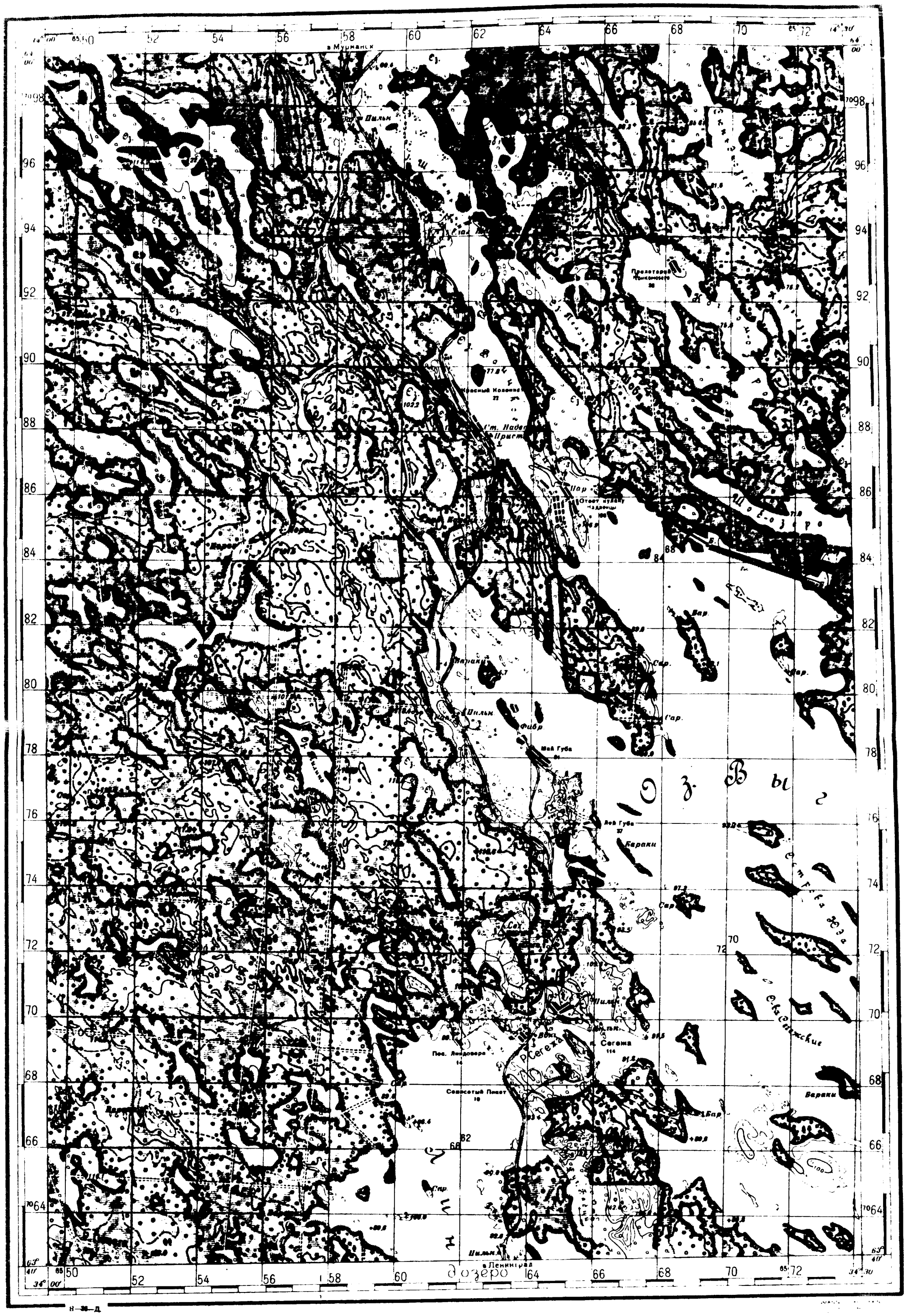
0812840

ITÄ-KARJALAN KARTASTO

P—36—9 (СЕГЕЖА)

1935 г.

РСФСР КАРЕЛЬСКАЯ АССР



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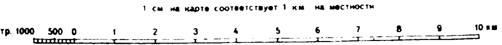
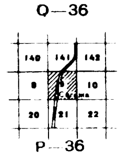
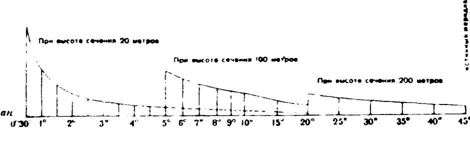
1 см на карте соответствует 1 км на местности



Сплошные горизонтали проведены через 20 метров

СХЕМА РАСПОЛОЖЕНИЯ ЛИСТОВ





Составлен в 3-ем В. Т. отряде

Корректировал Воен. техник 2 ранга Урбан

Начальник отделения капитан Валицкий

Нач. Лен. Карт. Части майор Эммануилов

Склонение восточное $\frac{7°15}{1\ 21}$ (1935 г.)

Годовое изменение склонения восточное $\frac{0°10'}{0-03}$ Сближение меридианов около западной рамки $\frac{0\ 54}{0\ 15}$ около восточной $\frac{1\ 21}{0\ 23}$. При прикладывании буссоли к вертикальным линиям координатной сетки склонение магнитной стрелки будет около

западной рамки	$\frac{7\ 15}{1\ 21}$	$\frac{0°54}{0\ 15}$	$\frac{6\ 21}{1\ 06}$
около восточной	$\frac{7\ 15}{1\ 21}$	$\frac{1\ 21}{0\ 23}$	$\frac{5\ 54}{0\ 98}$

среднее $\frac{6°08}{1\ 02}$

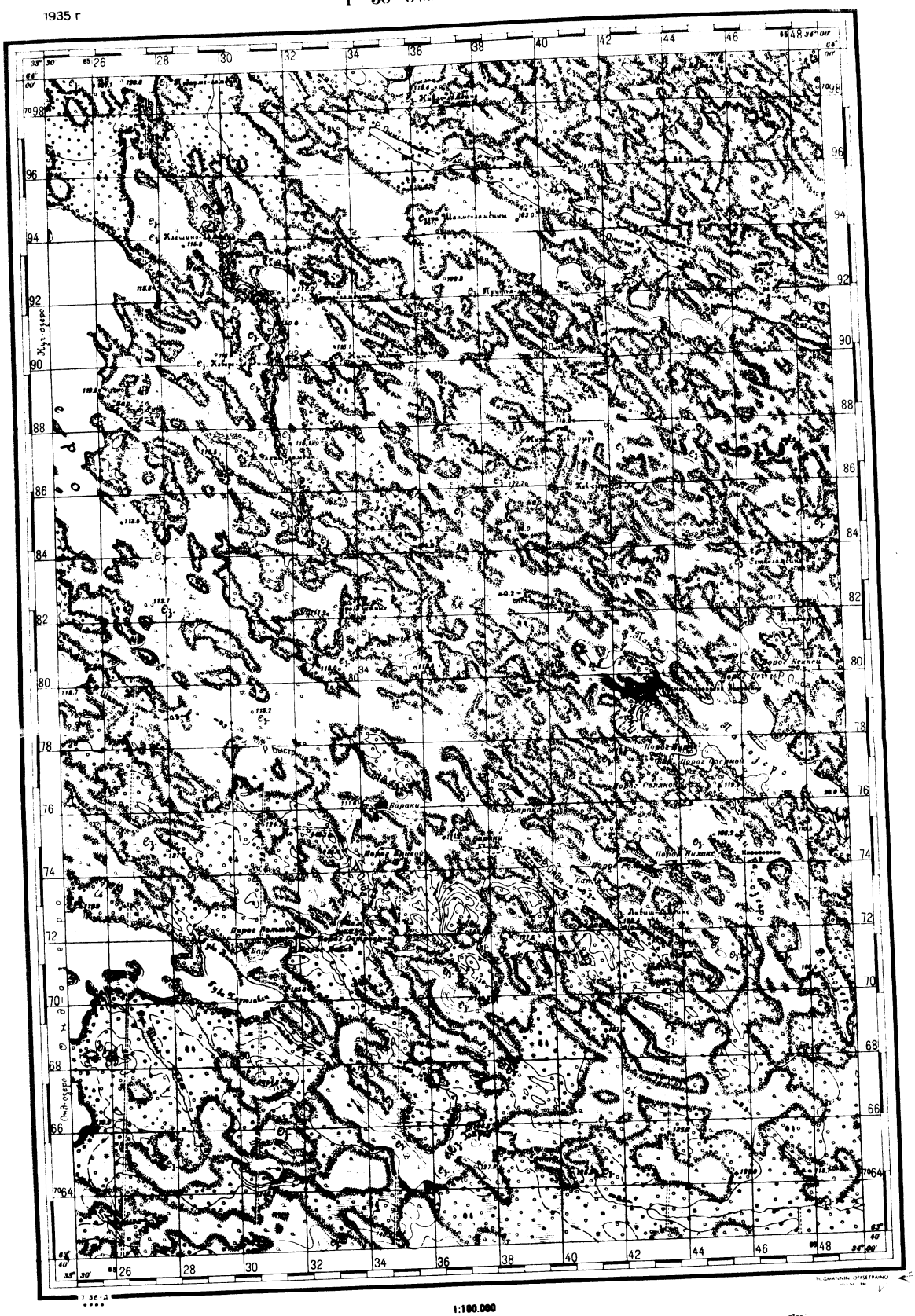
Примечание: числитель показывает градусные величины, знаменатель деления угломера (одно деление угломера = 3.6')

ITÄ-KARJALAN KARTASTO

P—36—8 (КИРАСОЗЕРО)

РСФСР КАРЕЛЬСКАЯ АССР

1935 г



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1 см на карте соответствует 1 км на местности

Сплошные горизонтали проведены через 20 метров

СХЕМА РАСПОЛОЖЕНИЯ ЛИСТОВ

О—36

Р—36

Согласен Нач. 3-его м. В. Т. отряда

Корректировал Воен. техник 2 ранга Урбан

Начальник отделения капитан Величкий

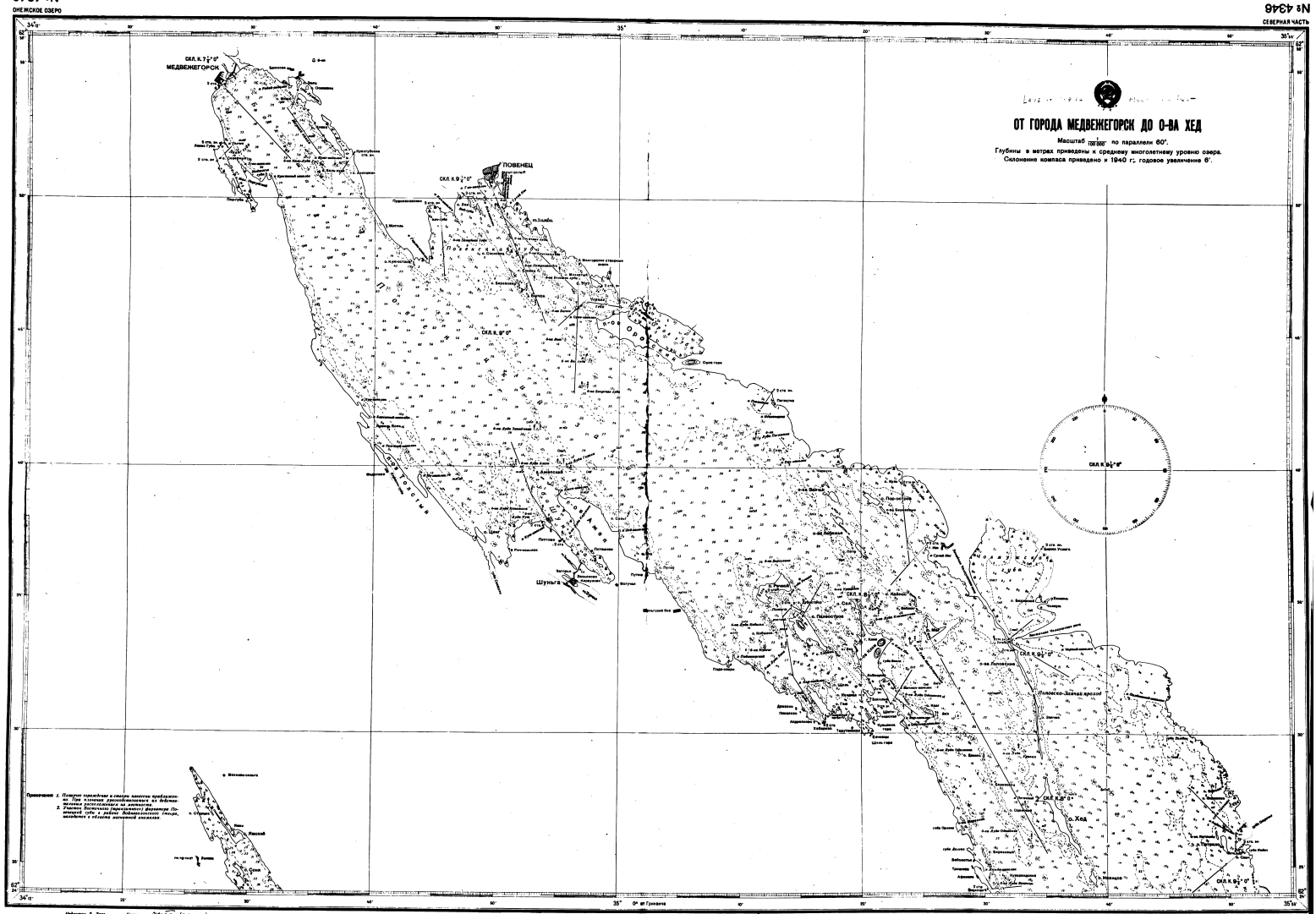
Нач. Лен. Карт. Части

№ 4346

ОНЕЖСКОЕ ОЗЕРО

№ 4346

СЕВЕРНАЯ ЧАСТЬ



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