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GEOGRAPHIC INTELLIGENCE REPORT

OSTROV VOZROZHDENIYA

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Hydrographic Chart of Ostrov Vozrozhdeniya and
the Aral Sea, 1:606,564, with inset of Severnaya
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I. Introduction

This study is a survey of selected geographic aspects of Ostrov Vozrozhdeniya, a small island in the Aral Sea of Soviet Central Asia, as an aid in evaluating its suitability as a Biological Warfare test area. This low and generally level island is part of the Kara-Kalpakskaya ASSR of the Uzbek SSR. Its vegetation and climatic characteristics place it within the desert region of the Soviet Union. Since the island is over 30 miles from the nearest point on the mainland, isolation makes it an ideal place for conducting BW experiments, the dangerous effects of which could be easily controlled. The remoteness of the island would also facilitate the Soviet problem of maintaining security restrictions.

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II. Terrain and Vegetation

Ostrov Vozrozhdeniya (originally called Ostrov Nikolaya) is one of the largest islands in the Aral Sea. Located slightly to the west of the center of the Aral Sea, the island is part of a small group of islands which were formerly called the Tsarskiye Island group. At the present time the group consists of five islands, but when the group was first discovered slightly over a century ago, there were three additional islands which are now covered by water. With an area of approximately 85 square miles, Ostrov Vozrozhdeniya is the largest island in the group. Its longest dimension is about 13 miles, measured in a north-south direction. In an east-west direction the island is approximately 11 miles broad. The coordinates of the center of the island are approximately 45°03'N and 59°13'E.

The island has an irregular outline. The western and eastern sides are quite straight, but the northern and southern sides are dissected by a series of capes and small bays. In the past these protected bays along the northern and southern shores have provided small vessels with excellent shelter from storms. The three capes along the northern shore are quite long. The western cape measures about 5.5 miles in length, and the central (Mys Tastansuk) and eastern (Mys Tastyubek) capes are each about 7.5 miles. Two of the islands of what was formerly called the Tsarskiye group are located off the tips of the capes. Ostrov Komsomolets (also called Ostrov Komsomol'skiy), a low sandy island about 4 miles long, is separated from the western cape of Ostrov Vozrozhdeniya by 3.5 miles of shallow water. About 2.5 miles north of the eastern cape and directly east of the tip of the central cape is Ostrov Chagala.

(see insert on hydrographic chart), a small island which is only about 500 yards long. Ostrov Chagala is reported to be a low island, composed of sandstone covered by a layer of large limestone pebbles.

The capes along the southern shore of Ostrov Vozrozhdeniya are much shorter than those along the northern side, averaging only a few hundred yards in length. The most prominent cape along the southern shore is found at the eastern tip. This cape juts out about 2.2 miles in a south-westerly direction toward Ostrov Konstantin, the fourth island of the group. This sandy island lies about 4.5 miles off the southeastern tip and is about 3.5 miles long. In the interior of the island there is a shell-studded terrace at a height of 13 feet. Slightly over 1.5 miles west of Ostrov Konstantin is another small island, the last of the group. The name of the island is unknown. It appears to be low and of about the same size as Ostrov Chagala.

While information concerning the terrain of Ostrov Vozrozhdeniya is scanty most of the island appears to be a relatively level lowland, the average elevation of which is about 75 to 85 feet above the level of the Aral Sea. The highest elevations are found along the eastern side of Mys Tastansuk where a series of low hills parallel the shore. The hills become slightly higher in the southern part of the cape, where one hill reaches an elevation of 130 feet. Even on these hills the slopes appear to be moderate, generally not in excess of 5 percent.

Vegetation on the island consists of a sparse cover of small trees or bushes and grasses. The largest plant on Ostrov Vozrozhdeniya is the saksaul. A century ago this plant formed an almost continuous cover.

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However, the heavy roots and trunk of this half-shrub, half-tree make excellent fuel in an environment otherwise devoid of fuel, and most of the saksaul was cut down long ago by the inhabitants of the island. At the present time only an occasional saksaul is likely to be found in the interior of the island (Figure 1). The most abundant vegetation cover is located along the shore where the saksaul is found admixed with bushes of tamarisk. Other plants reported on the island include the sand acacia (*Ammodendron conollyi*), the polyn (*Artemisa*), the glorybind, the sea lavender, the prostrate summer cypress, the halophytes *Salicornia herbacea* and *Halocnemum strobilaceum*, the ephedra, and the *Tripolium vulgare* Nees. For a short period during the spring much of the gray clayey soil is covered by a green cover of blooming vegetation. However, most of this vegetation dries up quickly as the precipitation diminishes and the temperatures rise. The plants then remain dormant until the reduced temperatures of fall.

Data on beaches along the shore of Ostrov Vozrozhdeniya are incomplete, but available information indicates that a strip of beach with a width averaging about 200 yards extends along the entire eastern side of Mys Tastansuk. Access to much of this beach appears to be hindered by a line of offshore reeds. The 1935 Russian hydrographic chart indicates the beach at Mys Kokchukat is sandy.

Beaches appear to be poorly developed along most of Mys Tastyubek. On the western side of the cape there are only a few short stretches of beach. In most places the shore rises abruptly from the edge of the water in the form of low bluffs. In the southern part of the cape the

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bluffs range between 30 to 45 feet in height. The bluffs are largely limestone, but there are outcrops of marl visible in the side of the bluffs. In places the marl forms an overhanging roof over the underlying limestone strata (Figure 2). In the northern part of the cape the bluffs are composed of sandstone and rise somewhat higher to elevations of 70 to 85 feet (Figure 3). The slopes on the eastern side of Mys Tastyubek are somewhat more gradual. The shore rises steadily from the sea to the line of ridges on the western side, overlooking Severnaya Bukhta. South of Mys Tastyubek the eastern shore is marked by a low flat platform. Behind the narrow platform is a line of sandstone bluffs, initially 25 to 30 feet high, but gradually lowering southward to 12 or 15 feet. Elevations on the southeastern cape reportedly range up to 80 feet. The cape consists largely of sandstone and shale.

The eastern half of the southern shore is also marked by bluffs 65 to 80 feet high. The bluffs resemble a series of arches and consist of clay underlain by sand. At the foot of the bluff is a terrace with an elevation of 11.5 feet. The terrace, which is composed of clay and sand covered by a layer of pebbles, is reported to be about 400 to 500 feet wide.

West of Ostrov Konstantin, the southern shore becomes lower. Adjacent to the water is a 200 foot wide strip of level shore which is covered by saksaul. Behind this narrow strip of shore are low bluffs 10 to 12 feet high. Farther inland there is a gently rolling plain which is only slightly elevated above the level of the sea. The inland plain is also sparsely covered by saksaul bushes, but those away from the

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edge of the bluffs are usually desiccated throughout most of the year. Several basins, about 1/4 to 1/2 mile in diameter, are reported about a mile and a half inland from this portion of the shore. Small highly saline lakes occupy some of these basins. The soil in the basin area is sandy, with considerable stretches of large sea shells on the surface. A dune bank stabilized by vegetation borders one of the southern lakes, and barkhans (crescent-shaped migrating sand dunes) 12 to 16 feet high are also indicated as being in the area. The southwestern cape is low and flat with a cover of tamarisk which extends to the adjacent sea.

The western and northern shores are low and largely sandy. Low sand dunes reportedly border both sides of the northwestern cape to a width of about 1500 feet. The dunes average 10 to 12 feet in height and are stabilized by a vegetation cover of tamarisk, saksaul, and the closely related species Ammodendron karelini (sand tree), which is locally called the kuyan-suyek. Parts of the northwestern and north-central capes appear to be fringed with reeds.

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III. Meteorological Conditions

General

The climate of Ostrov Vozrozhdeniya is continental with very hot summers contrasting sharply with cold winters. Precipitation is scanty throughout the year. The climate has no close counterpart in North America.

A. Temperature

Temperatures on Ostrov Vozrozhdeniya are not as severe in either winter or summer as they are in the interior of the mainland desert surrounding the Aral Sea. Nevertheless, the difference between the extreme heat of summer and the extreme cold of winter may be greater than 100°F. Absolute maximum temperatures for the Aral Sea Region have ranged from 106° to more than 113°, absolute minimums from -33°F to 11°F. Average temperatures contrast less sharply, however. The mean daily temperatures for July, the warmest month, and February, the coldest month, average 77° and 9°, respectively. The range in daily temperatures is greatest from June to September when the difference between daily high and daily low averages 20 to 22 degrees F. The smallest daily range occurs from December to March when it averages 10°F. The average annual temperature on the Aral Sea is about 50°F.

With the low temperatures of winter the relative humidity on Ostrov Vozrozhdeniya is at a maximum. In spring the relative humidity will also be fairly high on many days because of showery weather. In late summer and early fall the air is very dry and hot. Frequently even the comparatively cool early morning hours have low relative humidities.

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Subfreezing temperatures may occur on Ostrov Vozrozhdeniya as early as October and as late as April, but the surrounding sea seldom if ever freezes, except, perhaps, in the sheltered bays which may be covered with ice from December to March.

B. Precipitation

Annual amounts of precipitation are very small, averaging only 4 to 6 inches a year or about the same as that received in the driest desert regions of the southwestern United States. In a given year much of the annual precipitation may fall in a single cloudburst. Most of the rain falls in the spring. Summer is very dry. Though the total amount of precipitation is smaller in winter than in spring, the frequency is somewhat greater in winter. Between November and March snow falls on an average of 19 days a year which is equivalent to 46 percent of the total number of days with precipitation. There is an intermittent cover of snow during the course of the winter, with the maximum depth seldom reaching more than 4 inches.

C. Surface Winds

Surface winds over the Aral Sea are strong, especially during spring. The highest frequency of gales (wind speeds in excess of 33 mph, or Beaufort force greater than 6) is most likely to occur in April. Gales result in blizzard conditions during winter and dust storms during the summer. East winds predominate in spring and northwest in summer. Westerlies followed in frequency by northeasterlies are characteristic in fall. In winter the surface winds are equally high in frequency from all quadrants except the northwestern one.

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D. Cloud Conditions

Winter and spring are the cloudiest parts of the year. Cloudy and partly cloudy days average from 21 to 24 days a month in December, January and February, and 21 days in April. Summer has the least cloudiness and the greatest number of clear days. In August, the month with the least cloudiness, the average is only one cloudy and nine partly cloudy days. Low, often continuous sheets of stratus clouds typify the sky cover in fall, winter, and early spring, while a broken cover of cumulus is usual in late spring. Summer cloudiness usually consists of the billowing, cumulus type.

E. Visibility Restrictions

Fogs and dust haze are the principal restrictions to visibility. In contrast to the surrounding land, fogs may occur on the Aral Sea throughout most of the year. However, the frequency of fogs in winter is much higher than it is in summer. The January average is 6.0, the July 0.2. Fogs in both April and October average 1.2.

Over the Aral Sea dust haze is common throughout the year. Even when the sky is clear of clouds, the high content of dust in the air gives a hazy appearance to the atmosphere on the island. A widespread snow cover in winter and rain in spring aid somewhat in settling the dust.

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IV. Aspects of the Aral Sea in the Vicinity of Ostrov Vozrozhdeniya

A. Water Depths and Offshore Obstructions

Water depths in the vicinity of Ostrov Vozrozhdeniya are all less than 60 feet except along the eastern side, where depths in excess of 60 feet are found within a short distance (roughly 2 miles) of the outer side of Mys Tastyubek. Offshore bottom slopes elsewhere along the periphery appear to be generally gentle.

In the Severnaya Bukhta depths range from 3 to 5 1/2 feet. Along most of the eastern side of the inlet deep water is found close to shore. By contrast, the western and southern sides of the inlet are characterized by more gentle beach gradients. A line of reeds fringe much of the western and southern shore line. South of the settlement of Karachek the belt of reeds attains its greatest width, measuring well over 1000 feet.

There appear to be few offshore obstructions in the vicinity of the island. A sandstone rock is reported about 200 yards from the bluffs along the eastern half of the southern shore. The rock measures about 7 feet in length, and projects about 1.5 feet above the surface of the water.

A line of shallows extends uninterruptedly from the northwestern cape of Ostrov Vozrozhdeniya to Ostrov Komsomolets (Komsomol'skiy). On the southern side of the island shallow areas are found in several areas -- jutting from the southeastern cape, surrounding Ostrov Konstantin, and between Ostrov Konstantin and the southwestern tip of Ostrov Vozrozhdeniya.

The nature of the sea bottom surrounding the island is predominantly mud or sand. Mud is the more characteristic bottom sediment except for

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the sandy stretches along the western side of Ostrov Vozrozhdeniya, and immediately south of Ostrov Konstantin.

B. Prevailing Currents

The prevailing currents of the Aral Sea move in a clockwise direction. Ostrov Vozrozhdeniya is located in the area in which currents from the south predominate. Near the mainland west of the island the current moves northward at a velocity of 0.7 miles per hour, carrying water made partly fresh by the inflow from the Amu Dar'ya. Another current runs from the mouths of the Syr Dar'ya southward along the western shore.

C. Salinity

There is very little vertical circulation of the water in the Aral Sea. As a result, the salinity of the surface layers of water is comparatively low, with rapid increase in both salinity and specific gravity with depth. In the bottom layers of water in the central part of the sea east of Ostrov Vozrozhdeniya, where salinity is at a maximum, the salt content does not exceed 10 to 11 grams per kilogram of water, or less than one-third as much as the ocean. In general, the salinity also increases with distance from the mainland. The water surrounding Ostrov Vozrozhdeniya is fresh or only slightly brackish at the surface, but becomes saltier with depth.

D. Fauna and Flora

Animal life on Ostrov Vozrozhdeniya is quite meager. Mammals native to the island include the saiga antelope, wolves, foxes, hedgehogs, and mice, but it is doubtful if antelope or wolves exist on the island

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today. Geese, ducks, shore birds, storks, seagulls and magpies are the characteristic birds. Of the reptiles there are several varieties of lizards -- *Gymnodactylus russowi* Str., *Phrynocephalus helioscopus* Pall., *Eremias velox* Pall.; several snakes -- *Taphrometopon lineolatum* Brdt., *Coluber dione* Pall.?, *Ancistrodon halys* Pall.; and one tortoise -- *Testudo horsfieldi* Grey. There is also the scorpion, *Euthus eupeus thersites* C. Koch and the weasel-spider *Galeodes caspius* Bir. Among the insects are the butterflies -- *Colias erate* Esp., *Sathyrus anthe* O., and *Lycaena elvira* Ev.; and many varieties of ants -- *Camponotus maculatus turkestanus* And., *Myrmecocystus cursor tancrei* For. var. *caspius* Ruzsky, *Crematogaster subdentata* Mayr, *Messor barbatus capitatus* var. *meridionalis* André; and the bug -- *Poophilus turanicus* Osh.

The fauna of the Aral Sea is also relatively poor in variety. Only seven species of mollusks, 18 fish, and one amphipod have been listed by the Soviet geographer, Berg. In all, there are 93 species of fauna, of which only a relatively small number have been found in waters close to the island. The protozoans found near the island included three Dinoflagellata (Peridinales) -- *Exuviaella lima* Butschli, *Procentrum obtusum* Ostf., *Peridinium subsalsum* Ostf.; one worm (Rotatoria) -- *Pedalion oxyure zernow*; one Arthropoda (Copepoda) -- *Ectinosoma edwardsi* Rick.; one insect (Hemiptera) -- *Corixa nigrolineata* Fieb.; two mollusks -- *Dreissena pallasii* Andrusov, *Hydrobia pusilla* Eichw.; ten fish -- *Acipenser nudiventris* Lovetzky, *Cyprinus carpio* L., *Barbus bulatmai conocephalus* Kessl., *Leuciscus rutilus* L., *Aspius aspius erythrostromus* Kessl., *Alburnus chalcoides* Guld., *Abramis brama* L., *Silurus glanis* L., *Pygosteus platygaster aralensis*, and *Lucioperca lucioperca* L. No amphibians

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According to Berg, the flora of the Aral Sea is characterized by red algae (Rhodophyceae) and the salt water varieties of diatoms. The green algae (Chlorophyceae) include only one endemic form, *Tolypella aralica*. In all there are 137 plant forms. Of this number three Schizophyceae (Myxophyceae) -- *Chroococcus limneticus* Lemm., var. *subsalus* Lemm., *Chroococcus minimus* Keissl. Lemm., *Aphanocapsa grevillei* Rabenh.; ten Bacillariales (Diatomeae) -- *Coscinodiscus aralensis* Ostf., *Actinocyclus ehrenbergi* Ralfs., *Chaetoceras wighamii* Brightw., *Chaetoceras subtile* Clev., *Navicula humerosa* Bréb., *Amphora lineolata* Kütz., *Epithemia sorex* Kütz., *Epithemia musculus* Kütz., *Bacillaria paradoxa* Gmel., *Nitzschia (Tryblionella) circumscuta* Bail.; seven Chlorophyceae -- *Oocystis naegeli* A. Br., *Oocystis socialis* Ostf., *Ulothrix (Hormiscia) implexa* Kütz. b., *Submarina (Kütz.) Rabenh.*, *Cladophora fracta* Kütz. var. *normalis* Rabenh., *Cladophora glaucescens* Harv., *Cladophora comatula* Kütz. A. *normalis* Kütz., *Cladophora conglobata* Kütz.; and seven Rhodophyceae -- *Polysiphonia fibrata* Harv., *Polysiphonia violacea* Grov.?, *Polysiphonia elongella* Harv., *Polysiphonia ornata* J. Ag., *Polysiphonia fruticulosa* Spreng.?, *Polysiphonia dichotoma* Kütz., *Brogartella byssoides* Schmitz, were found near Ostrov Vozrozhdeniya.

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V. Population and Installations

Isolation, the paucity of natural resources, and the desert climate make Ostrov Vozrozhdeniya of extremely limited value for human settlement. In the last part of the 19th century, these features induced a group of Russian Orthodox religious dissenters (Raskol'niki) to build a hermitage on the island. However, their efforts to settle on the island were defeated by a storm which wrecked one of their boats, and the sudden unexplained death of the two members who did manage to reach the island in the second boat.

The slight economic importance the island has had in the past was based initially upon the numerous herds of saiga antelope and later upon the good fishing around its shores. In the 1880's and the 1890's the horns of the saiga antelope commanded high prices, and antelope on the island were ruthlessly hunted. By the beginning of the 20th century they were reported to be completely exterminated.

In 1923 and 1924 the Soviet government used the island as a place of exile. In the early 1930's the island was apparently again used as a place of banishment--this time for the kulaks, the so-called "rich" agricultural peasants whose possessions were liquidated in the agricultural collectivization drive.

Prior to 1936, a few fishing families were the only voluntary permanent settlers on the island. They were apparently congregated around the western side of Severnaya Bukhta, primarily in the two fishing villages of Kantyubek and Karacheck, both of which were apparently

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organized as state-operated fisheries. During the fishing season, additional fishermen from Aral'sk and Muynak arrived on the island. Great Russians were the dominant ethnic group among the fishermen. At that time the fishermen of Ostrov Vozrozhdeniya accounted for a considerable proportion (specifically, an average of 77.4 percent for the period 1929-1933) of the Aral Sea herring catch. In each of the years 1931-1933 the annual catch of herring along the shores of the island was over 1200 tons. Carp, bream, and roach were three other commercial fish varieties obtained in smaller quantities in the area. Herring fishing was highly seasonal in character, with over 95 percent of the annual catch being obtained in May and June.

Information regarding events after 1935 is extremely sketchy and is dependent largely upon World War II German documents and interrogations of Soviet prisoners of war. According to these German sources, the entire population,^{1/} both voluntary and involuntary, was moved off the island in 1936 and was replaced by a group

1. One of these sources estimates the deported population as being 3600. Such a large figure appears to be extremely incompatible with the climate, the physical characteristics, the known resources of the island, and the size of the settlements depicted on the 1935 hydrographic chart. It seems doubtful that even a forced labor camp would contain that many prisoners in a locality as barren as this. Apparently this same source is the authority for the report that unauthorized persons are supposedly prohibited from approaching closer than 80 kilometers (50 miles) from the island. This restricted zone seems far too broad. It would materially lengthen the main Aral Sea ship route discussed in the section on Transportation and Communications, and would also include a portion of the mainland to the west of the island. Another exaggerated figure found in these German sources concerns the size of the test site on Ostrov Vozrozhdeniya. A tract of land measuring approximately 10,000 square kilometers was reportedly set aside for BW field testing, whereas the actual area of the island is only about 215 to 230 square kilometers.

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of BW technicians of the Biochemical Institute of the Red Army (subsequently renamed the Biotechnical Institute of the Red Army). The island was made a restricted area in which these technicians reportedly carried out field research on the dissemination of tularemia, plague, and other diseases in the summers of 1936 and 1937. Apparently several methods of disseminating the disease were tested, including experiments with both mechanical devices and animals—prairie rats and possibly susliki (a species of ground squirrel whose fleas could transmit plague). At the time of these experiments the Institute was reportedly assigned one or two ships, and possibly several airplanes. No data are available on where the ships and planes were based or on the manner of their utilization.

There is no information available on the activities of the Institute on the island since 1937, but it is likely that BW research continues there. A report of an outbreak of plague on the northern shore of the Aral Sea in June 1948, which was handled with great secrecy by the Soviet authorities, lends some support to this hypothesis.

The only available postwar mention of Ostrov Vozrozhdeniya in the Soviet press deals with the installation of an automatic radio meteorological station on the island in 1947.

The only other known installation is a navigation marker at the tip of Mys Tastyubek. The 1935 Russian hydrographic chart indicates

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the height of the marker platform as 70 feet with the overall height as 108 feet. The marker is illuminated at night.

Water on the island appears to be obtained from a well located on the northern edge of Kantyubek, just north of a small cemetery. According to the hydrographic chart, there is also a shallow well on the western side of the island, near the base of the northwestern cape.

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VI. Transportation and Communications

Although no information is available on the transportation facilities on Ostrov Vozrozhdeniya, there probably are no developed roads. The terrain is sufficiently flat so that cross-country movement on foot or by vehicle appears to be feasible to almost any part of the island. The inset on the 1935 hydrographic chart of the Aral Sea indicates a path connecting the settlements along the western side of Severnaya Bukhta. The inset also shows several other paths radiating from the settlements. No data are available concerning the extent or the termini of any of these paths.

As far as is known, ships are the sole means of access from the mainland to Ostrov Vozrozhdeniya. However, the possibility of regular or occasional contact by airplane must be considered for there are numerous areas on the island suitable for development into landing strips with a minimum of effort.

The island lies slightly to the west of the principal ship route of the Central Asiatic Steamship Line. This route leads southwest from the city of Aral'sk on the Chkalov-Tashkent railroad to Muynak, the principal port for the delta region of the Amu Dar'ya. This state-operated line also maintains service up the Amu Dar'ya. The traffic on this route consists primarily of freight although some passenger service is also provided. The principal northbound cargoes are fish and cotton. On the return journey machinery, fertilizers, grain, and fuel are carried. In recent years especially heavy demands

have been placed on this route by two construction projects to the south of the Aral Sea, the Main Turkmen Canal and the new railroad along the lower course of the Amu Dar'ya.

In the past Ostrov Vozrozhdeniya was apparently a regular point of call for at least some of the vessels on this route for the fishermen on the island had to be supplied and the fish had to be picked up. Information concerning the current ship service with the island is not available. Movement of bulk supplies to the present inhabitants of the island is probably still by ship, but whether the movement is by vessels of the Central Asiatic Steamship Line or by specially assigned ships is not known. Most of the available current Soviet maps show the line passing about 10 to 20 miles to the east of the island. On the other hand, the map of the USSR at a scale of 1:4,000,000, compiled in 1945 and corrected in 1947 by the Military Topographic Administration of the General Staff of the Armed Forces, USSR, shows the main Aral Sea route swinging to the west and touching the northeastern tip of the island.

The nature and location of the landing facilities on the island are not definitely known, but the depths in Severnaya Bukhta would allow even larger vessels to approach close to Kantyubek. It seems probable, therefore, that the principal landing facilities, such as they may be, are located at Kantyubek. The hydrographic chart inset also indicates a small dock at Karachek.

The steamship line operates both power-driven and towed vessels. Older motorized vessels are generally steamers, while the newer ships

are driven by diesel engines. Several Soviet reports also indicate the recent construction at Aral'sk of a jet-driven cutter, which may also be operating on the Aral Sea run, although it appears to have been designed for the more shallow depths encountered on the Amu Dar'ya. The motorized ships reported to be operating on the Aral Sea include the Aktyubinsk, Chinkent, Georgiy Sedov, Kirov, Kommuna, Kyzl Orda, Maksim Gor'kiy, Makarov, Pamyat, Panfilov, and the Papanin. In addition to the motorized vessels the line also operates tugs and both sea-going and river barges. The number of these vessels is not known, but it apparently has been growing steadily since World War II as the direct result of the expanding output of the Aral'sk shipyard. This shipyard also appears to be the major repair yard for all vessels in the Aral Sea.

Operation of the route is suspended by ice for three to four months during the winter. Actually, most of the sea remains free of ice throughout the winter. Only that portion north of the latitude of Ostrov Barsa-Kel'mes freezes over. However, this frozen area blocks access to Aral'sk, at present the sole connection with the Soviet rail net.

No intelligence is available concerning the communications that the island currently has with the mainland. In the past the only means of communication was by ship, but it is probable that radio equipment has now been installed on the island. If radio contact with the mainland exists, it is most likely regularly maintained with Aral'sk and possibly Muynak.

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VII. Analyst's Note

As is indicated throughout the study, there is very little recent information available on Ostrov Vozrozhdeniya. Much of the information is based on old observations. Although the authors are reputable geographers, some of their surveys were made as long as a half century ago. Even the exact outline of the island is shown differently on various Russian maps. The 1935 Russian hydrographic chart however, does appear to be the most reliable map available. Intelligence concerning Soviet activities on the island is even more sketchy for the period since 1936.

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Figure 1. Subtropical vegetation on Ostrov Vozrozhdeniya (date of photograph unknown).

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Figure 2. View of overhanging bluff on the northeastern cape of Ostrov Vozrozhdeniya.



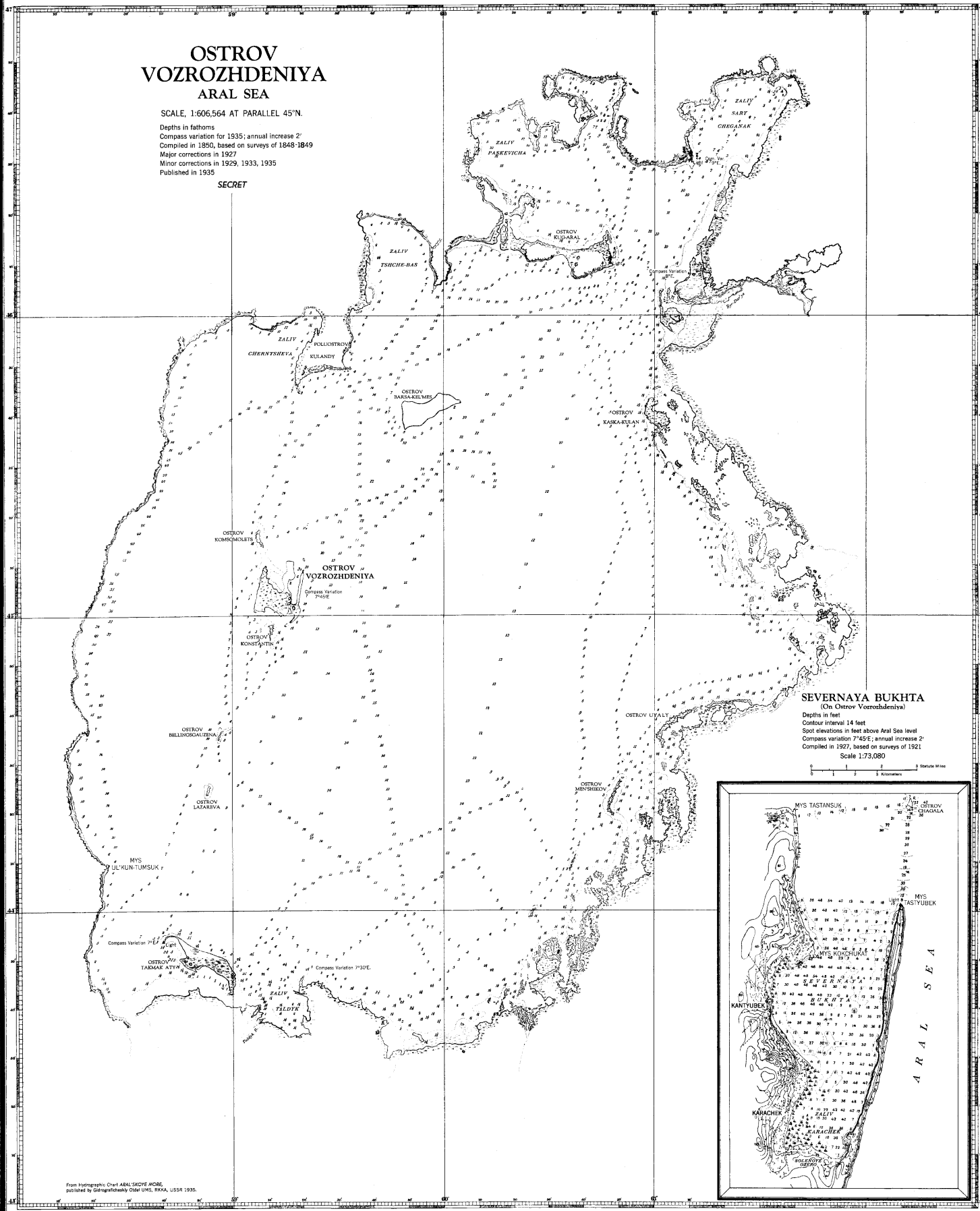
Figure 3. Bluff 70 to 85 feet high on the northeastern cape of Ostrov Vozrozhdeniya. The upper part of the bluff is hard sandstone, the lower part friable sandstone.

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OSTROV VOZROZHDENIYA ARAL SEA

SCALE, 1:606,564 AT PARALLEL 45°N.
Depths in fathoms
Compass variation for 1935; annual increase 2"
Compiled in 1890, based on surveys of 1848-1849
Major corrections in 1927
Minor corrections in 1929, 1933, 1935
Published in 1935

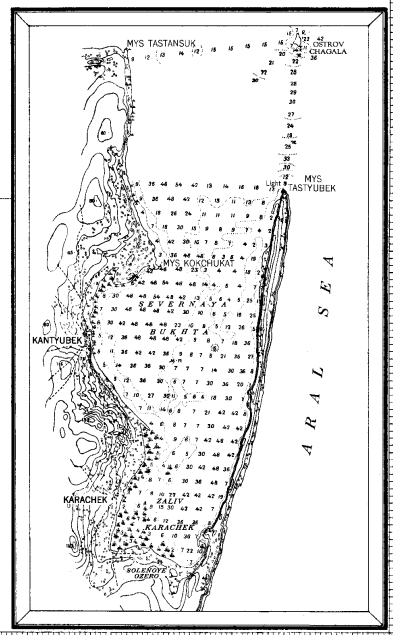
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SEVERNAYA BUKHTA (On Ostrov Vozrozhdeniya)

Depths in feet
Contour interval 14 feet
Spot elevations in feet above Aral Sea level
Compass variation 7°45'E; annual increase 2"
Compiled in 1927, based on surveys of 1921
Scale 1:73,000

0 1 2 3 Statute Miles
0 1 2 3 Kilometers



From Hydrographic Chart ARALSKOYE MORE,
published by Gidrostaticheskoye Upravleniye, SSSR, USSR, 1935.

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