PART II. — MATERIAL CULTURE AND SOCIAL ORGANIZATION.

I. THE COUNTRY OF THE KORYAK.

Present and Former Extent of the Koryak Territory. — The boundaries of the Koryak territory have somewhat changed since the advent of the Russians to that region. Prior to the time when the Russians came in contact with the Koryak, the latter reached as far as Tauysk. The first encounter between the Russians and the Koryak, according to the reports of the Cossacks, took place in the Tauysk settlement. There were at that time villages of Maritime Koryak all along the western shore of the Okhotsk Sea and Gishiga Bay, and upon the adjacent rocky islands between the mouth of the Gishiga River and Tauysk.

At present the inhabitants of Tauysk are officially classified as Yakut who were transferred thither from Yakutsk; but, as a matter of fact, they are a mixture of Yakut, Cossacks, and Tungus. Farther north — if we exclude the villages of Yamsk, Tumanskoie, and Nayakhan, whose inhabitants have become Russianized, and who have become physically intermixed, with other tribes, Russians, Tungus, and Yakut — the Varkhalam River, in the valley of which some Reindeer Koryak still wander, may now be regarded as the border-line of the Koryak territory northwest of the Okhotsk Sea.

According to the Russian annals, the Koryak spread in Kamchatka as far as the Tighil River, on which, in the time of Krasheninnikoff, Koryak villages were still to be found. Dittmar, in 1853, drew the boundary-line between the Koryak and the Kamchadal below the fifty-seventh degree of north latitude, somewhat to the south of the village of Oserna on the Bering Sea side, and of Voyampolka on the Okhotsk Sea.

Krasheninnikoff mentions a group of Koryak who in his time lived along the Imatkha River, a tributary of the Avacha, not far from Petropavlovsk. According to Krasheninnikoff, this group of Koryak formerly belonged to the nomadic Reindeer branch; but, their reindeer having been driven away by

1 Krasheninnikoff, i, p. 32.
2 See Dittmar, Reisen in Kamchatka; and Part I of this volume, map.
3 Krasheninnikoff, i, p. 50.
enemies, they settled down in one place. At the same time, however, they refrained from forming ties of kinship with the Kamchadal, thus preserving their language and customs intact. Now they have become Russianized, like the Kamchadal, and in no way differ from them. "Koryaki,"¹ the name of their settlement, is the sole reminder of their origin.

At the present time the camps of the Reindeer Koryak reach as far south along the western slope of the Kamchatka Ridge as the fifty-fifth degree of north latitude:¹ and, according to Slunin, a few families will sometimes even reach Bolsheretzk.² The Reindeer Koryak have also spread farther northward than at the time of the intertribal wars. Then, according to tradition, the southern Chukchee camps were separated from the northern Koryak camps by a stretch of desert land, which the Chukchee would cross from time to time to attack the Koryak. Now the Chukchee and Koryak camps wander peacefully together upon the table-land of the Palpal.

I am inclined to suppose that no changes have occurred in the distribution of the Koryak in the northeastern region. The northeastern branch of the Koryak, the Kerek, have held themselves aloof from Russian influence, and until recently have been very little known.

The western boundary-line of the Koryak territory is formed, now as formerly, by the Stanovoi, or, as Maydell calls it, the Kolyma Ridge. But in winter, for purposes of squirrel-hunting, a few camps wander across the Stanovoi Ridge into the region of the Kolyma River, as far as its tributaries Omolon and Korkodon, and return in the spring. According to traditions of the Korkodon Yukaghir, the Koryak in olden times crossed the Stanovoi Ridge to wage war against them.

At the present time the Koryak territory is situated mainly in the two districts of Gishiga and Petropavlovsk. The Gishiga district has an area of 81,553 square miles, and that of Petropavlovsk 149,467 square miles. According to official data, there are in the Gishiga district 0.9 inhabitants to a square mile, and in that of Petropavlovsk 0.45 inhabitants to a square mile. The population is, of course, concentrated near the mouths of the rivers, in the river-valleys, and in places where reindeer-food is abundant. Between these inhabited places are large stretches of uninhabited desert land.

To understand Koryak culture in so far as it depends upon environment, it is necessary to give here a brief description of the nature of that region.

Orography. — The Koryak territory may be called a highland rather than a lowland country, but nowhere do the elevations reach any considerable height. They are either spurs of mountain-chains which lie outside of the Koryak country, or are small elevations forming the watersheds within the country. The Stanovoi Ridge sends a few such small spurs eastward, which

¹ See Part I, map. ² See Slunin, I, p. 450.
form the divides between the Varkhalam, Gishiga, Oklan, Penshina, and other rivers. The Nalginski spur, at the north of the Koryak territory, abuts against the Palpal Mountains, and separates the river system of the Anadyr from the rivers of the Okhotsk Sea. Former travellers\(^1\) thought that the mountain-ridge of Kamchatka, with its volcanoes, represented an isolated elevation having nothing in common with the elevations proceeding from the Stanovoi Ridge, and that, sloping gradually northward, it disappeared in the mossy tundra of the Parapol Dol (Parapol Valley). However, according to Slunin,\(^2\) the Kamchatka Ridge, though sloping northward, turns sharply away toward the east near the Parapol Dol, and at 170° east of Greenwich meets the plateau-like elevation of the Palpal.

Neither is the Taigonos Ridge, stretching along the eastern part of the Taigonos Peninsula, an isolated elevation. Passing in the north across the Gishiga tundra, it meets with a spur of the Stanovoi Ridge, and forms the watershed between the Gishiga and Paren Rivers.

One more elevation is to be mentioned in this connection; namely, the Mamechenski or Ma’meč Ridge. It extends between the villages of Rekinnok and Ma’meč, and ends abruptly on the seashore in vertical rocks, rendering that part of the country inaccessible from that side. Only in winter is it possible to pass under the ridge, by driving with dogs over the frozen sea. On the east the Ma’meč Ridge is separated from the northern portion of the Kamchatka Ridge by the tundra of the Parapol Dol.

The available data regarding the elevations in the Koryak country indicate their insignificance, and we infer that they interfere but little with communication between the various parts of the region; but, on the other hand, the marshy tundras make communication during summer difficult and in some places impossible. The Stanovoi Ridge, which forms the western boundary of the country, attains there a considerable height, though it is far lower than its southern part or than the Verkhoyansk Ridge.

Having crossed the Stanovoi Ridge by way of the upper part and the source of the Gishiga River, I ascertained the height of that pass to be 950 metres by barometric measurement, while the elevation of the surrounding heights I estimated at about 1150 metres.\(^3\) The height of the crests of the interior ridges, however, is quite insignificant. Thus I determined the height of the following crests: —

1. Between the Varkhalam and Gishiga Rivers, a spur of the Stanovoi

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\(^1\) Maydell, II, p. 101; Dittmar (Russian), p. 339.

\(^2\) Slunin, I, p. 166.

\(^3\) The highest pass of the Stanovoi Ridge on the way from Yakutsk to the Udskoi Ostrog (a settlement at the mouth of the Uda River), as determined by Middendorff (Reise, I, p. 133), is 1290 metres. The two summits of the Stanovoi Ridge on the way from Yakutsk to Okhotsk are 1260 and 825 metres respectively (Ermann, Reise, II, pp. 378, 392). The two summits between Yakutsk and Ayan are 940 and 996 metres respectively (Stephanovich, From Yakutsk to Ayan, Irkutsk, 1866, pp. 106-108). The height of the pass of the Verkhoyansk Ridge, between Yakutsk and Verkhoyansk, was found by me to be 1550 metres. Maydell as well as Dr. Bunge (see Maydell, I, p. 33) found it to be about 1500 metres.

The average height of the summits of the ranges of the Stanovoi Ridge on the way from Markova to Penshina River, along the Anadyr River, is determined by Maydell at about 300 metres. The crest of the northern part of the Kamchatka Ridge is estimated to be no higher.

Of the more or less extensive tundra regions, — that is, open expanses devoid of trees, and covered with moss, lichen, grassy hillocks, and creeping plants, — which in summer are converted into marshes, there are the following:

1. The western part of the Taigonos Peninsula.
2. The Gishiga tundra, occupying the space from the lower course of the Kolyma River to the tributaries of the Paren River in the east.
3. The Parapol Dol, beginning near the village of Lesnovskoye (Lesna). This tundra, broadening near Rekinniki (Rekinnok) village, stretches between the Mameche (Ma'me) Ridge in the west and that of Kamchatka in the east, abutting on the heights of the Palpal in the north.
4. The Palpal table-land, occupying the entire northern part of the Koryak territory.

Besides, the entire littoral tract of the Okhotsk Sea as well as of the Bering Sea, for a distance of about fifteen miles, is nothing more nor less than a tundra, either sloping down towards the sea, as at Bering Sea, or rising above it, as near the shores of the Okhotsk Sea. Moreover, the summits of highlands, crests, and divides, and occasional glades in the river-valleys, at the places where they become wider, also form tundras. The former are usually covered with moss and lichen, and the latter with grass and grassy hillocks. The tundra of the coast is mainly grassy, with intermittent patches of brown moss hardly anywhere suitable for reindeer-breeding.

Mosses (Muscineae, of the genera Polytrichum, Hypnum, Sphagnm, Bryum, and others) generally cover the most boggy and marshy parts of the tundra; while the lichen (Lichenes, of the genera Cetraria islandica, Cladonia rangiferina, Cetraria arctica, Stenocaulon paschale, and others), which serves as pasturage for reindeer, creeps over less swampy places, on the summits and slopes of mountains and hills, over places having a stony substratum, or

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1 Maydell, I, p. 225.
2 However, in the southern part of this ridge we find volcanoes, like the Kluchevskayas, 4839 metres high. As to the pass "Polkovnik," in the northern part of the Kamchatka Ridge, Stalin says (I, p. 194), that, on the day when he crossed it, his aneroid indicated a pressure of 738 mm.; consequently its absolute height was less than 300 metres.
on rocks. The lichen and moss tundras are frequently intermixed, one forming islands in the other. Wherever the tundra is hilly, or where it has slopes which serve to drain certain parts of it, phanerogamous plants appear.

However, the large tundras enumerated above do not represent a continuous plain surface. At some places they are cut up by ravines or by dales watered by rivulets, or they form a hilly surface with mounds and rocks, denuded by atmospheric influences. In this manner, plain marshy, swampy spaces, covered with stagnant water which cannot penetrate the frozen soil, alternate with more or less dry earthy or stony slopes from which all precipitation is carried off, or with dank dome-like or oblong hills standing alone in the midst of the tundra, and often covered with bushes and trees. These hills are called yedoma (дома) by the Russian settlers of northern Siberia,—a name of unknown origin.

Neither are these tundras entirely devoid of arboreal vegetation, which is found here and there, forming, as it were, oases. Some ravines and the banks of some streams have a scant growth of slender willows, thin poplars, and crooked, stunted birches; and the summits and slopes of hills are often covered with low stone-pines, which serve as the only but excellent fuel for the nomadic Koryak and for travellers who occasionally spend the night in the tundra. The hard and solid wood of the stone-pine and its creeping roots burn slowly, and produce a strong heat.

Coasts. — The coasts of the Koryak territory, particularly those of the Okhotsk Sea, have many small bays, which evidently have proved favorable to the formation of permanent Maritime settlements. With the exception of the eastern shore of Kamchatka, almost the entire coast-line is a continuous steep rocky shore (either of granite or gneiss, as for instance on the Taigonos Peninsula, or of schistose rock), with reefs and small rocky islands lying near by, upon which the Koryak of former times used to seek shelter when attacked by enemies. Only the mouths of the rivers are sandy. For this reason the shores, particularly those of the bays of the Okhotsk Sea, are very difficult of access by vessels. Besides, the water in the bays is very shallow, and the sand-bars and sand-banks at the mouths of the rivers prevent vessels from coming close to shore.

The largest bays are those of Gishiga and Penshina in the Okhotsk Sea, and Baron Koff’s Bay in Bering Sea. It is curious that on Steller’s map of the Okhotsk-Kamchatka region the Taigonos Peninsula is not indicated, and the two bays which are separated from each other by that peninsula are thrown together under the name of Penshina Bay.1 Gishiga Bay extends into the continent for about 170 miles. The head of Gishiga Bay is so shallow, that steamers have to anchor from sixteen to twenty miles below the

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1 See Steller, map opp. p. 12.
mouth of Gishiga River; and only at high tide are the steamer-tugs able to enter the mouth of the river.

When a strong wind is blowing, steamers cannot lie at anchor, and, since storms are of frequent occurrence in the Okhotsk Sea, it often happens that steamers are compelled to stand off for a week, without being able to cast anchor. Once for two weeks a government steamer (until 1900, only once a year did a government steamer call at Gishiga) was unable to approach the mouth of the Gishiga; and, to avoid greater loss of time, she steamed farther north, to the Anadyr, without having discharged her cargo in Gishiga, and thus the inhabitants of Gishiga were left without provisions for the winter.

In former times, Penshina Bay, when its waters still swarmed with whales, was frequented by American whaling-schooners, which anchored near the Koryak villages. Even now American whaling-schooners enter Penshina Bay from time to time; but steamers have not yet visited it. So far its depth has been little sounded. In 1897 the steamer "Kotik," belonging to the Kotik Company,¹ made an attempt to cast anchor near the Kamenskoye settlement; but, the mouth of the river proving to be full of rocks, the attempt had to be given up. However, in 1895-96 the Russian schooner "Siberia" succeeded in coming close to the village and unloading its cargo.²

I arrived in Gishiga at the end of August, 1900, on the steamer "Khabarovsk" of the Russian Volunteer Fleet. In order to avoid loss of time, I wished to get to the Maritime Koryak of Penshina Bay before the opening of winter travel. In the summer, communication with the Koryak villages is interrupted. I wanted to avail myself of the steamer "Progress" of the Russian-American Gold-Mining Company, which was then about to leave Gishiga for Vladivostok. I applied to Mr. Shockley, the American engineer in charge of that expedition, for passage with them, for myself and my companions, over to the Itkan Koryak in Penshina Bay, on their way to Vladivostok. Unfortunately he did not grant my request, for the captain of the steamer thought it too risky to venture into a bay which had not been surveyed.

Baron Korff's Bay, in Bering Sea, is about thirty-five miles long. It is deep, and has several harbors suitable for steamers. There are a few other accessible bays in Bering Sea, such as the one at the mouth of Karagha River, sixteen miles long, and another one, called False Bay, on the western shore of Karagha Island, which is often visited by American schooners for walrus-hunting.³

Rivers and Lakes. — All those rivers of the Koryak territory which flow from the Stanovoi Ridge, its spurs, or the Kamchatka Ridge, are short

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and rapid. The mountain-ridges from which these rivers take their source are not far from the seashore, which accounts for the steepness of the river-valleys. The length of the large rivers varies from forty to two hundred and fifty miles. Compared with the gigantic rivers flowing into the Arctic Ocean west of the Stanovoi Ridge, these rivers appear as pygmies. Of their rapidity one can judge from the fact that it is possible to row only seven miles up the Gishiga River, which, next to the Penshina, is one of the largest rivers of that region. Farther up the boat has to be towed.

The Penshina is to a certain extent an exception in this respect. Not only is it longer than all the other rivers of the Koryak territory, but in its lower course it is more in the nature of a large river traversing a plain. In the eighteenth century the cossacks plied the Penshina River in boats, on the way from Kamchatka to Oklansk and farther to the north. Prior to the advent of the Russians, there was a large village of Maritime Koryak at the mouth of the Oklan River, the largest tributary of the Penshina. Fishing was the main industry of the inhabitants, and by it they subsisted.

Almost all the rivers of the Koryak territory have cut their way through the mountains. Piling up a rocky bed, they carry off in their rapid course the smaller fragments to the seashore, and either deposit them near the mouth of the river, or form sand-bars near by in the sea. Although some of the rivers flowing into Bering Sea — as, for instance, the Dranka and Karagha Rivers — have in their upper course all the characteristics of mountain-streams, when they reach the coastal tundra strip, they take a more quiet course, owing to which the bay near the mouth of the Karagha River offers a safe harbor.

Especially in the rainy season, during the summer, and when the snow is melting after the ice breaks up, the rivers are full and raging; but in dry seasons they are quite shallow. In summer, when there are no rains, it is possible to wade across the Gishiga River at a distance of only forty-five miles from its mouth. Owing to these conditions, the rivers of the Koryak territory cannot be depended upon as a means of communication between the various branches of the tribe.

The unusual force and height of the tides in the long and narrow Gishiga and Penshina Bays of the Okhotsk Sea also tend to the formation of sand-bars, and they are destructive to the coastal rocks. The rocky mouth of the Penshina River near the village of Kamenskoye is blocked by large bowlders and small rocky islands. Up to this time no one has made any regular observations of the tides in the Okhotsk Sea; but, according to information obtained from Russian seamen, the spring-tides and neap-tides in

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1 Oklansk (Okhanaka) was a fortified Russian settlement (see Chapter XIV) founded by the cossacks in 1690, after the destruction of the Koryak village of the same name.
Gishiga Bay, or, as they are locally called, the "larger and smaller waters," alternate regularly every two weeks.

The tides move with a rapidity of from one and a half to two and a half miles per hour, reaching a height of from four to eight metres. According to Slunin's data, the tides of Penshina Bay have a still greater force and height. At the mouth of the Penshina River the tide reaches a velocity of seven miles per hour, and a height of from seven to ten metres. In the village of Kamenskoye I could see the tide crashing through the ice near the shore, and driving it into the mouth of the Penshina River. Enormous blocks of ice were piling up on each other, and wearing away the steep and rocky shore upon which the village is situated. At the mouth of the Tighil River the tide sometimes rises to a height of from five to seven metres. The height of the tide evidently depends upon the degree of exposure of a certain point. Near Okhotsk, for instance, where the sea is quite open, the tide does not rise higher than from two and a half to four metres.

Owing to the rolling surface of the country and to the absence of vast plains, the lakes in that region, in spite of the abundance of tundra spaces, are exceedingly limited in number as well as in size. In this respect the Koryak region differs strikingly from the vast plain of the Kolyma tundra, which contains thousands of lakes connected with each other by small rivulets. These lakes abound in fish, rendering them attractive to the settled population of the northern Yakut as well as to the nomadic Yukaghir. The rapidity of the rivers, and the small number of lakes, may offer an explanation of the absence of a settled population in the interior of the Koryak territory.

Of the lakes of the Gishiga tundra of more or less considerable size, I mention here the Kharitonovskoye, Chukchee (Chukotskoye), Ankudin (Ankudinovskoye), and Paren (Parenskoye) Lakes. They are said to abound in pike and crucian-carp. However, none of the inhabitants of that region ever think of catching them. Some small lakes in which rivers take their rise are situated in the mountain-valleys. The largest lakes in northern Kamchatka are Lake Pallan, from which Pallan River rises, and Great Lake, in the Parapol tundra, forming the source of a tributary of the Talovka River.

CLIMATE. — In the entire vast country of the Koryak, meteorological observations, so far, are carried on in one place only, the Gishiginsk settlement (and this regularly, only since 1901), it being a second-class meteorological branch station of the principal physical observatory of St. Petersburg. However, from the fragmentary observations of travellers, among them the observations of the author during his travels over the country, the conclusion may be drawn that the climate of the interior is somewhat more severe than it is on the strip of land near the shore where Gishiginsk is situated, and

1 Slunin, I, p. 147.  
that the moderating influence of Bering Sea upon the climate of the eastern shore is somewhat stronger than that exercised by Okhotsk Sea and its bays upon the climate of the coasts adjoining them.

Since the country of the Koryak extends from about the $56^\circ$ of north latitude to the $64^\circ$, the geographical position of certain points exercises some influence over their climate. However, the difference in the climate of the various places is not considerable. So far as the short series of available observations goes to show, it seems that a greater or less amount of humidity, or a greater or less severity of winter, results in a difference of about two degrees between the yearly averages of temperature of various points.

I will cite here, from reports of the principal physical observatory of St. Petersburg, data concerning the mean annual and monthly temperatures, according to observations at the Gishiginsk station, for 1901 and 1902, the temperature being given in Centigrade degrees.²

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</tr>
</thead>
<tbody>
<tr>
<td>January</td>
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</tr>
<tr>
<td>February</td>
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</tr>
<tr>
<td>December</td>
<td>-14.9</td>
<td>-23.8</td>
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Mean annual temperature: -5.2 - 8.0

According to further information furnished by the Gishiginsk station, the maximum temperature for 1901 was $25.1^\circ$ C. (VII. 7), and the minimum, $-42.0^\circ$ (II. 5). The first frost in 1901 took place Aug. 24; there are no data as to when it took place in 1902. The last frost in 1901 occurred on June 6; in 1902, on May 29. The first snow in 1901 fell on Sept. 27; in 1902, on Aug. 27. The last snow in 1901 fell on May 19; in 1902, on May 25. In 1902 the Gishiga River froze up on Oct. 15, and the ice in the river broke up on May 9. During my travels in the winter of 1900-01, the severest frost I experienced ($-41.5^\circ$ C.) was in Paren, on Jan. 26. The mean annual temperature of the coast of Bering Sea is $-4^\circ$.³

If we compare the Koryak country with other maritime countries of the

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¹ See Part I, map.
² The observations of this station prior to 1901 being incomplete, it is impossible to find the mean annual temperature.
³ See Atlas climatologique de l'Empire de Russie publié par l'Observatoire Physique Central Nicolas à l'occasion du cinquantième anniversaire de sa fondation, 1849—99 (St. Petersburg, 1900).
same latitude, we see that in the severity of its climate, which justly may be
called arctic, it outranks them all. In no other place of a corresponding
latitude, except Labrador, do we find such a low mean annual temperature
on the seacoast. The climatic conditions on the east coast of America are
determined by similar geographical conditions, to which is added the influence
of the cold arctic current which skirts the coast of Labrador. Points lying
north even of Gishiginsk (situated in 61° 55' north latitude) enjoy a higher
mean annual temperature than the latter. Reykjavik in Iceland, for instance
(64° 8' north latitude), has a mean annual temperature of 4.1°. Archangel
(64° 32' north latitude), situated 2° 37' farther north than Gishiginsk, has a
mean annual temperature of 0.4°. This is explained by the influence of
other unfavorable climatological factors, such as cold currents, the presence
of ice in the sea late in the summer, the influence of cold northern winds,
and air-currents from the western quarter; that is, from the Yakutsk-Kolyma
side. However, as compared with the cold continental climate of the latter,
the climate of the Gishiga region is considerably less severe. This is due to
its position near the sea, as well as to the protection from cold winds afforded
to some extent by the Stanovoi Ridge, west of which are observed the lowest
mean annual temperatures on the surface of the globe. The mean annual
temperature, calculated for a number of years, was found to be -11.0° C. at
Yakutsk, -12.4° C. at Sredne-Kolymsk, and -16.9° C. at Verkhoyansk.1

The maritime character of the climate of the Koryak country is to some
extent made still more manifest by the comparison of data showing the
difference between the highest summer and the lowest winter temperatures.
The annual amplitude was, for Yakutsk (in 1901), 92.3° (summer maximum,
33.6°; winter minimum, -58.7°); for Verkhoyansk (in 1899), 103.5° C. (summer
maximum, 33.7°; winter minimum, -69.8°); while for Gishiginsk it was (in 1901)
67.1° (summer maximum, 25.1°; winter minimum, -42.0°).

Judging from data collected for Gishiginsk, the amount of rainfall is
insignificant for a country situated near the sea. The annual rainfall in 1901
amounted to 218.2 mm., and in 1902 to 283 mm. The amount of rainfall is
distributed by months: —

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<td>April</td>
<td>10.3 &quot;</td>
<td>11.1 &quot;</td>
</tr>
<tr>
<td>May</td>
<td>2.8 &quot;</td>
<td>7.9 &quot;</td>
</tr>
<tr>
<td>June</td>
<td>14.4 &quot;</td>
<td>11.4 &quot;</td>
</tr>
</tbody>
</table>

1 Reports of the Department of Physical Geography of the University of St Petersburg (St. Petersburg, 1899), Vol. 1, p. 20 (Russian).
2 Annals of the Principal Physical Observatory in St. Petersburg, 1901.
3 Voeikov, The Coldest Places on the Globe (Meteorological Messenger, St. Petersburg, 1897, No 8, p. 2 [Russian]).
In 1901 there were 52 days of snow and 26 days of rain, and but 42 days of fine weather were recorded. In 1902 there were 62 days of snow and 28 days of rain. But the amount of humidity and the almost constant cloudiness point to the maritime nature of the climate of that country. I will cite here some observations made by me during my travels, which may give some idea of the difference in the amount of humidity in the atmosphere between places east and west of the Stanovoi Ridge.

On leaving Gishiga in summer (in the month of August, 1901), on my way to the Kolyma River, I had, among other provisions, dried fish and rye biscuits packed in seal-skin bags, which are moisture-proof. On the third day I was compelled to throw out almost all the fish, and about half of the biscuits were covered with mould. On the contrary, up the Kolyma River dried fish kept well for weeks in my bags, and the rye biscuits became even dryer than they had been before.

The following fact is still more interesting. Leaf-tobacco, for exchange and for presents, had been purchased for the Expedition in Russia by the Irkutsk firm of Anna Ivanovna Gromov.1 It was shipped in boxes by sea from Odessa to Vladivostok. In July, 1900, on leaving Vladivostok for Gishiga, I took the tobacco along with me on the steamer. Part of it I left in Ola Bay, whence it was sent directly to Verkhne-Kolymsk. The rest I took along to Gishiga. In the spring of 1901 I weighed the remainder of the tobacco, which was kept packed in its original case in the Government warehouse. The leaves proved to be moist; and to each pud of weight, according to the original invoice, there were found three pounds and a half (Russian) additional weight.2 In October of the same year I arrived at Verkhne-Kolymsk, and, upon opening the boxes of tobacco sent from Ola, I found the leaves to

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1 I avail myself of this opportunity to express my gratitude to Mrs. A. I. Gromov, and her son-in-law Mitrophan Vasilievich Pukhtin, the manager of the firm, for the help and gratuitous services rendered by them to the Siberian section of the Expedition. The firm of A. I. Gromov is the largest in East Siberia dealing in furs, and supplying the districts along the Lena River with European wares. It has its own steamer-line. Mrs. A. I. Gromov rendered valuable services to many polar expeditions. She sent her steamer "Lena," the former auxiliary vessel of the steamer "Vega" of Nordenskiöld’s Polar Expedition, in search of Baron Toll. Many ethnographical works on Siberia have been published at the expense of Mrs. Gromov; the large work on the Yakut, by V. Sieroszewski being one of them.

2 Froty Russian hor 36.01 Englis pounds, pounds, constitute one pud.
be perfectly dry, and to every pud of its original weight there was found a shortage of four Russian pounds.

The following table will give an idea of the changes of the barometric pressure in Gishiginsk in 1901-02, according to the records of the Gishiginsk Meteorological Station.

<table>
<thead>
<tr>
<th>Month</th>
<th>1901</th>
<th>1902</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average</td>
<td>Max.</td>
</tr>
<tr>
<td>January</td>
<td>759.5</td>
<td>769.0</td>
</tr>
<tr>
<td>February</td>
<td>62.9</td>
<td>84.2</td>
</tr>
<tr>
<td>March</td>
<td>62.3</td>
<td>72.3</td>
</tr>
<tr>
<td>April</td>
<td>62.4</td>
<td>76.9</td>
</tr>
<tr>
<td>May</td>
<td>61.6</td>
<td>73.5</td>
</tr>
<tr>
<td>June</td>
<td>57.4</td>
<td>67.8</td>
</tr>
<tr>
<td>July</td>
<td>54.5</td>
<td>66.0</td>
</tr>
<tr>
<td>August</td>
<td>55.0</td>
<td>62.2</td>
</tr>
<tr>
<td>September</td>
<td>54.5</td>
<td>62.5</td>
</tr>
<tr>
<td>October</td>
<td>56.5</td>
<td>71.2</td>
</tr>
<tr>
<td>November</td>
<td>53.5</td>
<td>67.0</td>
</tr>
<tr>
<td>December</td>
<td>54.5</td>
<td>74.5</td>
</tr>
<tr>
<td>Entire year</td>
<td>757.9</td>
<td>784.2</td>
</tr>
</tbody>
</table>

We see from this table that Gishiginsk is outside the sphere of the anti-cyclone of northeastern Siberia, west of the Stanovoi Ridge, where we observe a regular winter maximum and a summer minimum. In general, a higher pressure is observed here during the spring months, beginning as early as February, when the weather is settled and is more or less quiet; and a lower pressure is observed in the fall and first winter months, when the greatest number of snow-storms occurs. However, a sudden change of pressure, depending upon the main winds, may occur at any time of the year.

According to the observations of the Gishiginsk station during 1901, the winds are as follows: north, 324 times; northeast, 268; south, 94; southwest, 91; northwest, 46; east, 17; southeast, 11; west, 7; and calms, 196. As will be seen, the greatest number of winds falls to the northern

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1 These observations are not complete for all the months of the years preceding 1901. For 1902 the observations were taken three times a day.
2 Annals of the Principal Physical Observatory of St. Petersburg, 1901.
quarter. The winds from the northern and western quarters — that is, those blowing from the Arctic Ocean and the Stanovoi Ridge — bring cold, and those from the east and south bring warmth. A sudden change in the winter, in the winds from one of these two directions, may cause a very low temperature, followed by thawing weather, and vice versa. A sudden rise in temperature is accompanied by a strong wind, a penetrating damp fog, melting ice, or by a fine drizzling rain. The dampness penetrates everywhere; the clothing is wet through and through, and sticks to the body. But instantaneously a cold wind rises, and the wet straightway changes to frost. The clothing, heavy with moisture, quickly stiffens, turning to an icy coating, which cuts the body mercilessly. Woe to the traveller overtaken by such weather away from human habitation, or in an open tundra without wood for a fire! I was told that oftentimes people overtaken in the desert by such sudden changes of wind had been frozen to death. We ourselves, in our travels, were twice overtaken by sudden thaws, but fortunately in each case we were not far from dwellings.

My own observations, covering a period of about three months (from November to January, 1900–01) in Kamenskoye, at the mouth of Penshina River, show prevailing northeasterly winds, and thirty, out of a hundred observations, followed by a rise in temperature. Eastern winds, in most cases, also brought warmth. This was accompanied by a considerable fall of barometric pressure and by snow-storms. For instance, Nov. 7, 1900, the temperature in the morning was 21.5°C. (minimum for the night, −24°C.), the wind was southwest, the barometric pressure, 766 mm. In the daytime of the 8th the temperature was 1.6°C, the wind northeast, barometric pressure 745 mm., and it was raining. On the morning of Nov. 12 the temperature was −16.5°C (minimum for the night, −23.5°C), pressure 749 mm., wind northeast with a velocity of 8.1 metres per second. In the evening of the same day the temperature was −7.6°C, barometric pressure 739 mm., wind east, and a storm with a wind-velocity of 18.6 metres per second; while on the morning of the 13th the temperature was 3.8°C, the pressure 735 mm., wind east with a velocity of 10.8 metres per second, and it was raining. On the morning of Nov. 18 the temperature was −5.2°C (minimum of the night, −11.5°C), pressure 755 mm., wind northeast with a velocity of 5.8 metres per second. In the evening of the same day the temperature was 0.5°C, the pressure 745 mm., wind northeast with a velocity of 18 metres, while on the morning of the 19th the temperature was 0.2°C (night minimum, 0.2°C as well), barometric pressure 737 mm., wind northeast with a velocity of 21.3 metres per second, that is, 47.5 miles per hour.

On the other hand, according to my own observations, on the very coldest days of the winter of 1900–01, which I spent in the villages of Kuel (the 24th) and Paren (the 25th and 26th), on the shores of Penshina Bay the
wind was blowing from the western quarter, the barometric pressure was 761-762 mm., the velocity of the wind was only from 0.2 to 3 metres per second, and the temperature ranged from $-40^\circ$ to $-41.5^\circ$. As mentioned above, the snow-storms are accompanied by a great and sudden rise of temperature. But there were a number of stormy days in January, in Kamenskoye, with a very low temperature and the wind north-northeast. For instance, Jan. 17 — with the thermometer at $-21^\circ$ (night minimum, $-37^\circ$), wind north-northeast, a pressure of 745 mm. — the anemometer showed a wind-velocity of 20.2 metres per second.\(^1\) On such days no clothing, no matter of what kind, is any protection from the cold. Woe to the person who is on the road at such a time! Snow-flakes as fine as sand and as hard as crystals whirl and whizz through the air, creep up under the clothes, blind the eyes, and cut the face. The hands and the entire body grow rapidly stiff, and in a long-continued struggle against the unceasing onslaughts of the wind one finally succumbs. Not a thing can be seen around, since the air is thick with snow.

When, on such days, I went to make observations at my station (which was only a few metres distant from the house), I should have soon lost my way and been unable to find my house, without the assistance of the cossack or interpreter. On days when snow-storms raged with extreme violence, not less than three of us would venture out together, for it was very easy to be thrown down by the wind, and buried under the snow, in the very midst of a settlement. Not only women, but even men, do not leave the house during very violent storms. When a snow-storm begins to rage, the dogs are let loose in order to give them freedom to find a sheltered place for themselves in their struggle against the weather. They lie down huddled together, and do not move until the falling snow makes breathing difficult. Then they get up, shake off the snow, and lie down again. In this struggle with the storm the dogs get so tired out that they lie motionless for an entire day after the storm has passed over. Dogs which are left tied perish oftentimes. When Mr. Bogoras came from Markova to visit us at Kamenskoye, in November, his driver left his dogs tied near my house over night. On the following morning the dogs had to be dug out from under the snow, and one of them was smothered. The wind-velocity, according to the anemometer, was then only 3.5 metres per second.

How frequently snow-storms occur during the first winter months may be judged (at least for 1900-01) from the fact that during my sojourn in Kamenskoye in November and December, 1900, and part of January, 1901, there were twenty-five days with a wind-velocity of from 10 to 21.5 metres per second. I settled down there in a small log-cabin belonging to a resident

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\(^1\) However, on Jan. 16 the temperature was $-34^\circ$ C. (night minimum, $-37.5^\circ$), pressure 761 mm., wind north-east with a velocity of 4.5 metres per second.
cossack. On mornings after a strong wind had been blowing at night, the
hut would be found covered up to the roof with snow, so that we were
unable to get out, and the Koryak would come to shovel off the snow and
dig us out.

The bays of Okhotsk Sea, as well as those of Bering Sea near the
Koryak shores, remain open in winter. Only the northern part of Gishiga
Bay freezes up for a distance of from ten to fifteen miles from the shore.
As late as May 10, 1901, I succeeded in driving on dog-sledges across the
sea-ice from the mouth of the Chaibuga River to the small Russian settlement
Kushka, at the mouth of the Gishiga, since, owing to the rising of the moun-
tain-streams and the melting of the snow, it was impossible to go to that place
direct by land. However, in Penshina Bay and on Bering Sea, only small
narrow bays and a narrow strip along the shore freeze up; and in the course
of the winter, even this strip of ice often gives way to the attacks of stormy
tides and violent winds, and the ice is carried off into the open sea.

The mouth of the Penshina remained clear during my entire stay at
Kamenskoye. Each incoming tide brought in the ice-floes, which, breaking
against the rocky shore, were turned into a mass of ice, or left upon the
rocks. All these circumstances — the open sea, the instability of the ice
along the coast, and the floating ice in the open — affect unfavorably the sea-
hunting of the Koryak. During the winter, when the Chukchee and Eskimo
hunt seals under the ice, the Maritime Koryak cannot have fresh provisions
from the sea, but are dependent upon their summer and fall supplies.

On the other hand, since the sea is not ice-bound, navigation in the
Okhotsk Sea begins early in spring. According to Slunin, 1 American whaling-
schooners appear in Penshina Bay as early as April, casting anchor near the
Itkana settlement on the Taigonos Peninsula and in Ma‘meč Bay in Kam-
chatka, where they find shelter from the strong winds. The first Russian
steamers, however, do not sail from Vladivostok for the ports of the far
north before the end of May, since, even as late as June, drifting ice is to
be found in Baron Korf's Bay, near Okhotsk, and even near the Shantar
Islands, situated to the north of the mouth of the Amur River, whither they
are carried by the cold currents. The cold current from Bering Sea hugs
the eastern shores of Kamchatka, while two cold currents are observed in
Okhotsk Sea, — one, from Gishiga Bay toward the southeastern shores of
Okhotsk Sea; another, in the northern part of Penshina Bay, passing along
the western shore of Kamchatka toward the Kurile Islands.

The presence of ice far into summer, which absorbs most of the heat
of the long summer days prevailing in that latitude, does not give the sea-
water a chance to get warm, and to moderate the night temperature of the

Slunin, 1, p. 259.
shores. Owing to the constant cold fogs in the beginning of summer and the heat-energy expended in melting the snow, the earth gets but little heated. More or less clear and comparatively warm days come not earlier than at the end of July and beginning of August. The soil, however, thaws out only to an inconsiderable depth.

Regular observations with reference to this matter have hardly been carried on as yet, but all over that region the natives utilize a hole in the ever-frozen soil as a cellar in which to preserve their provisions. Slunin found a frozen layer of soil in the Gishiga tundra at a depth of 0.9 metres, and on the Stolbovoi tundra at a depth of from 0.36 to 0.54 metres. Dittmar found in summer, near Gishiginsk, a thick layer of fossil ice at a depth of from 45 cm. to 60 cm. On the Sedanke River he found the frozen soil at a depth of from 60 cm. to 90 cm.

On the northern slopes of even very small heights, in gorges, or in rocky bays, the ice-glazed snow, hardened by the winds, melts only toward the end of August. The moist, moss-covered turf-layer of the tundra is another means by which the heat is prevented from penetrating deep into the soil. The rain-water and the water from the melting snow, which evaporates but very slightly, unable to penetrate the frozen soil, stagnate on the surface of the plain, forming extensive swamps, and rendering all communication difficult or impossible during summer. Thus, from the beginning of May until the middle or end of October, the Russian settlement of Gishiginsk, as well as other settlements, is completely cut off from the Koryak villages and camps.

Communication between points situated at a short distance from one another is carried on by the Koryak on foot, and by the Tungus by riding their reindeer. The animals best adapted for use in moving from place to place in that swampy region would be pack-horses; but there are very few horses available, particularly in the Gishiga district. The Russian inhabitants of Gishiginsk owned in 1901 only about sixty-five horses, brought thither at different times from the Yakutsk Province. Though these horses are very hardy, they cannot long endure the journeying through the swamps, but wear out quickly, since they have only the scant green fodder upon which to depend. The Russians use them only for short-distance riding between their own settlements along the Gishiga River, or from the settlement Gishiginsk to the Tungus fairs on the Varkhalan and Nayakhan Rivers; and seldom during summer does a Russian merchant venture even to the nearest Koryak villages.

For getting over from Gishiga to Paren (Poitin) in the fall of 1900, I

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1 See Slunin, I, p. 250.
2 See Dittmar, Reisen in Kamtschatka, pp. 427, 431.
3 Ibid., p. 483.
succeeded in hiring twenty saddle and pack horses. The distance from Gishiginsk to the Koryak village of Paren (about a hundred miles), which in winter is covered in two days when driving with dogs, occupied us eighteen days. It must be added, however, that the conditions were particularly unfavorable. After a very rainy summer the swamps were unusually deep, and, just before crossing the northern part of the Taigonos Ridge, we were suddenly overtaken by a violent snow-storm, which forced us to stop for three days. It so happened that the place where we stopped afforded only very poor pasture; and our horses, tired out by the journey of the preceding days, were completely exhausted.

Good fodder-grass is, as a rule, very rare in that region. The swamps are covered mainly with varieties of reed-grass (*Cyperaceae*), horse-tails (*Equisetaceae*), and ferns, which are not very nourishing. In civilized countries many of these grasses, which serve here as fodder for horses, are regarded as harmful for cattle. Thus the horses hardly managed to drag us up to the Koryak village. Of the horses which I sent back to Gishiga with a driver, six died on the way from the effects of a snow-storm, and six in Gishiginsk soon after their arrival in that place.

It may be remarked in this connection that among the horse-tails, the preponderance of which among the pasture-grass frequently produces epizoöty even among the by no means fastidious cattle of northern Siberia, there are found some useful varieties. One species, *Equisetum scirpoïdes* Mich., is particularly liked by the Yakut horses. The horses of the arctic region fatten in two or three weeks on pastures covered with this variety of horse-tail. On our way from the Gishiga territory toward the Kolyma, in the fall of 1901, we came across an enormous pasture-ground covered with *E. scirpoïdes* at the source of the Gishiga River, and the Yakut asked me to stop there for a day in order to give the horses a chance to recuperate on that pasture.

Vegetation. — Very few varieties of trees are represented in the Koryak territory. Of the coniferous trees there are two species, — the East Siberian larch-tree (*Larix Dahurica* Turcz) and the shrub of dwarf cedar or stone-pine (*Pinus pamila* Pall.), which represents a certain variety of the Siberian cedar (*Pinus cembra* L.). Its seeds, small edible nuts, and cones, are the same as those of the Siberian cedar, from which they differ only in size. Dr. Slunin thinks that the Siberian fir (*Picea obovata* Ledb.) is also to be

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1 This trip proved very advantageous. Had I waited in Gishiga for the winter roads to become passable, I should not only have lost two months, but I should also have missed the opportunity of seeing the autumnal religious festivals described in Part I, Chapter V, and which heretofore were unknown.


3 While the Siberian larch-tree (*Larix Siberica* Ledb.) occurs west of the Yenisei River, the Dahurian larch-tree (*Larix Dahurica* Turcz) grows east of it (see Professor S. Kozhitsinsky, The Vegetation of Russia, in The Russian Encyclopedia of Brockhaus and Ephraim, Vol. XXVII, p. 45).

4 See Slunin, I, p. 306.
found, though very seldom, on the northern coast of the Okhotsk Sea; however, I never observed that tree in the region of Gishiga and Penshina Bays.

Of the deciduous trees there are the following species,—three kinds of birch (*Betula alba* L., *B. Ermanii*, and *B. nana*), the fragrant poplar (*Populus suaveola* Fisch.), the aspen (*Populus tremula* L.), and two kinds of alder (*Alnus incana* Wild. and *Alnus fruticosus* Ledb.). In addition to these species of trees, there are to be found in the river-valleys a few varieties of willows, which frequently reach quite a luxuriant development and height, having thick, tree-like trunks.

While in all other parts of Siberia, particularly in the north, the coniferous trees preponderate over the deciduous trees, we meet here mainly the above-mentioned deciduous trees, which furnish less durable material for building and manufacturing purposes, and which, when used for fuel, do not produce as much heat as do the coniferous trees.

In the absence of other species of coniferous trees, except the abovenamed *Larix Dahurica* and *Pinus pumila*, — such as the Siberian spruce, the pine, the two species of fir, *Picea obovata* Ledb. and *Picea Ajanensis* Fisch., which are represented in the southern region of the Okhotsk Sea,¹ — the Koryak territory (namely, the northern part of the Okhotsk Sea and northern Kamchatka) does not differ from the arctic strip of Siberia west of the Stanovoi Ridge. In the Yakut Province the northern spruce, so characteristic of the woods of the southwestern parts of eastern Siberia, disappears north of Olekminsk, and the Verkhoyanski Ridge forms the northern limit, which the pine and fir do not cross. East of the Stanovoi Ridge the spruce disappears near the Uda River, and the pine and the fir reach to the north as far only as Okhotsk. In Kamchatka the Siberian spruce (*Abies Siberica* Ledb.) and the fir (*Picea Ajanensis* Fisch.) are to be found in the extreme southern part only, along the Kamchatka River and in Kronotzki Bay.²

In the distribution of the larch and of the dwarf cedar the Koryak territory differs materially from the arctic region of Siberia west of the Stanovoi Ridge. There the larch (*Larix Dahurica* Turcz) is the tree that forms the northern limit of woods, — like the American fir of North America, — and also reaches highest up on the mountains; there we find the poplar and the aspen only in the river-valleys far to the south of the northern tundra; and in a similar manner the stone-pine or creeping cedar (*Pinus pumila* Pall.) covers the slopes of mountains at the source or at the middle course of the rivers of the Yana-Kolymsk region, without extending far northward. Here, however, in the Koryak territory, the deciduous varieties, the poplar and the aspen, are the trees found to form the limits of arboreal growth (the southeast-

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¹ See Slunin, p 269. According to Korshinsky, there are the varieties *Picea excelsa*. Link and *Picea Ajanensis* Fisch. (l.c., p. 46).
² See Krasheninnikoff, I, p. 44; Slunin, I, p. 306; Korshinsky, p. 46, map; Dittmar, p. 765.
ern border-line, in the direction of Bering and Okhotsk Seas), while the dwarf cedar is found highest up on the mountains.

In the Koryak territory the larch disappears at a considerable distance from the forest-line. Vast larch-forests may still be found upon the eastern slopes of the Stanovoi Ridge and near the heads of the rivers and their tributaries flowing into the bays of the Okhotsk Sea, such as the Nayakhan, Varkhalan, Gishiga, Paren, and Penshina. On the Varkhalan and Gishiga Rivers, larch-trees, sometimes mixed with poplar and aspen, are to be found, even as far down as their mouths; but on the Gishiga, at about thirty miles from the mouth, they are scant and puny. They follow both banks of the river in almost regular rows, so that on the lower course of the Gishiga one may follow its windings by these scant rows of trees standing out amidst the marshy tundra. However, at a distance of about eighty miles up the Gishiga, large larch-trees with trunks may be observed. One trunk collected by me measured 63 cm. in diameter. East of the lower course of the Gishiga, down to the coast of Bering Sea, the larch-tree is not found.

On my trip from the mouth of the Penshina River up to the north, to the Palpal Ridge, I observed enormous poplar and aspen forests in the river-valleys, but saw no larch-trees. Toward the south the larch may be found again, according to Dittmar, only in southern Kamchatka, at the middle part of the Kamchatka Ridge. But even there it does not flourish down to the sea, being surrounded on all sides by woods of deciduous trees. The proximity of Okhotsk and Bering Seas proves to be unfavorable to arboreal growth in general, and to that of the larch in particular, which, in the river-valleys of the Okhotsk Sea, retires from the shore in the direction of the Stanovoi Ridge.

The larch, which can endure the cold of $-70^\circ$ C. in Verkhoyansk, is unable to withstand the destructive influence of snow-storms and the sudden formation of ice on its trunk after penetrating dampness. For the same reason, poplars and aspens disappear at a distance of from twelve to seventeen miles, or more, from the seashore. Only when protected by the banks of the river-valleys or hills do we find them nearer to the shore.

The stone-pine, growing upon hills and mountain-slopes, attains in the Koryak territory higher altitudes than other varieties of trees. According to my observations on the Taigonos Ridge, the stone-pine reaches an altitude of about five hundred metres absolute height; while the deciduous trees, such as poplar, aspen, and alder, remain far below, in valleys and gorges. It should be added, however, that on the Stanovoi Ridge proper, even on its eastern slope, the larch marks the vertical limit of forest-growth.

I have entered in my travelling-diary that on the eastern slope of the Stanovoi Ridge, in the valley of the upper course of the Gishiga River, the poplar and aspen disappear at the height of 515 metres; the stone-pine, at
the height of about 540 metres; while the larch reaches as high as 585 metres.\(^1\) Travellers who have visited northeastern Siberia usually describe the stone-pine as a low, creeping shrub. Slunin says\(^2\) that the stone-pine does not reach more than three feet in height. In most cases this is perfectly true; but on the Taigono Ridge and on the elevated right bank of the Paren River we saw stone-pines six and seven metres high with a trunk-diameter of forty centimetres, and over. In some places these trees actually formed a dense forest. Sitting on our horses, we could reach out with our hands and pull down the cones filled with nuts, but from the lower branches only. Hence the term "creeping" or "dwarf" cedar could hardly be applied to those particular specimens of the stone-pine.

It may be said, in general, that the territory of the Koryak, especially the inhabited places near the seashore or the tundra, are scantily supplied with trees. Vast forests — deciduous, or coniferous mixed with deciduous varieties — are to be found, as we have seen, on the eastern slopes and branches of the Stanovoi Ridge. Farther east, the forests are confined to river-valleys, and some groves may be found on mountain-slopes and hills. But the forests become still scarcer as we approach Bering Sea. East of the Gishiga, the spaces between the river-valleys are either treeless tundras with a few thin shrubs of willow, alder, Erman birch, mountain-ash, blackberry, and hard carices scattered here and there, or mountains whose slopes are overgrown with dwarf cedar.

Thus the western slope of the Taigono Ridge, the Parapol Valley (which passes in the north into a tundra plain), and the elevated tundra of the Palpal plateau-land, constitute more or less vast tundras covered with moss, and are suitable for reindeer-breeding. The mouths of the rivers and the rocky seashore, where the Maritime Koryak live, are covered with grass, among which there are some gramineous varieties, particularly the *Elymus mollis* Trin., which plays an important part in the Koryak household, and which sometimes reaches the height of a man. Here on the littoral strip we observe a few varieties of sedge-grass, which is used in sacrificial ceremonies, the edible willow-herb (*Epilobium angustifolium*), two varieties of nettle (*Urtica dioica* L. and *Urtica angustifolia* Lebd.), which are used for making thread for plaiting sacks, bags, and nets. For other useful plants the reader is referred to Chapter VIII and X.

The lack of woods at the river-mouths is compensated for by the drift-wood carried down from the upper and middle course of the rivers during

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\(^1\) It is of interest to add, in connection with this, Slunin's description (I, p. 194) of the eastern slope of the Kamchatka Ridge, between the Karagha and Dranka Rivers, from the coast-line to the summits. He says, "First there is the rolling, wet, treeless tundra, the tundra of the reindeer; a little higher follows a wide strip of stone-pine tundra; still higher up, the mountain-slopes are thickly overgrown with Erman birch, the mountain-summits are sloping and treeless". From this description we draw the conclusion that in that region *Betula Ermanii* forms the vertical limit of arboreal growth on mountains.

\(^2\) See Slunin, I, p. 306.
high water in spring. In some places logs are piled up several feet high on the banks of the rivers. These are mostly varieties of deciduous trees,—poplars and aspens. This timber is not very durable for building-purposes. Boats hollowed out of a poplar-tree will last only about three years. In like manner the poplar-logs used for poles in underground houses have to be replaced by new ones every few years; while among the Yukaghir on the Kolyma River, who use larch (which grows there in profusion) for building, I saw log-cabins and storehouses built a hundred years ago, the logs of which were still perfectly solid.

At the mouth of the Nayakhan, Gishiga, and Paren Rivers, and partly of the Penshina River, we found among the driftwood a small quantity of larch, but farther to the east it is no longer found. According to the natives, the larch may be found at the upper course of the Penshina River, which is the longest of the rivers of the Koryak territory. Larches carried away by the rising of the water in spring are often thrown out on the banks long before they reach the mouth of the river.

The agents of the Russian-American Company, which was to build a telegraph-line,¹ used to cut down for telegraph-poles, along Penshina River, near the place where the Oklan empties into it, only poplar and aspen trees. The Koryak of Alutor have to be content with slender deciduous trees for their buildings; while the Kerek have no timber at all, the short rivers of their country flowing along absolutely treeless banks. Neither can they burn their dead (see Part I, p. 104); and their underground houses are made of rods and fragments of wood covered with earth and snow (see Chapter IV).

Mr. Kennan’s opinion, that the Koryak build their houses of driftwood brought in by the sea, is erroneous. The sea washes very little driftwood to the shores, which are too steep and rocky, at least in the bays of the Okhotsk Sea, to permit any driftwood to accumulate upon them. When I went from the mouth of the Gishiga to that of the Nayakhan in a boat (about one hundred miles), I saw very little driftwood on the shore. In the little bays where we stopped to rest or to seek shelter from inclement weather, we found a sufficient quantity for a wood-pile to make a fire, but not enough for buildings. Besides, the logs were so broken and shattered, that they could hardly be used in a building.

The driftwood which the Koryak use for building-purposes and for fuel is found by them on the river-banks. The timber thrown out by the currents forms, in some places, piles a few metres in height. The driftwood is carried

¹ Kennan mentions that the larch is to be found on Penshina River at the place where the agents of the Company felled trees for telegraph-poles, but Maydell’s information (1, pp. 230, 575; II, pp. 245, 247) on this subject is more reliable. On his way from Markova to Gishiginsk he saw a few sporadic, crooked larches along Penshina River, only near the Penshinsk settlement; then along Gishiga River up to the point where the Black (Chimak River) empties into it, he met with no more larches. During my trip from Kamenskoye on the Palpul, I turned off from Penshina River to the right, without reaching Penshinsk. On my way I noticed in the river-valleys only poplar and aspen trees, which on the Penshina River can be found almost at its very mouth.
off from the heads of the rivers in the spring, when the ice breaks up, by
the strong current. The ice at the upper course of the river presses in its
movement on the ice farther down the course, which has not yet broken up,
and forms ice-packs, which raise considerably the level of the water, and
widen the river-bed. When the stationary ice is unable to withstand the press-
ure longer, it breaks with a crash; the ice-floes uproot the trees growing on
the banks, and they are washed away by the rapid current, and thrown out
on the bank somewhere below, after the river has assumed its former level.

It often happens that the ice-floes will tear from the bank a piece of
solid earth with the trees growing on it, and carry it off to the sea. I had
an opportunity to observe such floating islands at the time when the ice was
breaking up on the Kolyma River. Such floating piles are carried from place
to place by the ice-floes; so that, at the mouth of the river, one can find
trunks which have been travelling for several years from the head of the
river to its mouth.

Fauna. — From an ethnographical standpoint we are interested in only
those species of animals which bear some relation to human activity. With
reference to those we shall speak at greater detail in the chapters on domestic
animals and the trades. We will confine ourselves here to a few general remarks.
The land-mammal fauna are represented by a small number of species.

Slunin enumerates\(^1\) forty-three species of land-mammals in the Okhotsk-
Kamchatka region; but from this number those species are to be excluded
which are to be found in the southern part of the Okhotsk region, and not in
the Koryak territory, such as *Meles taxus* Sch., *Mustella Siberica* Pall., *Canis

Of the sea-mammals, Slunin enumerates\(^2\) twenty-three species; but in
this number are included *Rutina borealis* Stell., which is extinct, and *Enchy-
dris marina* Schr., which is not to be found at present in the Koryak seas.
Out of the nine varieties of whales enumerated by Slunin, perhaps four are
to be met with at present.

According to Professor Allen,\(^3\) the mammal fauna of eastern Siberia,
including the Koryak territory from which the zoological collection for the
American Museum was mainly obtained by the Jesup Expedition, "so far as
genera are concerned, consists of exclusively holarctic types, represented in
both arctic America and in Eurasia, but in more or less differentiated forms
on the two continental areas. A close relationship between the forms of
boreal mammals inhabiting the two continents is beyond question, — a relation-
ship so intimate that it could only have been brought about by a former
land bridge connecting the two areas."

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\(^1\) Slunin, II, pp. 84—86.

\(^2\) Ibid., II, p. 86.

It is hardly necessary to say that the species of fish caught by the Koryak are the same as those on the American side of Bering Sea, but they differ from those of the arctic rivers west of the Stanovoi Ridge. There we find mainly the Coregonidae, which ascend the rivers from the polar sea, while in the Koryak waters the Salmonidae (especially of the genus Oncorhynchus) are of greatest importance.

Influence of Climatic Conditions upon Progress. — From this brief description of the nature of the region, it may be seen to what extent its form of culture depends upon surrounding conditions. It can hardly be expected that under such a climate the manner of existence can be materially changed. In the far north, material culture depends more upon the degree of latitude than upon human efforts. Agriculture is impossible, because the earth does not thaw out to a sufficient depth; the soil is mostly marshy; and the temperature is too low for the growth of cereals.

In 1901 there were in Gishiginsk only seventy-eight days without frosts, which is not a sufficiently long period for the growth of cereals. This time is in reality still more curtailed, since the growth of cereals does not begin, or stops if already begun, till the temperature is somewhat above the freezing-point. Botanists regard the temperature above 6° C. as a necessary one for the growth of cereals.

Taking into consideration the poor quality of the grasses, and the enormous expanses covered with moss, lichen, and marshes, cattle-breeding as an industry is also impossible. As we shall see below, the efforts of the Russian Administration to develop cattle-breeding among the Russianized Maritime Koryak of Kamchatka and the Okhotsk district — that is, in the more southern parts of the territory — has met with very little success.

The fur-trade cannot be regarded as a means of improving the general welfare of the natives, since, aside from the fact that the profits derived from it remain in the hands of unscrupulous traders, the number of fur-bearing animals is rapidly decreasing, owing to their ruthless destruction.

Fishing and the hunting of sea-mammals, as indicated above, can be carried on in the summer only; so that during the long winter the Maritime population have to depend exclusively upon their summer supplies.

Reindeer-breeding, though affording a more reliable source of sustenance to the wandering Reindeer people than that offered by hunting and fishing to the Maritime people, is still in a most primitive state. The type of a Reindeer household has so far remained unchanged, contact with Russian civilization for a century and a half not having exercised any influence upon it. This primitive state of the material life of the Koryak, left almost intact by outside influence, determines the primitive state of their mental culture.
II. — THE KORYAK TRIBE.

The Name "Koryak". — The Koryak do not call themselves by this name, and the exact origin of the word is unknown. Some travellers are inclined to connect the name with the Koryak word qoya'ni or qora'ni, meaning "domesticated reindeer." Mr. Bogoras thinks that the Cossack conquerors created it from the word qora'ki, taken from the southeastern Koryak dialect, and meaning "(being) with reindeer." On the other hand, the Yukaghir call the Koryak Kere'ki or Kere'ke (pl., Kere'kepul). It is difficult, therefore, to tell who first gave the name "Koryak" to this tribe. It only remains to be said that there is no other word in the Yukaghir language to indicate the Koryak. Similarly, the origin of the name "Ke'rek" is unknown. The Ke'rek constitute the eastern branch of the Maritime Koryak, occupying the country between Cape Anannon and Cape Barykoff, and the name has been borrowed by the Russians from the Chukchee.

The following considerations seem to favor the supposition that the name "Koryak" was not invented by the Russians, but was borrowed from the tribes contiguous to the Koryak. In former times the Maritime people constituted the majority of the Koryak tribe; while the Chukchee, particularly those with whom the Russians came in contact, belonged mainly to the Reindeer branch, which at present constitutes seventy-five per cent of the entire tribe. The Russians would therefore have more reason to call the Chukchee a "Reindeer people" than the Koryak. At the same time, the nearest neighbors of the nomad Reindeer Koryak were, besides the Chukchee, on one side the Yukaghir living near the sources of the Kolyma River, and on the other side the Kamchadal, who had no nomad members among themselves. If the name "Koryak" is connected with the word qora'ki ("being with reindeer"), this name may have been given to the Koryak by the Kamchadal or the Yukaghir. It may be noted here that the Yukaghir word Kere'ke, or Kere'ki, is evidently the Koryak word qora'ki, in which the vowels a and o are changed into e, according to the Yukaghir rules of harmony of sounds.

From a comparison of the words which have apparently some connection with the formation of the name, it may be concluded that "Ko'ra" would be the more correct spelling of it; but I retain its modified transcription "Koryak".

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2 See Patkanov, p. 66.
(evidently adapted from the Russian spelling of the name, коряк), since that spelling has been adopted in ethnology.

The Koryak themselves have no common tribal name, unless we consider the word vo'ye'mtivola'n or vo'ye'mtvolu ("people," "men") as a name. By this term the Reindeer as well as the Maritime Koryak call themselves, and it corresponds to the Chukchee ora'w'elat ("men"). The Maritime Koryak call themselves, and are called by the Reindeer branch of their tribe, Na'ma'lān (pl., Na'malū), Na'melān (pl., Na'melū), or Ni'mla'n (pl., Ni'mlū), according to the different pronunciation of the Koryak dialects. These words signify "an inhabitant of a settlement or village," and are from Na'manam, Na'mnem, or Ni'mmin ("habitation"). The Maritime Koryak call themselves also Na'memkin vo'ye'mtivola'n ("a man from a habitation") or Anqala'n ("maritime dweller"), from a'nqa ("sea").

According to Steller,1 the Reindeer Koryak, the nearest neighbors of the Kamchadal, called the latter Namālān, "since they were dwellers of underground houses." But, as we have seen before, this name means simply "an inhabitant of a settlement," for it is evident that Steller's spelling namālān corresponds to our Na'malān. According to Wrangell,2 the ancient inhabitants of underground houses found by him on the Arctic shore were called by the Chukchee Namollo or Onkilon; but these names also, it seems to me, are but the incorrectly recorded Chukchee-Koryak words Na'malān and Anqala'n, signifying "an inhabitant of a settlement" and "a maritime dweller."3

The Reindeer Koryak, like the Reindeer Chukchee, are called Ca'utu (dual, Ca'ucenet; pl., Ca'ucenni). Krasheninnikoff's assertion,4 indorsed since by other travellers, including Dr. Slunin,5 that the Maritime Koryak call themselves Ca'utu, and the Reindeer, Tumu'gutu, is apparently based on a misunderstanding; for Ca'utu means "rich in reindeer,"6 and tumu'gutu (sing., tum'gim), "comrades," and "kinsmen, relatives."

The Chukchee call the Koryak Ta'n'nātān; and the latter, in turn, call the Chukchee by the same name, with the only difference that the Chukchee form of the plural, Ta'n'nit,6 is used in the Koryak language as the dual. The Koryak plural would be Ta'n'nu. The Chukchee has no dual. According to the explanation of the Koryak, ta'nīn means "a warrior." It is curious

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1 Steller, p. 240.  
2 Wrangell, II, pp. 255, 333.  
3 From the fact that we find among the Eskimo of northwestern America the same kind of underground houses as those the ruins of which have been found along the shore of the Arctic Ocean from Cape Erri or Shelagaski to Bering Sea, Wrangell draws the conclusion that the former inhabitants of the Arctic shores were Eskimo. On the same basis, Markham (On the Origin and Migrations of the Greenland Esquimaux, in The Journal of the Royal Geographical Society, London, 1865, Vol. XXXV, pp. 87—99) draws his conclusion regarding the emigration of the Eskimo from Asia to America. This supposition is quite as groundless as is the assumption that to the Eskimo alone belong the names which are applied by the Chukchee, as well as by the Koryak, to people in general living in permanent settlements. (See Chapter IV.)  
4 Krasheninnikoff, II, p. 6.  
5 Slunin, I, p. 376.  
that, in the Nishne-Kolymsk dialect of the Yukaghir, the Chukchee are called Kude'je, which also means "warrior."¹

Separate branches of Reindeer and of Maritime Koryak give to each other territorial names, according to their place of wandering, the point of the horizon or the rivers where their settlements are situated. For instance, the Reindeer Koryak of the Taigonos Peninsula call themselves Taigonototolu ("Taigonos people"), from the Russian word Taigonos (Тайгонозо);² the inhabitants of the village of Kamenskoye are called Va’ikenalu ("Kamenskoye people"), from Va’ikenan, which is the Koryak name of that village; the inhabitants of the village of Nayakhan are called E’igivalu ("people from the west"), from E’igival ("sunset," "west"), the Koryak name of that settlement. The Koryak of Gishiga call the Koryak of Kamchatka, as well as the Kamchatel, I’vtala’u (sing., I’vla’n or Ivtala’n), "the lower ones," "those living below." According to an oral statement by Mr. Bogoras, the Kerek call the Maritime Koryak living south of them by the same name.

**Physical Type.** — As yet but very little of the anthropological material collected by the Jesup Expedition in reference to the Koryak has been worked up; but I shall make use here of some data from the essential measurements of the Koryak worked out by Mrs. Jochelson,³ as well as of observations from the anthropometrical notes of the Expedition.

The Koryak are below the average height, and indeed may be said to be of rather short stature. From the measurements of 173 men and 133 women, we found that the average height for men is 1596 mm. (the maximum, 1700 mm.; the minimum, 1490 mm.), and that the average height for women is 1491 mm. (the maximum, 1610 mm.; the minimum, 1380 mm.). The average height of the Koryak of northern Kamchatka (based on measurements of 24 men and 19 women) is 1620 mm. for men (the maximum, 1710 mm.; the minimum, 1530 mm.) and 1530 mm. for women (the maximum,
1600 mm.; the minimum, 1430 mm.). Thus we might consider the Koryak of Kamchatka as below the average stature, according to the accepted standard; but we must not be too hasty in drawing such a conclusion, since the number of measurements taken was so small. There is the more reason for this, since the Kamchadal, with whom the southern Koryak have been intermixed to a degree, show a lower average height. The measurements of 63 Kamchadal men and 65 women give the average height of their men as 1601 mm. (the minimum, 1740 mm.; the maximum, 1470 mm.), and of their women as 1496 mm. (the maximum, 1600 mm.; the minimum, 1400 mm.). To some travellers the Koryak gave the impression of being a tall people. This is apparently owing to their strong constitution, and to the fact that their neighbors, the Lamut and Yukaghir, are of very small size. No fat and stout people are found among the Koryak, such as are met with among the wealthy, cattle-breeding Yakut or Buryat; neither are there such lean, lank figures among them as among the Tungus and Lamut reindeer-riders.

On the whole, the Koryak are well built. They have a well-developed bone-structure, broad shoulders, and good muscles. Among the Maritime Koryak, one may often see well-shaped figures; as, for instance, among those of the Big Itkana settlement. The Reindeer Koryak, however, make a less favorable impression in this respect. They are clumsy in appearance, their build is not symmetrical, and their motions are angular; but in taking care of the herd they are nevertheless very dexterous and alert. All Koryak, as a rule, are slow; and they talk in a lazy manner, without hurrying, unless they are excited.

The cephalic index of the men is 80.3 (maximum, 86; minimum, 75), and of the women 80 (maximum, 86; minimum, 75). The greatest percentage falls to the group between 78 and 82. The average cephalic index is below that of the Mongolian-Turkish tribes.1

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1 The above figures relate to men between the ages of twenty and fifty years, and to women between the ages of eighteen and forty years. In all, measurements were taken of more than five hundred Koryak (men, women, and children), and they are the first measurements ever taken of them. Dr. Slunin tells us (I, p. 378) that all his attempts at taking measurements of the Koryak were unsuccessful. He always met with a refusal. Only among the Reindeer Koryak of the Palpal and among some Maritime Koryak of the village of Kamenskoye did we meet with a reluctance to being measured. I cannot say that the others submitted to the measurements with great eagerness; but they were generally tempted by presents, and then regarded the proceedings with amusing curiosity. While they were wearing the wooden masks (see Part 1, p. 80, and Plate V., Fig. 2, opp. p. 74), the young men of the Paren settlement acted in pantomime the process of taking measurements. By means of a stick and various gestures one masked man would take the measurements of another, but the young people came up without objection. Among the Tsigonos Koryak I owed much of my success to the influence of their elder, a bright and sharp fellow (see Plate XIV, Fig. 1). He assured the Koryak, half in jest and half in earnest, that their heads and bodies were being measured in order to get caps, boots, and coats which the Czar was to send them the next year. However, he himself refused for a long while to allow me to take his measurements.

2 See Jochelson, Zur Topographie des weiblichen Körpers etc., p. 6.

3 See Jochelson, Ibid., pp. 11—14.
In the same manner, the maximum breadth of face of the Koryak is below that of the Mongolian-Turkish tribes. The average breadth of face of the men is 146.2 mm. (maximum, 160 mm.; minimum, 132 mm.); that of the women, 139.5 mm. (maximum, 151 mm.; minimum, 126 mm.). The measurements of the Yakut taken by us give the average breadth of face of the men as 150 mm., and of the women as 142 mm.¹ The face is generally oval, with the corners of the lower jaw strongly developed, and the chin narrow. A number of types are shown on Plates xiv–xviii.

The prevailing color of hair among the men is black. Out of 282 men, 220 (78 per cent) had black hair, 59 (20.9 per cent) had brown hair, 2 (0.7 per cent) had light-brown hair, and 1 (0.3 per cent) was a blond. The prevailing color of hair among the women is likewise black, but the percentage is considerably lower than it is among the men. Out of 185 women, 98 (53 per cent) had black hair, 78 (42 per cent) had brown hair, 8 (4.3 per cent) had light-brown hair, and 1 (0.5 per cent) was a blond.² Gray hair is seldom seen. Out of 14 old men of an estimated age of from fifty to seventy years, only 2 had gray hair. There was not a single bald person among the entire number of persons whose measurements were taken; but, according to the myths, bald-headed people may be found among the Koryak, though seldom.³

All of the 282 men had straight hair; while out of 179 women, 3 had wavy hair: the hair of the rest was straight. Mr. Bogoras says that the hair of the Chukchee, as well as that of the Koryak, is often wavy or even curly.⁴ The above statement refers apparently to the Koryak of Bering Sea. I was told that among the Koryak of Alutor there are people with curly hair; but the Koryak of the Pacific coast whom I saw had straight hair.

The prevailing color of eyes is dark brown. Out of 257 men examined, 189 (73.5 per cent) had dark-brown eyes; 62 (24.2 per cent), light-brown eyes; 4 (1.5 per cent), black eyes; and 2 (0.7 per cent), gray eyes. Out of 166 women, 151 (90.9 per cent) had dark-brown eyes; 12 (7.2 per cent), light-brown eyes; and 3 (1.8 per cent), black eyes. Thus we see that the number of men with dark eyes exceeds that of women with hair of the same color, while dark-haired women are much more numerous than dark-haired men. Among the men we find a larger percentage of persons with eyes of a light color.

The form of the Koryak eye is not of a marked Mongolian type, still it is narrow. The outer corners are raised, and the upper fold is well

¹ See Jochelson, Zur Topographie des weiblichen Körpers etc., pp. 17–19.
² Although the genealogical information obtained about the blonds showed that their fathers and mothers were Koryak, it is fair to presume that there is an admixture of Russian blood. Moreover, the eyes of the woman are light brown, and those of the man are gray, neither of which colors is ever met with among the Koryak.
³ Some myths tell how Tig-Raven or other people, who have been for some time in the anus or stomach of a man or an animal, grow bald (see Part I, pp. 169, 293).
⁴ Bogoras, The Chukchee, Vol. VII of this series, p. 34.
Types of Koryak Men.

The Koryak
Types of Koryak Men and Women.

The Koryak.
Types of Koryak Women.

The Koryak.
KORYAK BOY AND GIRL.

The Koryak.
developed. The cut of the eye, nevertheless, is wider than that of the Mongolian. The lower eyelid seldom forms a straight line, which produces the effect of a narrow Mongolian eye. With rare exceptions it is more or less arched. Frequently the fold over the upper lid is but slightly developed; and instances are found of a wide-open eye, like that of the Caucasian race. For instance, the eyes of the boy (Plate xvii, Fig. 1) and of the woman (Plate xvi, Fig. 2) approach this type.

The eyebrows of the Koryak do not form a regular narrow line or arch. They usually grow irregularly, forming an unsymmetrical broad line, and meet on the glabella above the bridge of the nose. This gives a severe expression to the face; and at a distance the eyebrows appear to be thick and heavy. The eyelashes are very thin, and hardly perceptible.

The measurements of the nose have not been worked up as yet; and so far, I can only say that the nose is of moderate width. Its profile is depressed above, straight lower down. The bridge of the nose of men is higher, the nose is longer, and the nostrils are less frequently turned upward, than is the case with the women. The short, low-bridged nose of the women, with a wide bizygomatic diameter of the face, gives, in most cases, the impression of the flat Mongolian face. A projecting nose with a high bridge is more frequently met with among men than among women, but I never saw an aquiline nose.

The growth of hair on the face is scanty. As statements from memory, based on personal impressions, are liable to be misleading, I have taken the data pertaining to this point from the measurement notes.

Out of 185 men over twenty years of age, 66 (35.7 per cent) had no growth of hair on their faces; 32 (17.3 per cent) had removed it by shaving, clipping with a knife, or by pulling it out; 37 (20 per cent) had a mustache only; 37 (20 per cent) removed the whiskers, leaving the mustache; and 13 (7 per cent) had whiskers and mustache. The hair of the mustache is usually thin, short, and straight. A long, thick mustache is seldom found. Age has nothing to do with the wearing of a mustache. Young men often have a mustache, while old men will pull it out. As a rule, hair does not appear on the face till rather late in life. More than half the persons without any growth of hair on the face were from twenty to twenty-five years of age, and some of them may yet grow a beard.

Men, after reaching the age of forty, usually allow the beard to grow, although the only two old men mentioned in our notes, who had gray hair (one was said to be sixty, and the other seventy years old), had mustaches only, and were in the habit of pulling out their whiskers. Usually the beard consists of a short, scanty growth upon the chin, though sometimes there are stray tufts of hair on the cheeks also. I saw only one Koryak of Penshina Bay with a more or less thick round beard,—an old man of the village of
Ma'meč; and he gave me the impression of being a Russian-Koryak half-blood. I heard that the Alutor people have a more abundant growth of hair on their faces; but those whom I saw did not differ in this respect from other Koryak.¹

It is quite impossible to define the shades of color of the skin without the assistance of chromatic tables, which we did not have with us; so we can speak on this point only in a general way.

The characteristic coloring of the Koryak skin is of the bronze scale of tints, ranging from light brown to copper-red and dull brown, and is darker on the exposed parts. The skin of the women is of a somewhat lighter shade. It is easy to distinguish between the color of skin of the Koryak and that of his neighbors, the Tungus and the Russians. The Koryak skin seems to me to lack entirely the yellow pigment of the Tungus skin, as well as the pale white of the Russian. In comparison with the Koryak, the Tungus appeared white to me.

I observed an interesting illustration of this. In the summer of 1901 I was at the mouth of the Avekova River, where a few Koryak and Tungus families were hunting and fishing. Once when I was present at a contest between two boys, a Tungus and a Koryak, with their bodies stripped to the waist, I was struck by the whiteness of the body of the Tungus boy compared with that of the Koryak. The photograph which I took then illustrates this difference well (see Plate xvm, Fig. 2).

I was often struck by the light color of the skin of the Tungus (at least, the northern members of the tribes with whom I came in contact), particularly of their women and children. When I examined their skin closer, and compared it with mine or with that of my European fellow-travellers, I discovered that the Tungus skin is actually a light yellow (the color of a lemon-rind), or even somewhat lighter, while the skin of northern Europeans is of a bluish-milky or rosy-white color.

The bright-red cheeks so often seen on young Tungus women are particularly misleading as to the character of their complexion. The greater part of the northern Tungus seen by me were of a dark-yellow or dull earthy hue.

The above description of the color of the Koryak skin is as accurate as it is possible to give it without the aid of tables.

The tribes with whom some branches of the Koryak formerly intermarried, and do even at present, are the Chukchee, Kamchadal, Tungus, Russians, Yakut, Chuvantzy, and Yukaghir. The Reindeer Koryak of the Palpal, at the southern border of the Chukchee territory, intermarry mainly with the Chukchee. In northern Kamchatka the Maritime Koryak have long inter-

¹ It is of interest to note that the conqueror of Kamchatka, Alassoff, in his report, characterized the Koryak as a bearded people. Barrett-Hamilton and Jones (A Visit to Karaginski Island, Kamchatka [Geographical Journal, London, 1898, Vol. XII, p. 290]) tell that some of the men of the Karaga village were bearded, and they regard this as due to a mixture with Russian blood.
Fig. 1. Koryak Children.

Fig. 2. Tungus Boy and Koryak Boy Wrestling.

The Koryak.
married with the Kamchadal. In olden times the Koryak on the border of the ancient Tungus-Koryak territory, near Tauysk, undoubtedly intermarried with the Tungus. Of late years the Reindeer Koryak of the Gishiga and Varkhalam Rivers have intermarried with Tungus women, and *vice versa*. Since the close of the eighteenth century some of the Russianized Maritime Koryak of the Okhotsk Sea in the villages of Yamsk and Tumanskoye have intermarried with the Yakut.

Russo-Koryak half-breeds are found in the Russianized settlements of Nayakhan, Yamsk, and Tumanskoye, and in Russian villages of that region. The Koryak intermarried with the Chuvantzy and with the Yukaghir at the time when they were waging war with them, and took their women prisoners.

*Mortality, Fecundity, and Extreme Age.* — To get an idea of the rate of mortality among Koryak children, I copied from the records of seventy-one married women whose measurements we had taken, the number of their living and dead children. Of 278 births, 160 individuals lived, and 118 (42 per cent) were dead. The ages of the dead children are not indicated; but, since about half of the mothers were not quite thirty years old, the children must have been young when they died. As everywhere, so among the Koryak, most of the children that do not survive die during the first year of their lives. This may serve as an explanation of the Koryak belief that children's souls are timid, and that therefore children are more subject than older persons to attacks from evil spirits. For this reason, children are placed under the special protection of the household penates. Notwithstanding this, the mortality of children is enormous in comparison with that of civilized nations. This is the more remarkable, since the Koryak women nurse their children, and not infrequently continue to do so until the children are three years of age. As is well known, the great mortality in civilized countries among children in their first year is due to artificial feeding. It should be noted, in connection with the number of deaths among the Koryak children, that the records were taken by me just after an epidemic of measles, which had proved very fatal to children of all ages. The mortality of children is the same among the Reindeer as among the Maritime Koryak. Dividing the above number of children into two groups, according to their origin, I obtained the same coefficient of mortality in both groups. Apparently the difference in the mode of life of these two groups has no effect on the mortality in childhood.

In order to arrive at some conclusion concerning the fecundity of women, I singled out from the above number of women all those over thirty-nine years of age. Koryak women grow old at an early age, and forty years in most cases may be considered as the age-limit for procreation. Thus I found

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1 Still-births and miscarriages are not included here. 2 See Part I, p. 101.
that twenty-two women of from forty years of age and over had 120 children,
— one had 1 child; five had 3 children each; four had 4 each; three had
5 each; two had 6 each; one had 7; three had 8 each; one had 9; one
had 10; and one had 11. If we assume that all these women are unable
to bear any more children (which evidently cannot be said with certainty),
we shall then have an average of 5.5 births of living children to every
woman, a considerable coefficient of female fecundity.

Of the total number of women whose measurements were taken, 13 per
cent had never borne children. However, a part of these women were the
wives of bigamists both wives of whom were infecund, and in such cases the
husband may have been the cause of the sterility.

The accounts given by some travellers, of the extreme age reached by
the Koryak, are much exaggerated. We could ascertain the age of the
Koryak only approximately, by judging from their appearance, for they
themselves do not know their age.

When conversing with old people, we tried to call up some event of their
childhood, or of some other period of their life, which had left an impression
on their memory. For instance, we tried to ascertain who was the chief
of the district at the time of a person's marriage. In most cases the recollec-
tion of a Koryak regarding the events in his life is extremely confused.

In making our records we found, out of 204 men, only 13 whom we
judged to be more than fifty-five years of age, and but one very old man,
a Reindeer Koryak. He was not less than seventy years old, according to
recollections of his children, and he may have been older. He was no longer
able to drive reindeer, and was brought to us by one of his grandsons. Old
women are met with even less frequently than old men.

On the basis of the above data, it is difficult to give a definite answer
to the question, whether the tribe is increasing in numbers or not. I shall
touch upon this point in Chapter III; but, speaking generally, the Koryak
population at present is increasing in the intervals between epidemics and
famines. Epidemics especially carry off the increase of many years. Some
Koryak settlements, those which have been or are at present subjected to
the process of Russianization, are perceptibly decreasing in numbers.

There is no reason to suppose that the Reindeer Koryak — perhaps
with a few exceptions — are decreasing in numbers. They come less in
contact with the Russians and with civilization in general than do the Maritime
Koryak; they are better provided with means of subsistence, and have there-
fore preserved to a greater degree their primitive energy, so indispensable
in a struggle with the adverse conditions of arctic life. There is no doubt
that the Koryak were not very numerous in the past. That which is now
accomplished by diseases imported by the Russians was effected in olden'
times by wars and famines.
The Koryak tribe, taken as a whole, is at present, after the Chukchee, the healthiest of all the tribes of northeastern Siberia. Of the influence of civilization upon them, I shall speak in the last chapter.

The Senses. — The Koryak discriminate between people of their own tribe and those of another by their smell! Thus, for instance, they cannot stand the smell of a Russian house or of a Tungus tent. And I can say for myself, that, after an intercourse of many years with various Siberian tribes, I was able to recognize the characteristic smell of a Yukaghir, a Tungus, or a Yakut.

Their vision is very keen. They are able to distinguish objects, and recognize persons, at a distance at which I can see nothing. Near-sightedness is rare among them; and one would hardly find among them an instance of looking through half-closed eyes, so characteristic of near-sighted people. I did, however, meet with two or three cases of near-sightedness. Such persons felt helpless, and did not go out hunting, nor did they drive the first sledge of a train.

The Koryak dislike salty and bitter things. While the Yukaghir, Yakut, and Tungus frequently came to us for salt, the Koryak seemed to feel no need for it. Those people to whom I gave mustard to taste expectorated for quite a while.

They are very fond of hard biscuit; but many of them prefer the fresh, slightly sour rye bread baked by the Russians of that locality, and which I carried with me in a frozen state in bags. Before meal-time they put the bread before the fire to thaw it out. The sour and pungent taste of putrid fish and decomposing meat seems to tickle the Koryak palate.

They are very fond of sweet things, and sugar is in the greatest demand among articles of exchange. They compare the taste of sugar to that of reindeer-fat, or to the taste of the marrow of the reindeer leg-bones.

The Koryak like fat in all forms; as, for instance, fish-oil, reindeer-fat, the blubber of sea-animals, and the fat of other animals, but they cannot consume it in such quantities as the Yakut consume melted butter. Excessive use of the blubber of the spotted-seal (Phoca ochotensis) produces vomiting; and many of them cannot bear the smell of the blubber of the male of the ringed-seal.

The Koryak distinguish the following colors, — black and dark blue (called by one name, nu'qen), white (ne'lhaqen), red (naye'deqen), green, light blue, and coffee-color (nota'hayeqen), and yellow (mali'ceqen). When they are shown (for instance, on printed calico) the various colors intermediary between those enumerated, they class them among one or another of the above. Red is regarded as the most beautiful color. Faces with ruddy cheeks are considered handsome. Soft light-brown hair and brown eyes are valued as marks of feminine beauty. Dark eyes and coarse black hair in a woman are looked upon as signs of ill-nature.
CLEANLINESS. — The Koryak can by no means be classed among cleanly people. With extremely rare exceptions, resulting from the civilizing influence of the Russians, they do not wash. The faces of children, as well as those of old people, are covered with a layer of dirt and soot mixed with fat, so that it is difficult to determine the natural color of their skin. Only the girls and young women washed their faces before coming to us to be measured. Mucus from the nostrils is almost always a decoration of the children, and the older people are frequently not far behind them in this respect.

The kettles in which the food is cooked are full of reindeer and dog hair, which fall from the clothes and fill the air of the Koryak house. The Koryak kill lice, which are regarded by them as properly belonging to a healthy man, with their teeth. There is a prevailing belief among them, as well as among the Yukaghir, that when a man is deserted by lice he will soon die. They eat also the large larvae which develop from the eggs deposited by the reindeer-flies in the hair of the reindeer. No matter how putrid food may be, the Koryak have no aversion to it, and they will even drink the urine of persons intoxicated with fly-agaric.

DISEASES. — Among non-contagious diseases, the most frequent are derangements of the digestive organs, caused by irregular nutrition and the use of putrid fish and meat. Complaints of pain in the stomach are frequent, and the Maritime branch of the tribe especially suffer from the tape-worm. Tetter, scabies, and other skin-diseases, are very common, owing to their filthy habits.

Diseases of the eyes — such as inflammation of the lids, or an affection of the cornea — are widely spread. This is to be attributed to the action of smoke in the underground houses of the Maritime Koryak, and to the reflected light of the snow in the spring. People suffering from conjunctivitis and cataract are frequently met with; but I saw only three cases of blindness during my travels, and the three so affected were people of middle age. From the Report of 1884, by Dr. Uspenski, the district physician who visited some Koryak settlements and camps, there were found, in 70 houses visited, 14 persons suffering from cataract,¹ which is a large percentage.

The Koryak are not subject to nervous diseases to the same extent as other arctic tribes, though some are afflicted with symptoms of the two forms of nervousness so frequently met with in the Arctic region. These two forms are widely prevalent among the Yukaghir, Tungus, Yakut, and also among the Russian immigrants. They are generally known by the Yakut names of meryak and menerik; but there are specific names in all the languages of the arctic tribes, not only for these two diseases, but for their various symptoms as well.² However, it is probable that these two forms of nervous suffering are symptomatic manifestations of arctic hysteria.

¹ Taken from the Government Archives of Gishiginsk.
² A more detailed description of these diseases will be given in my work on the Yukaghir.
JOCHELSON, THE KORYAK.

Meryak is a form of hysterical fit, with some peculiarities. Severe cases of it result in epileptic and cataleptic fits. Mild cases of menerik are indicated by extreme excitability, a shuddering at the least unexpected noise, accompanied by indecent exclamations, such as the mention of male and female sexual organs, or by making remarks referring to them. In severe cases, the persons affected lose their will-power, and are easily controlled by outside influence: in fact, they may be said to be hypnotized without being in the state of sleep. Such subjects will repeat the words and actions of another, and will do whatever they are ordered to. In this condition they are able to repeat speeches made in a foreign language, or perform difficult, dangerous, or indecent things.

A sick old woman, for instance, is able to dance until utterly exhausted, being induced to do so by the mere sight of dancing young people; or to jump across a gorge or into a river, or throw herself into the fire, on the order of a joker; and if not stopped in time, she may be seriously injured or killed. Young profligates make sport of the modesty of women so affected, causing them to do various indecent things, or abusing them. Women particularly are subject to both forms of arctic hysteria; those of middle age suffering from menerik, and young women and girls from meryak.

In rare cases, men also suffer from nervous attacks, shamans in particular. I had several opportunities to observe the various symptoms of arctic hysteria among the tribes enumerated; but I had no opportunity to witness any cases of meryak among the Koryak. I was told that nervous attacks accompanied by spasms and catalepsy are frequent among women, particularly among those of the Reindeer Koryak.

The Koryak replied to my inquiries about menerik, that some time ago this disease was more widely spread than now, and that at present there are women suffering from a disease called in Koryak me’nkeiti ("to startle"), which is manifested by a quick susceptibility to fright. Subsequently I had the good fortune to observe two cases of menerik in a mild form. The first case was that of a young girl in Kuel. When my cup fell on the floor, she started, and exclaimed, "Pakuka!" ("vulva!") Such exclamations are so closely connected with the fright, that they themselves are a symptom of the disease.

I saw two really insane people. One was quiet, rather feeble-minded; but the other, in the Kamenskoye settlement, was violent, and he was often kept chained. Once he took by force the food from my cossack and interpreter. On another occasion he stole a hatchet from me, and hid it. After that, the Koryak took him to another settlement.

People addicted to the use of fly-agaric can be detected by their appear-

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1 In tale No. 80 (p. 247) Kilu", Big-Raven's niece, frightened by Grebe-Man, started, and exclaimed, "Tošakaw’pal!" ("The penis hangs!") "Upakaw’pal!" ("The vulva hangs!") From this we see that this symptom of arctic hysteria has long been known to the Koryak.
ance. Even when they are in a normal condition, a twitching of the face is observable, and they have a haggard look and an uneven gait.

Contagious and epidemic diseases find fertile ground among the Koryak as among other Siberian tribes. Even measles, which in civilized countries is generally confined to children, and is comparatively harmless, carries off large numbers of grown people among the Koryak.

Small-pox and measles appeared among the Koryak after they came in contact with the Russians. Small-pox is said to have appeared for the first time in the Okhotsk-Kamchatka territory about 1767. Since then it has been epidemic in that region several times. The contagion spread from Yakutsk or the Kolyma River; but, since intercourse between the bulk of the Koryak tribe and the Russians was not frequent until recently, small-pox did not rage in the interior of the Koryak territory to the extent that it did among other tribes. The last epidemic of small-pox occurred in 1895. It came from the Kolyma side, and claimed numerous victims among the Chukchee of the northern tundra; but the Koryak were affected very little by it.

Epidemics of measles are hardly less fatal. The last one was brought to the Koryak from Kamchatka in 1899. In some cases the havoc wrought by it was so great as to carry off a third of the population. Among the Reindeer Koryak of the Taigonos Peninsula, for instance, 97 persons, according to my record of families, died of it. 1 While the census figures of 1897 show that there were in all only 297 persons on the Taigonos Peninsula before the epidemic, the enumeration made by me after the epidemic gives 318 persons there. 2

Like the Chukchee, the Koryak call syphilis the Chuvantzy or Yukaghir disease (atol or etel va’irgin), evidently because it was through these tribes that the infection was brought from the Russians. The Paren people call it also tagir’ta. In our travels among the Reindeer Koryak, as well as through

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1 To give an idea of the ravages of measles among the Koryak in 1900, I will cite here what I heard from a young Koryak employed as a herdsman by a wealthy widow, the sister of the Taigonos elder.

2 "Our tent stood alone on the shore of the Avekova River. There were ten of us. We all took sick, and could hardly drag ourselves about. Soon one after another died. Another herdsman and myself, both ill, drove the dead to be burned. Finally this herdsman, too, died. There were now three of us — our mistress, another woman, and myself. Soon the other woman died. Alone I drove her a little way from our tent; but I had no strength to burn her, for I could not pick up the wood. I put the dead woman on the snow, killed the reindeer on which I had brought her, and placed him alongside of her. Then I plucked some alder-tree branches, covered the dead woman and the reindeer with them, and pressed them down from the top with the sledges.

"An awful storm was raging at the time. When I returned home, I found the tent had fallen down, and that my mistress was lying under the uprooted stakes of the framework. All alone, she had been unable to withstand the strong wind, and fasten down the falling tent. I drew her from under the tent, and with difficulty we pitched it again the best we could. Thus only two of us recovered. After that, I wandered about for several days to collect the herd, which had scattered in all directions.

In the summer of 1901 I sent this herdsman with my cossack to find the skull of the woman that had not been burned, but they could not discover it. Very likely the bears had carried off the corpse.

2 For the difference between the figures 291 and 318 see Chapter III.

3 By the name atol, or etel, as the Paren people pronounce it, the Koryak call the Chuvantzy as well as the Yukaghir.
the settlements of the Maritime Koryak, we often came across syphilitic patients; but all the cases were either in the tertiary stage or were instances of hereditary syphilis. From the Report of 1884, by the district physician Uspenski, I have taken the following interesting data:

Syphilis developed, particularly during the seventies of the last century, in the Gishiga district. The Government then established a special hospital for syphilitics in Gishiginsk, where the Koryak went readily to be treated. In 1880 this hospital was closed, and syphilis spread more virulently.

Dr. Uspenski, on his inspection tour of 1884 over the Koryak settlements of the western shores of Penshina Bay, found in 91 houses 42 persons suffering from syphilis; among the Taigonos Koryak, 19 infected in 9 camps; and among the Reindeer Koryak of Opuka on the Palpal, 16 in 10 camps. Among the Alutor Koryak he did not find a single case: so that little nook on the Pacific had not been touched by the disease.

The idea is prevalent among the Russians, for some reason or other, that the presence of syphilis among the Koryak is due to the sailors of American whaling-vessels. This was the opinion of the chief of the Gishiga district\(^1\) and of Dr. Uspenski in the above-mentioned report. In support of this opinion, Dr. Uspenski pointed out that, while he found among the Koryak near Gishiga numerous cases of syphilis in its contagious stage, on a wholesale examination of the cossacks and their families of Gishiga he discovered that five persons out of a hundred showed traces of former venereal disease, but not one of its contagious form.

Dr. Slunin also says that some settlements along the Okhotsk Sea, as Yamsk (Russianized Koryak) and Arman (Tungus), which were often visited by American whalers, have a bad reputation.\(^2\) George Kennan also is of the opinion that the American whalers have imported syphilis to the Koryak of Penshina Bay.\(^3\) However, I do not believe that the Koryak are exceptional among the Siberian tribes. All the tribes of northeastern Siberia, the Chukchee and Kamchadal among them, contracted syphilis from the Russians long before the appearance of American whalers in Bering and Okhotsk Seas. It is known, for instance, that among the Kamchadal syphilis was particularly widespread after the arrival (in 1799) of an infantry regiment under the command of Major-General Somoff at Petropavlovsk.\(^4\)

There is another interesting feature in connection with the appearance of syphilis among the Koryak. As we shall see later, in the chapter treating

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1 See Government Archives of the Gishiga District, 1884, Case 1094.
2 Slunin, I, p. 532.
4 After the first visits to Petropavlovsk by foreign vessels, — namely, by the English expedition under Captain Cook, who had been killed not long before the visit, and by the expedition of the French navigator La Pérouse, — the Russian Government thought it necessary to put the port of Petropavlovsk under military administration.
of family relations, the sexual relations of the Koryak, compared with those of their neighbors, are remarkably pure for a primitive tribe. This should make the possibility of infection through sexual intercourse rare. It is likely that the contagion spread simply through contact, in consequence of their lack of aversion to things eaten by others and of the excessive filth obtaining among them.

Leprosy, so widely spread among the Yakut, is not found at all among the Koryak. Slunin says that the Kamchadal also are exempt from it. The Yakut, also Russian immigrants, half-blood descendants of Kamchadal and Russians or Yakut, and to some extent the Tungus, are subject to this disease. Personally I did not meet with a single instance of a Tungus affected by leprosy.

From time to time a contagious disease similar to grippe in its prolonged and severe form, accompanied with many complications, spreads among the Koryak, and each time it claims a few score victims. This disease was introduced by the Russians. At the time of my arrival at the Russian town of Gishiginsk (August, 1900), almost its entire Russian population, the cossacks included, were down with the grippe.

The remedies used by the Kamchadal are not used by the Koryak. In case of sickness they have recourse to shamanism, family charms, and incantations. They readily apply for help to a Russian physician or to travellers, whom they regard as shamans, and take their medicine gladly. Wounds heal with remarkable rapidity after they have been dressed, and antiseptics have been applied to them. The Koryak usually leave their wounds open, for they have not the necessary material with which to dress them. Hare's hair is frequently applied by them to a wound; but the hairs stick to it, and dirt accumulates, and it is surprising how the wounds heal at all under such conditions. By applying the proper dressing, we often succeeded in healing in a few days ulcers, cuts, and wounds from which they had been suffering for months.

Mental Traits. — There is quite a disparity of opinion among travellers in reference to the psychological and moral traits of the Koryak.

Krasheninnikoff says, "They are all exceedingly rude, irascible, ill-disposed, spiteful, and unmerciful," but in another place he says, "The Koryak are truthful, diligent, and endowed with a sense of shame." On the same page he says that the Maritime Koryak are more courageous than their Reindeer brothers.

Dittmar says that the Koryak are "good-natured, honest, strictly truthful, and do not know deceit. But should any one offend their sense of honor, or insult them, their anger is lasting, and they seek to avenge themselves."
With reference to the Paren and Kamenskoye people, Dittmar says in another place that they are "of a restless, warlike nature, or, rather, they have the nature of robbers, which has made for them a number of enemies," and that the wandering Koryak visit them only in case of dire necessity. The Reindeer Koryak, on the other hand, are, according to Dittmar,\(^1\) such an honest, straight-forward people, that he expresses a wish that the demoralizing influence of civilization should not touch their pure patriarchal life.

Maydell, on the contrary, considers the Koryak a wily people, who have caused a good deal of harm to the Russians by their pretended submission and treacherous revolts.\(^3\)

Slunin says of the Maritime Koryak, that they are "more advanced, more receptive, have better morals (?)", and are more sociable in their manners,"\(^4\) than the Reindeer Koryak, but are not very hospitable; while hospitality, and readiness to come to the assistance of the needy, constitute, on the contrary, a distinctive trait of the nomadic Koryak.

Kennan\(^5\) also praises the Reindeer Koryak for their honesty and hospitality, while the picture he draws of the Maritime Koryak is anything but attractive. "They are," says Kennan, "cruel and brutal in disposition, insolent to everybody, revengeful, dishonest, and untruthful. The settled Koraks of Penzhinsk Gulf are unquestionably the worst, ugliest, most brutal and degraded natives in all northeastern Siberia; more trouble than all the other inhabitants of Siberia and Kamchatka together."

Personally I believe that the principal traits of character of the Maritime and Reindeer Koryak are much alike. They are proud, independent, inclined to brag; their passions are easily aroused; they take offence readily, and try to avenge themselves by any possible means. They are hospitable and sociable with people in whom they have confidence, but do not conceal their dislike for those who are unfriendly to them, or who, for some reason or another, did not gain their favor. They do not fear death, and they cannot be frightened by anything. For reasons such as the death of a relative, quarrels, or wrath, suicide has frequently been committed among them, as well as among the Chukchee, even recently.

In former times, owing to these traits of character, feuds, or misunderstandings among the Koryak, or between them and other tribes, ended in mutual slaughter. At present, their manners are somewhat gentler, but in dealing with them one must always take into consideration their obstinacy, austerity, and dauntlessness.

Together with the Chukchee, the Koryak are the only Siberian tribe whose attitude toward the Russian authorities is that of almost perfect independence. However, the Russianized Koryak of the Okhotsk district, and

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1 Dittmar, Die Kortken, p. 11. 2 Ibid., p. 34. 3 Maydell, I, pp. 547–573. 4 Slunin, I, p. 392. 5 Kennan, pp. 197, 203, 209.
particularly the Maritime Koryak of northern Kamchatka who have embraced Christianity, are exceptions to this rule. They have the same pitiful and humble appearance as the Kamchadal, Yukaghir, and Tungus, and carry out submissively each and every order of the cossacks and the Russians in general. Evidently the process of Russianization, combined with two centuries of oppression by the Russian authorities, has brought about this change in the primitive character of this branch of the Koryak.

During the time of the subjection of the Koryak, full-grown men in the villages or camps, unable to withstand longer the besieging Russians, often killed their dogs or reindeer, their women and children, and finally themselves, if they could not escape by flight. Such a state of things discouraged even the conquerors. Similar instances of wild self-destruction while battling for their freedom occurred later on as well, when the Russians were suppressing the Koryak rebellions. These rebellions were caused by the levying of the fur-tribute (yassak), or by the demand of the Russians for hostages. These demands the Koryak refused to grant, though other Siberian tribes, with the exception of the Chukchee, complied with them.

Strictly speaking, the Koryak were not on the whole opposed to the fur-tribute, which they considered an offering to the Czar; but the extortionate demands made by the cossacks and officials for furs and services for themselves were contrary to the Koryak sense of justice and his love of freedom. The rebellious spirit of the Koryak was not crushed with the suppression of the revolts.¹

An old man from the Kamenskoye village told me that he could remember seeing, when he was a child, Russian merchants accompanied by cossacks come to trade, and that, fearing an attack, they stopped outside the village. It was only when the Koryak came out to them unarmed that trade began. Even very recently the chief of the Gishiga district travelled through the Koryak villages and camps under the protection of an armed body-guard.

In the sixties of the last century the chief of the Gishiga district, Volkov, ordered a drunken Koryak from the village of Kamenskoye to be beaten with rods when he came to Gishiginsk. The relatives of the man determined to flog the Russian chief in Kamenskoye, where he was expected to arrive as usual for collecting tribute of furs. When Volkov heard of this, he sent two cossacks for the tribute, instead of going himself. As soon as they arrived in the settlement, they were stretched out and flogged, and then sent back to Volkov to tell him that now he might come, since the indignity to their relative was avenged.²

¹ For a more detailed account of the relations between the Russians and the Koryak, see the historical sketch in Chapter XIV.
² From the Report of Ratkevich, the successor of Volkov, chief of the Gishiga district, to the Governor of the Maritime Province, Dec. 31, 1886, No. 404 (Government Archives of Gishiga).
The same official, Volkov, was for a long time unable to collect the fur-tribute from the Koryak of Shëstakovo village. When some of these Koryak came to Gishiginsk with furs to sell to the merchants, Volkov ordered the furs to be confiscated. The Koryak went away empty-handed. When, after that, Volkov passed the village of Shëstakovo, the Koryak surrounded the underground house where he stopped and tried to beat him. The chief drew his sabre, and with its flat side struck over the back a Koryak who was trying to get at him. Then all the Koryak fell upon the chief, but they were held back by his body-guard of five cossacks. The cossacks, in the Koryak language (which the chief did not understand), begged the Koryak not to ruin them by acts of violence on the chief. The Koryak yielded to the entreaties of the cossacks on the promise of a present of powder, and after the Koryak who had been struck by the chief had been allowed to pass his hand over the back of the chief's coat (without his knowledge of it), thus simulating a return stroke.\(^1\)

In the Report cited above there are other facts of a similar nature. For instance, District Chief Mazurkevich, when visiting the village of Kamenskoye in 1872, provoked by the insolence of the Koryak I'velquit, struck him in the chest to drive him away. I'velquit attacked the chief, but was caught by the latter's body-guard, and driven out of the underground house. In a few minutes the house was surrounded; and the cossacks of the guard, seeing that they were unable to shield Mazurkevich from harm, offered themselves as a propitiation for the insult. The Koryak were satisfied with this substitution, and gave the cossacks a thrashing.

To give an idea of the Koryak customs and manners, I will cite here some incidents of my personal intercourse with them. In the fall of 1900 some Koryak from Kuel took my companions, myself, and my luggage, in two skin boats, from the mouth of the Paren River to their settlement. I asked them what they wanted in payment for their trouble. They held a consultation among themselves, and asked for twenty bricks of tea. It must be borne in mind that they were then out of tea. In summer they do not come in contact with the Russian merchants, and their supply laid in during spring is quickly consumed. If by chance a Russian merchant were to come among them in the fall, he would charge from two to three rubles for a brick of tea.

Now, the distance by sea from the mouth of the Paren River to Kuel is about twelve miles. According to local conditions, the price set by the Koryak was too high, and I asked them if they did not think it was too much. The elder of the Kuel settlement, old Euvi'npet, replied angrily and impatiently, "If thou findest that it is too much, then we do not want any

\(^1\) Told by a cossack who participated in the quarrel.
pay." I had not expected that my question would offend them. In my intercourse for a number of years with other Siberian tribes, I had not only always come to an understanding with them about the pay for their services, but in most cases had set it myself. In cases where I offered less than was asked for, they never took offence.

Among those tribes there is no definite scale of prices for services in general, and obviously not for those for which I was the first to apply to them. Sometimes a native would ask of me at random the first thing that he saw in my tent, or in the house where I stopped, without taking its value into consideration. For instance, a girl from the Itkana settlement asked me, by the advice of her uncle, in return for permission to make a cast of her face, for a copper pot which I subsequently exchanged for a small skin boat.

After my experience with Euuv'qpet, I did not haggle with the Koryak again when I had not come to a previous understanding with them. I often gave them more than they asked for, since they would ask for a trifle, when it happened to strike their fancy, in payment for quite laborious work. In the end, the Koryak left the settlement of the reward to me.

I had another unpleasant experience among the Reindeer Koryak during the fair on the Palpal Mountains in March, 1901. Owing to the epidemic of measles that had been raging a short time before my arrival, I was not welcomed very cordially. By order of the old men, no one wished to be measured. A few men only, who acted independently and did not care for public opinion, consented to be measured two or three days after my arrival.

The women were angry when I applied to them for anything. They wished to get our presents, but they were afraid to disobey the old men. One young woman, tempted by the presents, began to dictate a tale to me. With her and my interpreter, I sat on a sledge outside. While she was dictating, an old woman came up to her and said something. Thereupon the young woman showed signs of impatience, and talked reluctantly. When I asked her to explain one place which I did not understand, she suddenly flung the presents at the interpreter and ran away into the common tent.1

Another woman, whom I asked to sell me the embroidered trousers for men which she was drying, replied angrily and with irony, "Go, go farther! Look for cutting-boards!" She was hinting at the fact that I had previously made an unsuccessful attempt to buy, from some women, cutting-boards with figures engraved upon them. However, the husband of the woman brought to me on the following day those very trousers.

It should be kept in mind, in connection with these remarks, that the Koryak look upon every traveller as an official of high rank. If I could have remained longer with the Palpal people, I have no doubt that our

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1 See Part I, p. 77.
relations would have undergone a complete change. Unfortunately the fair lasted but a few days, and my plans were such that after the fair I had to go to the Taigonos Peninsula.

The discrepancy in the accounts given by various travellers of the characteristics of the Reindeer and Maritime Koryak can, it seems to me, be explained by the fact that the Reindeer people, being nomadic, could always get away from unwelcome visitors, and the Russians did not know where to find the camps which they desired to visit; while the Maritime Koryak, being established in certain places, could not escape undesirable visits, and were compelled to offer resistance when they did not wish to yield to the demands of the Russians.

One demand of the cossacks always irritates the Koryak, and that is the exaction of conveyance without charge. The Koryak, as a rule, have few driving-dogs, and, moreover, food must be taken along for the dogs, even if there is not enough left for the people. In this respect the Reindeer Koryak are more favorably situated. It is a trifle for a wealthy reindeer-owner to give a few reindeer for driving. He does not suffer any privation by rendering such service, and therefore is not irritated by demands of this sort.

The same is true regarding their hospitality. The Maritime Koryak are as hospitable as those of the Reindeer branch, but they have nothing acceptable to offer to a white person. He will not eat seal-meat with blubber. Not even all cossacks can eat the food of the Koryak, who feel insulted if any one shows aversion to it. Besides, the Maritime Koryak themselves often suffer from a scarcity of food. The Reindeer Koryak, on the other hand, are in a position to offer reindeer-meat to the white man.

The Maritime Koryak, for instance, never offered me food, unless I myself asked them for dried fish, while they always treated my people with food. The Reindeer Koryak, on the contrary, always treated us to boiled reindeer-tongues, a delicacy kept for guests of honor.

On the whole, I retain a good impression of the Koryak. They are hard to get along with if one does not know their ways. They are churlish, rude, and quarrelsome, if displeased; but they do not flatter, are truthful, straightforward, and, when in good-humor, good-natured and jocose.

Mr. Kennan's remarks about the Kamentsi may be explained by the fact that the agents of the Russian-American Company, in whose employ he was, either paid the Koryak, under the patronage of the Russian authorities, very poorly or not at all for their services, or treated them arrogantly, as they did the meek and humble Kamchadal. This is the only way in which I can reconcile the relations between the Maritime Koryak and the employees of the Telegraph Company as described by Mr. Kennan. Some old Russians in Gishiginsk told me that the agents of the company paid by slips or receipts, the money for which has not yet been collected.
Krasheninnikoff's opinion, that theft is regarded by the Koryak as laudable,1 is utterly unjust. In former times it was considered right to plunder enemies; but this was a form of spoil, and not theft. Their language has a word for stealing (ti-to'latin, "I steal"); but cases of theft are rare. If one is convicted of stealing, the owner takes away the stolen things, and just laughs at the thief.2

During the whole of my sojourn among the Koryak I lost nothing from my belongings. My boxes and bags, packed full of provisions, and goods for exchange and presents, — all of considerable value, and sealed only with a sealing-wax seal, — were frequently left by me outside, or in the care of a Koryak, to be taken to some other place in my absence; and never a thing was lost. On the contrary, on the two occasions on which I did lose things in the Gishiga district, the theft was committed by Russian drivers.

The orders that I gave to the Koryak for models, or for the acquisition of articles for my collection, were carried out by them honestly and promptly. On one occasion only did a trader — a Koryak from the Mikino settlement, who had gone to the Opuka River for purposes of trade — send me fewer things than I ordered from him. In this case, his son, when I told him that according to my calculations his father was in debt to me, straightened out the difference by giving me a rug of reindeer-skins.

I will touch here on the sympathy of the Reindeer Koryak for human suffering. They are always ready to assist the starving — no matter who they may be, Maritime Koryak or Russians — by bringing them reindeer. The poor inhabitants of the Russian settlements, when their fish-supplies are exhausted toward spring, go to the Reindeer camps, and the Koryak slaughter reindeer for them, either for a trifling remuneration or on trust. The Russian drivers who, in the spring of 1900, took me and my belongings on seven dog-sledges to the Reindeer Koryak of the Topolovka River, left that place with their sledges loaded with slaughtered reindeer.

The mind of the Koryak, we may say, works as slowly as does his clumsy body, and gets tired as quickly. Very few of the women were able to dictate to me two tales in succession. Usually, after having told one tale, they would ask to be relieved, for they were tired. In taking my notes, I was obliged to stop frequently, for I could see that my interpreter was tired, and unable to follow my questions with proper attention.

The Koryak are very fond of knowledge. They followed with great interest the descriptions of the life of the people in other countries. Every novelty excites and attracts them; but their attention is not lasting. Our phonograph made the most striking impression wherever we went. Often a

1 Krasheninnikoff, II, p. 220.
2 From the myths we can also see that the Koryak do not regard theft as a virtue. Emes'mqut's wife, Ermine-Woman, being accused of stealing, was driven out of Big-Raven's house (Part I, p. 222).
hundred persons would crowd into the house where we put up our phonograph, and gather around it in a ring. Some of the lads watched the phonograph in action with an interest as intense as if they were about to penetrate the mystery of the box which could utter words and sounds.

The grown-up people explained it very simply, thus: "A living being, capable of imitating humans, is sitting in the box." They used to call it the "old man." Naturally, they were especially pleased to hear the box repeat Koryak tales and songs. Of the musical records they liked particularly the reproduction of the xylophone and of negro melodies. They preferred solo to orchestral records. The Koryak are easily excited by their own primitive music and songs. They appreciate a good voice and skill in beating the drum. They will sit and listen for hours to singing accompanied by the drum.

**Numeration and Measures.** — The Koryak system of numeration, like that of the Chukchee, has two bases, — five, the number of fingers on one hand; and twenty, the number of fingers and toes combined, or simply the man. They Koryak are not expert in the use of numbers. The majority of them, even at the present time, use their hands and feet as helps in computing even small numbers; but even so, they count better than the Chukchee. I saw Reindeer Koryak with several hundred reindeer who knew their number exactly. The traders from among the Maritime Koryak can not only reckon mentally small numbers (not above a hundred) without the help of fingers or sticks, but even have a curious way of keeping their accounts. While I was among the Chukchee, I saw traders who were absolutely unable to count.

In the Kolyma district, not far from the Indigirka River, I once met a wealthy Chukchee returning from the Russian settlement called the Russian Estuary. He was in the habit of exchanging reindeer-meat and tea with the hunters of the tundra for their arctic foxes, and selling them to the Russian merchant from whom he was returning when I met him. Before retiring to bed, he took out of a leather bag bricks of tea, and arranging them in a row, in pairs. Then he took from another smaller bag little willow sticks, and placed a stick on each pair of the bricks of tea. The number of the sticks corresponded to the number of the fox-skins he had had. In this manner he checked off the exchange he had effected, and he usually received two bricks of tea for each arctic fox. This time a few pairs of bricks were left uncovered by the sticks. The Chukchee decided that the merchant had made a mistake. Subsequently, when I met the Russian merchant, it turned out differently.

The Chukchee brought a few bundles of fox-skins, and, throwing them to the merchant, said, "Give me tea for this." The merchant counted up the skins, and gave him tea at the rate of eighty kopecks per brick, while before

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1 See Chapter XI, Figs. 248-250.
he had charged one ruble per brick. At that time, tea was cheaper than usual; but the Chukchee was utterly unable to understand the merchant's calculations.

The Koryak have no standard for the expression of relations of space. The distance between certain points is computed in terms of time. Thus, for instance, the distance between Paren and Gishiga (about 100 miles, according to the estimate of Russians) is spoken of as a trip, on good driving-dogs, lasting two days, or requiring one stop for the night. The conception of distance is in this case only a relative one. A camp of Reindeer Koryak which is moving rather slowly requires six or seven days for this trip. Neither have the Koryak a scale of lineal measures. They use the finger-reach as a unit, but only for measuring thongs.

**Seasons.** — The year is divided into twelve lunar months (ya'alan, "the moon"). The first month begins at the time of the winter solstice, and corresponds to our month of December. The Koryak are very little troubled by the fact that in the interval between two winter solstices an extra new moon may occur. Some months have different names in different places; but the names of the months most commonly used are as follows: —

1. Çaq-wi'ya'alan ("cold winds' month") or li'wi-wa'alan ("snow-storms' month").
2. Ya'awan-y'a'alan ("[growing] of the reindeer's spinal sinew month").
3. Tenmitalko-ya'alan ("false-making-udder month") or Qoya'-looca-ya'alan ("reindeer-udder month"). Mr. Bogoras cites for the third and fourth Koryak months names signifying "false reindeer-birth month" and "genuine reindeer-birth month." The first name apparently corresponds to the name of the month signifying "false-udder month."
4. Qoya'-wa'ya'alan ("reindeer-does' calving month"). This month is called "calving month" by the Chukchee also.
5. Imil-y'a'alan ("water month").
6. Ano'-ya'alan ("first summer month").
7. Asa'-ya'alan ("second summer month").
8. Čeipi-ya'alan ("reddening [of leaves] month").
9. Yifia-k'yãn-ya'alan ("pairing season of the reindeer-backs month") or Em-i'vi-ya'alan ("empty [bare] twigs' month").
10. Heti'-ya'alan ("autumn's month").
11. Kite'-päita-ya'alan ("rutting-season of mountain-sheep month").
12. Liçun'-leut-ya'alan ("itself head month," "month of the head itself").

These names of the months are used not only by the Reindeer, but by the Maritime Koryak as well, though the latter, however, do not know them quite as well. No matter how many times I inquired of the Maritime Koryak the names of the months, they invariably got mixed up.

**Language.** — Mr. Bogoras' linguistic researches have proved that the languages of the Chukchee, Koryak, and Kamchadal, are but branches of one linguistic family.

The Koryak language may be subdivided into four main dialects, —
that of the Koryak of northern Kamchatka, of the Reindeer and Kamenskoye-Paren Koryak, Alutor Koryak, and the Kerek. Moreover, every group of Reindeer Koryak, and almost every village of Maritime people, have their own provincialisms, with a few insignificant phonetical and lexical peculiarities. Thus, for instance, there are phonetical and lexical differences even between the dialects of the Kamenskoye and Paren villages, which are so short a distance from each other.

Thus, in the Paren dialect, a of the Kamenskoye dialect is changed to e; and the same word may have a different meaning in each of the dialects, or different words may be used to express one and the same conception. For instance, a'pa in the Kamenskoye dialect means "grandfather," and in the Paren dialect, "father." In the Kamenskoye dialect, "mother" is expressed by a'n'a, and in the Paren dialect, by a'mma.

Dittmar\(^1\) divides the Koryak language into five dialects, — that of the Reindeer Koryak, the Kamenskoye, the Ukinskiye, the Pallanskoye, and the Alutor. On the basis of the difference in the dialects pointed out by him, he divides the Koryak into five branches, — the Reindeer, Kamenskoye and Paren people (under which name he includes the inhabitants of eight villages between the Kamenskoye and Paren), Pallantsi (the inhabitants of seven settlements between Pustoretsk and Vayampilka), Ukintsi (the inhabitants of six settlements along the Pacific shore between Osrna and Karagha), and the Alutor people (the inhabitants of nine settlements north of Karagha). Passing over the fact that several settlements and entire groups of Koryak are not included in the branches of the Koryak enumerated above, as we shall see in Chapter III, the very basis of this division is wrong.

Almost all the Koryak have preserved their native tongue. They learn a foreign language with difficulty; and in their intercourse with other tribes, it is not they who take up the new tongue, but the foreigner, who is usually forced to learn the Koryak language. Thus, the Kamchadal, Tungus, and Russians, when living with the Koryak, have to learn to speak in the Koryak language. Even the Christianized Maritime Koryak of the northern part of Kamchatka, with but few exceptions, have not learned to speak Russian; and none of the Reindeer Koryak know the Russian language.

Of the Maritime Koryak, only two hundred (or 2.6 per cent) regard the Russian language as their mother-tongue. These are the inhabitants of the Nayakhan settlement in the Gishiga district, and the Koryak of the Okhotsk district (see Chapter III). The latter are intermixed to such an extent with other tribes (Tungus, Yakut, and Russians) that they can hardly be considered as genuine Koryak.

An insignificant number of Reindeer Koryak, wandering with the Tungus

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\(^1\) Dittmar, Die Kortken, p. 47.
in the Gishiga district near the sources of the Gishiga and Varkhalam Rivers, have acquired the Tungus language. According to the census of 1897, they are 73 in number (41 men). Mr. Patkanov\(^1\) polls them erroneously in the Petropavlovsk district. This process of “Tungusianizing” a small part of the Koryak has been going on for the last ten or twenty years, owing to their intermarrying with the Tungus. On the other hand, the census mentions 17 Tungus who wander with the Koryak, and who have acquired Koryak as their native language.

Not only are the Koryak disinclined to learn foreign tongues, but, rather than adopt Russian names, they prefer to make their own words for objects imported by the Russians, or for those things of which they have learned but recently. The Koryak names are usually characteristic of the person or object, and frequently are aptly chosen. For instance, the chief of the district is called by the Koryak Ta'xa-a'yi’m (“fur-tribute chief”). The Paren people called me Li’mnõla’yi’m (“tales chief”), because I recorded the tales; and the Taigonos people called me Lon-te’nme-a’yi’m (“face-measuring chief”).

\(^1\) Patkanov, p. 21.
III. — HABITAT AND VILLAGES.

Wandering-Places of the Reindeer Koryak. — At the present time, Reindeer Koryak are found mainly in two of the four districts into which, for administrative purposes, the Russians have divided the northeastern part of the Maritime Province; namely, in the Gishiga and Kamchatka districts. Only five families were found in the Anadyr district, while in the Okhotsk district but a few men were left.

The greater part of the Reindeer Koryak roam over the Gishiga district. They keep to the interior of the country, and frequent mainly elevated, treeless tundras covered with lichen. During severe frosts they come down to the valleys, where the trees offer protection from the winds, and supply fuel for their fires. In summer the Reindeer Koryak ascend with their herds to the summits or high mountain slopes. The winds that blow freely there, the low temperature, and the never-melting snow of the gorges and ravines, free those locations from mosquitoes, which in summer are so abundant in low and woody places. For the same reason the Chukchee of the extreme north drive their herds in summer to the open tundras of the cold shores of the Arctic Ocean.

The Reindeer Koryak usually wander in groups consisting of a few families. There are no definite boundaries between the wandering-places of the various groups. It sometimes happens that separate families wander far from their native places, leaving the groups to which they originally belonged for one reason or another; as, for instance, on account of quarrels, lack of pastures in the old places for their reindeer, or the establishment through marriage of new family ties. I met families on the Palpal Mountains whose native place was on the Taigonos Peninsula, while, on the other hand, among the Taigonos Koryak there are people who have come from the Far East. According to Patkanov's statement, some members of the Opuka Reindeer Koryak are found on the Gishiga River, and a few families of the Gishiga Reindeer Koryak wander on the Palpal Mountains. On the whole, every group has its own wandering-places, though the limits are not well defined. Within this region, single families, or small groups of families, have their chosen places where they spend certain seasons of the year.

Thus the Reindeer Koryak form territorial groups. For purposes of taxation the majority of these groups are called "clans" (Полу) by the Russian Administration, and the tribute levied on them was formerly paid off in furs only, but at present they are at liberty to pay either in money or in furs. Elders are appointed for each of these clans. The Koryak themselves do
not know the names of the clans. On a part of the Reindeer Koryak, as we shall see later on, no tribute has been levied as yet, and they have not been given any clan-name.

The number of Koryak, Reindeer as well as Maritime, may be gathered from old official data, from those of the 1897 census, and from data collected by Mr. Bogoras and myself. The old official data — reprinted from year to year in the government reports, almost without change — relate to those groups only which were assessed for tribute, and the numbers there given are less than the actual numbers.

The statistics of the census of 1897 are more reliable. This census was supposed to be taken on the same day over the entire empire; but in the sparsely settled districts of Siberia the enumerators spent several weeks covering each territory. Some of the remote places — for instance, the northern part of the Palpal, or the centre of the Parapol Dol — were never visited by enumerators, but they obtained their information second-hand. Nevertheless, the data of the census of 1897 are very nearly correct. The census bulletins of 1897 relating to northern Siberia have been worked up at the Central Statistical Bureau of the Ministry of the Interior in St. Petersburg by S. K. Patkanov, the first editor of that Bureau; but the results have not been published as yet. Mr. Patkanov, however, has published a brief summary, based on the census, of the statistical and geographical data of the paleasiatic tribes, among which are the Koryak. I shall quote further from these data under the name of Patkanov. Mr. Patkanov also had the kindness, at my request, to send me from his material more detailed statistical data on the Koryak, of which also I shall make use.

The data collected by Mr. Bogoras and myself refer merely to those places which we visited personally, and will serve in verifying statistics relating to certain groups only.

We must distinguish the following groups of Reindeer Koryak.

Gishiga District. — 1. The Koryak of the Taigono Peninsula (Taigono-talu, i. e., "the people of Taigono"). They spend the winter seasons along the valleys of the rivers Topolovka (Ma'kala'nu-ve'ym), Kilimadjia (Kili-ma'cwon-ve'ym), Matuga (Ma'tukan-ve'ym), Chaibuga (Po'yem-ya'n-ve'ym), and Avekova (l't>a'ta'na-ve'ym). Three or four families only roam in winter along the valley of the Gishiga River (Wui'vo-ve'ym). In summer they ascend the mountains where these rivers have their sources. For the purpose

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1 This census was the first general enumeration of the people of the Russian Empire, not for purposes of taxation, but for statistical purposes only.
2 See Part I, list of authorities quoted, p. 10.
3 "River of the poplar people," from ma'kan ("poplar"); the Russian word "popol" (пополъ) also means "poplar." The banks of this river abound in poplar-groves.
4 l't>a'ta'na means "eye-woman."
5 Wu'ivo formerly meant a fortified settlement, later on it was applied to Russian fortresses and also to Russian houses. Wu'ivo is now the Koryak name of the town of Gishiginsk.
of fishing, and hunting sea-mammals, a few families only, or members of families, remain during summer, without reindeer, at the mouths of these rivers. Officially these Koryak are called the "Taigonos Clan" (Taigonoskiх род).

According to old official statistics (a census taken in 1882 by the chief of the district), there were in this clan sixty-nine families (121 men and 130 women, making a total of 251 persons); according to Patkanov (1897), the number of Taigonos Koryak was 381 persons (202 men, 179 women); while according to my own enumeration (1901), there were seventy-three families (168 men, 150 women, or 318 persons in all). The difference between Patkanov's figures and mine may be accounted for by the fact that, according to information gathered by myself, 97 of the Taigonos clan died of measles in 1900. Adding 97 to 318 would give 415; but at the time of my enumeration about 20 persons from other clans were included. The remaining difference may be ascribed to the natural increase from 1897 to 1900.

2. The three "clans," called by the Administration the First, Second, and Third Gishiga Clans (Первый, Второй, и Третий Гижигинский род). Although they wander in different places, they keep within the limits of a certain area; namely, north of Gishiga and Penshina Bays, between the Penshina and Varkhalam Rivers, and partly on the Parapol tundra to the south of Penshina River. The families of these clans often intermingle; but, as a rule, the First Gishiga Clan wanders principally between the Varkhalam and Paren Rivers and their valleys; the Second, along the Tilqai and Mikina Rivers; and the Third, along the Oklan, a tributary of the Penshina River, and the tundra between the Penshina River and the village of Pustoretsk (Ewle'wun). During the winter some families of the First Gishiga Clan wander with the Tungus up the Varkhalam, Gishiga, and Paren Rivers, across the Stanovoi Ridge, and go as far as the Omolon and Korkodon, tributaries of the Kolyma River.

According to old official statistics, these clans consisted of 423 persons (152 of the First Clan, 167 of the Second, and 104 of the Third). Patkanov's figures show 531 persons (280 men and 251 women). 2 I succeeded in 1901 in enumerating the group of the Second Gishiga Clan only, which roamed along the Tilqai River, consisting of twelve families (or 63 persons) living in five tents. In these five tents 11 persons died of measles in 1900.

3. The Opuka Clan (Опукский род), wandering in the northeastern part of the district, in the northern part of the Parapol tundra, and partly on the Palpal Ridge. According to the old figures there were 206 of them, while according to Patkanov there were 431 persons; 3 but it seems to me that this

1 According to the census of 1850, the Taigonos clan consisted of 235 persons (104 men, 131 women).
2 According to Mr. Patkanov's written information, there were in the First Gishiga Clan 115 persons (70 men, 45 women); in the Second, 279 persons (140 men, 139 women); in the Third, 137 persons (70 men, 67 women); but in Mr. Patkanov's published work (see p. 20) the total number for the three Gishiga Clans shows 590 persons.
3 See Patkanov, p. 20. In his written information Mr. Patkanov gives the total number of this clan as 396 persons (222 men, 174 women).
figure is below their actual number. On the Palpal Ridge the Reindeer Koryak move from place to place together with the Chukchee, and many of them do not pay any tribute.

4. The group of the Gishiga district, wandering chiefly upon the Parapol Dol (Парapolьский Дол), between the rivers Talovka, Lesna, and Vivnik. This group is not recognized at all in the old official reports. According to information gathered by me at second-hand, there are over sixty families in it. Patkanov says (p. 20) that, with reference to 566 Reindeer Koryak of the Gishiga district, there is no indication in the census as to the clan to which they belong; but he does not say in what locality these 566 persons are entered. It is likely that these may be the Koryak of the group here mentioned.¹

In this connection it should be mentioned, that, according to data gathered by me from the Gishiga archives, there was up to 1850 a Vetvey-Alutor clan of Reindeer Koryak assessed with fur-tribute (yasak); but since that year no tribute has been returned from them. In 1859, at the time of the tenth census "revision" (ренисанская сказка), the Russian census taken for fiscal purposes, for purposes of assessment), no trace of this clan could be found, and at present it is not mentioned anywhere.² In the archives of 1873 I again came across an inquiry, by the provincial Administration, about this clan of the Reindeer Koryak. In reply to this inquiry, the chief of the Gishiga district reported that the Koryak of this clan had gone to the Reindeer Koryak, near Tighil, of the Petropavlovsk district. The chief of the Petropavlovsk district, in his turn, reported that the clan in question had moved back to the Gishiga district. Since then no mention of this clan has been made in the archives.

Besides the Reindeer Koryak proper of the Gishiga district, enumerated in the above four divisions, there are small detachments of Koryak, who, though wandering with reindeer, do not constitute independent reindeer groups. The families of these detachments are connected by family ties with the inhabitants of one or another of the villages of the Maritime Koryak near which they wander and with which they form an administrative unit. Frequently one part of the family lives in the settlement, while another part wanders with the herd; or a family wandering with reindeer will have in its herd reindeer belonging to relatives living permanently in a settlement. We find this class of Reindeer people in northern Kamchatka and along the shores of Bering Sea. Mr. Patkanov informs me, however, that, according to the census of 1897, 31 Reindeer people (16 men, 15 women) who wander in the valley

¹ According to written statements of Mr. Patkanov, the total number of Reindeer Koryak of the Gishiga district which do not belong to any officially recognized clan is 590 persons (324 men, 266 women). They wander in different localities of the northeastern part of the district.

² Mr. Patkanov mentions in his written information a Vetvey clan (Ветвейский) consisting of 21 persons (8 men, 13 women), but its wandering-place is designated as unknown.
of Avekova River belong to the Maritime Koryak of the Second Paren clan, and 14 Reindeer people (9 men, 5 women) of Parapol Dol are of the First Kamenski clan. I myself have not heard that the Paren people have relatives among the Reindeer Koryak; but I know three Koryak in the Kamenskoye settlement, who, being traders, have purchased reindeer. However, they themselves do not take them out to pasture, but leave them in the care of permanent Reindeer Koryak.

The total number of Reindeer Koryak of the Gishiga district, united by ties of kinship with the villages of the Maritime Koryak, or originating from them, and considered as belonging to those settlements, consists, according to Patkanov's information, of 461 persons (236 men, 225 women). Detailed numbers of the groups of these Reindeer Koryak will be given in enumerating the villages and clans of the Maritime Koryak of the Gishiga district.

Thus we see that the data relating to the numbers of the Reindeer Koryak of the Gishiga district are both incomplete and contradictory; but it may be said in general that 2389,\(^1\) the total figure of Patkanov for the number of the Reindeer Koryak in the Gishiga district, is approximately correct.

**Petropavlovsk District.** — The Reindeer Koryak of the Petropavlovsk district wander over the mountains, from the boundaries of the district, almost to the 55\(^{th}\) degree north latitude. They may be divided into two groups.

1. The first group, consisting, according to official statistics, of two clans: the First Nomadic Clan (Первый кочевой род) of 272 persons; the Second Nomadic Clan (Второй кочевой род) of 284 persons. This makes a total of 556 persons. According to Patkanov, the first clan consists of 444 persons, and the second of 312 persons, or 756 persons all together.

2. The second group, to which belong 528 Reindeer Koryak enumerated in the census of 1897. These include, according to Patkanov,\(^2\) Reindeer people belonging to the settlements of the Maritime Koryak, and Reindeer Koryak proper who moved thither from the Gishiga district. No detailed information as to the respective numbers of each separate group is given, but it is pointed out that the latter are the more numerous.

In all probability, the Reindeer Koryak proper, or a part of them, who had wandered thither from the Gishiga district, constitute the clan of the Gishiga district, which, as we saw, seems to have disappeared in 1850. As to the Reindeer Koryak of the Petropavlovsk district classed by the Administration as belonging to the settlements of the Maritime Koryak, we find, according to Mr. Bogoras, that there are 61 nomad Koryak belonging to the Lesnovskoye settlement. The total number of Reindeer Koryak in the Petropavlovsk district is, according to the last census, 1284 persons.\(^3\)

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\(^1\) See Patkanov, p. 17.\(^2\) See Patkanov, p. 20.\(^3\) See Patkanov, p. 18.
Anadyr and Okhotsk Districts. — According to the last census, there were found in the Anadyr district five tents of Reindeer Koryak, or 75 persons (33 men, 42 women), wandering, together with the Chukchee, in the southern part of the Anadyr district, on the northern slope of the Palpal Ridge. In the Okhotsk district 13 persons were found, apparently a camp of Koryak wandering together with the Tungus.

Settlements of the Maritime Koryak. Okhotsk District. — In the Okhotsk district, Maritime Koryak are found in two settlements only, — in the villages of Yamsk and Tumansk. They are Christians, and have become Russianized. They have forgotten the Koryak language, and speak Russian as well as Tungus. Physically they represent a blood mixture of Russians, Tungus, and Yakut. According to official data there are 205 Koryak in the village of Yamsk, and 26 Koryak in the village of Tumansk, or 66 per cent of the total number of inhabitants of those two villages. All together, there are 231 Maritime Koryak in the Okhotsk district.

Gishiga District. — The settlements of the Maritime Koryak of the Gishiga district are situated along the shores of the Okhotsk and Bering Seas. I begin with the villages on the Okhotsk Sea.

1. The settlement Nayakhan (Koryak E'igival, "West") is at the mouth of the Nayakhan River, in Gishiga Bay. Officially the clan is called the "Germanda Clan" (Германдейськя родь), from the Germanda River (Koryak Liţi'čmanā¹), on the banks of which the Koryak used to live. These Koryak, like those of the Okhotsk district, have become Russianized. They are of the Orthodox faith, and some of them are related to Russians. Although the Koryak language is still in use, it is spoken imperfectly, and not by all. Like the Koryak of the Okhotsk district, they have formed a peculiar dialect of the Russian language. They also speak the Tungus language, as they often come in contact with the Tungus, who in summer come to the Nayakhan settlement to attend the fair. The Nayakhan Koryak, like those of the Okhotsk district, live in log-cabins built after the Russian fashion. Their summer settlement is at the very mouth of the river; in winter they locate about four miles up the river.

The statistics of 1850 show that in the Germanda Clan there were twenty families, or 125 persons (65 men, 60 women); according to Patkanov (1897), there were only 42 persons (27 men, 15 women); while my figures (1901) show that there were eight families, or 35 persons (21 men, 14 women). Apparently the clan is becoming extinct. Nayakhan is at present the only Koryak settlement in Gishiga Bay.²

¹ From Li'gun, "stone-birch." Birch-trees, apparently, are found along the banks of this river.
² Until recently there was another small settlement of Maritime Koryak near the mouth of the Avekova River, but no permanent houses are to be found there any longer. In summer some families of Reindeer Koryak and Tungus fish there. In the town of Gishiginsk proper there were, according to the 1897 census, 17 Koryak.
The first Koryak settlements on the western shore of Penshina Bay are found on Cape Itkana, where there are three settlements, — Little Itkana (Neni'yigičun), Middle Itkana (Osgi'ñče), and Big Itkana (Itkanu). Little Itkana is situated thirteen miles and a half from Middle Itkana, and the latter thirty miles from Big Itkana. I mention these settlements together, as they constitute officially the single “Itkana Clan” (Итканевский род). Besides, families often move from one settlement to another. During my winter sojourn there, all the inhabitants of Middle Itkana moved over to their relatives in Big Itkana. Three families who lived permanently in Middle Itkana were afraid, after the epidemic of measles in 1900, to stay at the settlement in such small numbers.

According to statistics of 1886, the three settlements consisted of eighteen families, or 157 persons (63 men, 94 women); according to Patkanov (1897), there were 155 persons (65 men, 90 women); while, according to my own figures (1901), there were fifteen families, or 117 persons (59 men, 58 women). Besides these 117 Itkana people, there lived among them, in the winter of 1901, 11 Koryak from Paren. In 1900 they lost 32 persons (7 men, 25 women) from measles. Of the above total figure of 1901, 93 persons lived in Big Itkana, and 35 in Little Itkana. If the enumeration of 1886 and of the census are correct, then the people of Itkana are decreasing in number but I should state here that the Itkana people, from their size, constitution, and appearance, gave me the impression of being physically the best representatives among the Koryak that I saw.

5–8. Four settlements — Paren (Po'itin), Kuel, Khaimchiki, and Tilqovo — form one group of Maritime Koryak, known under the name of “Paren people” (Паренцы). Officially they form at present three clans, — First, Second, and Third Paren Clans (Первый, Второй, и Третий Паренский род). In the 1897 census they were divided into two clans, — First and Second; but in 1900 I found among them three elders (two in Kuel and one in Paren) who collected tribute.

Of the above four settlements, Paren and Tilqovo are winter settlements; Khaimchiki, a summer settlement; and Kuel, a permanent village.

Paren (Po'itin), the larger winter settlement, is situated on the bank of the Paren River (Po'itu-ve'ym), about thirteen miles from its mouth. In summer most of the inhabitants live near the mouth of the river, in the summer settlement Khaimchiki; but a part of them stay in Kuel.

Kuel, near the mouth of a small river of the same name, is situated on the seashore, about ten miles north of Paren.

Tilqovo had in 1900–01 one house, where a family from Kuel lived during the winter. Some winters there are two houses here. It is on the Tilqai River, a little over fourteen miles from the sea.

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1 According to Patkanov’s written information.
According to official statistics (1850), there were fifty-four families, or 300 persons (156 men, 144 women), in the Paren clans. Patkanov's enumeration (1897) is 247 persons (110 men, 137 women);¹ and, according to my own census (1901), 199 persons lived in their own settlements, 11 lived with the Itkana people, and they lost 24 in the measles epidemic of 1900. From these data we may draw the conclusion that the Paren people are also decreasing in number.

9-16. The so-called "Kamenski people" (Каменцы) live in the following settlements: Mikino (Ме's-кен), Shestakovo (Ле'нле'кан), Yagach, Levati, Yarnochek, Kamenskoye (В'икенан), Talovka (Xес-xe'н), and Ма'мец (Russian Мамеч). They are divided officially into three clans, — First, Second, and Third Kamenskoye Clans (Первый, Второй и Третий Каменский род). The Third Kamenskoye Clan is in some official documents called the "Yagach Clan" (Ягачинский род), and is so registered in the census of 1897. Outside of the settlements enumerated above, three families of Kamentsi live in the Rekinniki settlement.

According to official data of 1850, the Kamentsi numbered 437 persons (242 men, 195 women), or sixty-seven families; the census of 1897 gives 431 persons (202 men, 229 women); and from my own data (1901) there were 317 persons (153 men, 164 women). According to information gathered by myself, 65 persons died of measles in 1900.

All these settlements are situated on the seashore. Shestakovo, Kamenskoye, and Talovka are at the mouths of the rivers Shestakovka (Eгаc), Penshina (Ма'гткн-ве'ям), and Talovka (Xес-xe-ве'ям). All these settlements of the Kamenski people are permanent; that is, they live there summer and winter.

Migration from one settlement to another occurs quite frequently, on account of change of season, requirements of the hunt, or for family reasons, so that the population of the settlements is changeable. Moreover, some families of the Kamentsi have, during the summer hunting-season, summer underground houses on the seashore, outside of their permanent dwelling-places; but they have no particular names. The Kamenskoye settlement is always the most populous. To give an idea of the relative number of inhabitants in the settlements of the Kamentsi, I will give the number of people in each at the time of my census-taking.

Mikino had 28 inhabitants; Shestakovo, 18; Yagach,² 21; Yarnochek, 22; Levati, 24; Kamenskoye, 162; Talovka, 42; Ма'мец, 25; Rekinniki, 15.³

¹ Not including the 31 nomadic people (see p. 434).
² The village Yagach (Коряк Егаc) is also the name of the river on which Shestakovo lies. The route between Shestakovo and Kamenskoye, leading over the Kamenski Ridge, turns away from the seashore. The villages Yagach, Yarnochek, and Levati are situated on the bold rocky shore between the mouths of Shestakovka (Eгаc) and Penshina Rivers, and therefore are not visited by travellers.
³ See Fig. 251.
All the Kamentsi are Pagans. In the Kamenskoye settlement there are two persons who are nominally considered Christians, and in Ma'meč and Rekinniki there are three Christian families.

The official clans are distributed as follows:

The First Kamenskoye Clan (191 persons, census of 1897; and 139 persons of my census) live in the settlements Kamenskoye, Talovka, Ma'meč, and Rekinniki. The Second Kamenskoye Clan (81 persons, census of 1897; and 69 persons of my census) live in the settlements Kamenskoye and Talovka.

The Third Kamenskoye or Egač Clan (154 persons, census of 1897; and 109 persons of my census) live in the settlements Kamenskoye, Levatt, Yarnochek, Egač, Shestakovo, and Mikino.

The rest of the clans in the Gishiga district, on Penshina Bay, are — 17, 18. The inhabitants of the villages of Pustoretsk (Ewle'wun) and Rekinniki (Rekinnok), with the exception of 15 Kamentsi living at Rekinniki, as pointed out above, constitute officially the Pustoretsk clan (Пусторетский род). According to the report of the chief of the Gishiga district of 1867, there were 110 persons (62 men, 48 women) in this clan. According to the census of 1897, the clan of Pustoretsk consisted of 99 sedentary persons (50 men, 49 women) living in the villages of Rekinniki and Pustoretsk, and of 63 persons (29 men, 34 women) wandering with reindeer over the tundra in the vicinity of the villages here named. The enumeration of Bogoras (1901) shows for the village of Rekinniki 87 inhabitants (including 15 persons belonging to the Kamentsi), for the village of Pustoretsk 54 persons, and 25 Reindeer people belonging to the village of Rekinniki. The majority of Koryak of this clan have embraced Christianity.

19. Podkaguirnoye (Pitka'hen) village, whose inhabitants constitute officially a separate Podkaguir clan (Подкагирский род), numbered, according to the report of 1867 before mentioned, 65 persons (35 men, 30 women); the census of 1897 shows 51 persons (28 men, 23 women), 34 of whom live in the village, and 17 wander with reindeer. According to Mr. Bogoras (1901), there were only 25 persons in the village. Apparently this clan is on the decline. Unfortunately I have no information as to the number of people who died during the epidemic of measles in 1900.

In enumerating the settlements of Maritime Koryak of the Gishiga district along the shores of Bering Sea, I shall start from the most northern settlement of the Kerek, and proceed southward.

The official border-line between the Gishiga and Anadyr districts passes through the Kerek territory. Before the visit of the Jesup Expedition, not a

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1 In the year 1867 the Administration of the Koryak of the clans Pustoretsk, Podkaguirsk, and of the villages of the Alutor Koryak, was transferred from the chief of the Petropavlovsk district to that of the Gishiga district. Therefore I could not find in the archives of Gishiga earlier data concerning those clans.

2 Patkanov's written information.
single white person had traversed the entire Kerek territory. From the south
the Russians communicated with the Kerek of the villages Kavačat and Ilpi.

Ankudinov, the assistant of the chief of the Anadyr district, was the first
one to reach (1897) the first Kerek settlements in the north, going from the
mouth of the Anadyr River; but Mr. Bogoras was the first (1901) to pass
with dog-sledges along the seashore, and visit all the Kerek settlements.

A part of the southern Kerek have been assessed for tribute only recently,
but official data concerning them are very much confused. The same may
be said with reference to the settlements and numbers of the Opuka and
Poqač Koryak, the nearest neighbors of the Kerek. I shall therefore at first
proceed with the data relating to the settlements of the Kerek as well as to
those of the Opuka, Poqač, and Qa’yilin Koryak, from north to south,
according to the data collected by Mr. Bogoras.

Kerek Villages. 20–32. Hačhatahin and Ke’niun have one house each
with 25 inhabitants. Vatt’rkan has three underground houses with about 50
persons. The settlements Annon, Malan, Yagnon, and Uklan, have one
house each with 25 inhabitants. Ilpi (on the mouth of the river of the same
name) has three houses with 50 persons approximately. The settlements
Mečivnen, Tapan, Vaimentahin, and Tapatahin have one house each, contain-
ing about 25 persons. Kavačat has 21 inhabitants. According to these
data, the total number of Kerek is 371 persons.

The settlements of the Opuka and Poqač Maritime Koryak, according
to Mr. Bogoras, are the following.

33, 34. The Opuka Koryak live in two villages on the Opuka River, —
Čimi’tqa with five underground houses; and Opuka, near the mouth of the
river, with four houses. The inhabitants number about 90.

35. The Poqač Koryak live along the Poqač River. Their underground
houses, nine in number, are scattered along the river, and their population
is about 90.

36. Khalilino (Russian ΧΑΙΛΙΝΟ, Koryak Qa’yilin) is situated on the upper
course of the Vivnik River. According to the data of Mr. Bogoras (1901),
there were in Khalilino seven underground houses; but he counted the
inhabitants of five of them only, in which he found 67 persons. From the
statistical report for 1898 of the governor of the Maritime Province we also
see that the Khalilino settlement had seven underground houses with 93
inhabitants. Thus the figure of 1898 may agree with that of Mr. Bogoras.

The number of the Kerek, together with the number of the Opuka,
Poqač, and Khalilino Koryak, shows, according to the enumeration of Mr.
Bogoras, a total of 644 persons. I take this total in order to be able to
compare the data of Mr. Bogoras with those of the census of 1897.

1 For the village of Qa’yilin only, I take the figure 93 of the report of the governor.
Under the name of "Kerek" are quoted in the census of 1897 only the inhabitants of the five northern Kerek villages, apparently numbered by Ankudinov, mentioned above. There were twenty-four families, or 102 persons (52 men, 50 women). They are placed in the territory of the Anadyr district. The inhabitants of the Kerek village Ilpi (Russian Khatyryk, Хатырык) are counted as belonging to the Khatyryk clan of Koryak, and the inhabitants of the Kerek village Kava'cat on Cape Anannon as belonging to the Kovacha Clan of Koryak. All other Kerek villages visited by Mr. Bogoras were not enumerated by the census of 1897.

Thus we have in the northeastern part of the Gishiga district, according to the census of 1897, three "clans" of Maritime Koryak, in which, as we have seen, was included also a part of the Kerek. These three clans are —

The Khatyryk Clan (Хатырыкский родъ), showing 66 persons (35 men, 31 women) living in the villages of Khatyryk (Ilpi) and Kovacha (Ковача, evidently the Kerek Kava'cat) on the river Opuka, — 44 persons in the former village, and 22 in the latter.

The Kovacha Clan (Ковачинский родъ), showing 104 persons (54 men, 50 women) living in the villages of Kovacha (apparently the Kerek Kava'cat) and Khatyryk (Ilpi), — 91 persons in the former village, and 13 in the latter.

The Pokhacha Clan (Покачинский родъ), showing 178 persons (90 men, 88 women), — living in the villages of Pokhacha (evidently Paqač of the Koryak) on the river Pokhacha (Poqač), 71 persons; of Pokhacha on the river Opuka, 47 persons; of Khailino (Qa'yíln), 60 persons. Thus, according to the census of 1897, the total number of inhabitants of the five northern Kerek villages — of the villages of Ilpi (Khatyryka) and Kava'cat (which are placed by Mr. Bogoras also among the Kerek settlements), and of the Opuka, Paqač, and Qa'yíln — is 450 persons. If we add to this figure the number of inhabitants of the Kerek settlements (evidently the settlements Yagnon, Uklit, Mečvnen, Tapan, Vaimentahn, and Tapatahn), not numbered by the census of 1897, but visited by Mr. Bogoras, namely 150 persons, we receive the total of 600 persons, which total is lower than the figure 644 of the Bogoras census mentioned above. In view of the fact that the census of 1897 was made before the last epidemic of measles (1900) ravaged the country, we may draw the conclusion that the official data concerning the Kerek and the Koryak of Opuka, Paqač, and Qa'yíln, are incomplete. Besides, the official designation of the settlements is confused.

The so-called Alutor Koryak (in Russian Olutorsi, Олюторцы) inhabit the
villages (37-42) of Alut (Russian Olutorsk, Олюторскъ), Тилраан (Russian Tihorass, Тилряны), Кичин (Russian Kichiga, Кичга), and Timlati (Тимлаты). To the group of Alutor Koryak belong also a certain number of people who wander with reindeer.

The data on the Alutor Koryak at my disposal belong to two lines of information. The census of 1897 enumerates them by clans, according to written information of Mr. Patkanov, and Mr. Bogoras by villages.

According to the census of 1897, we have the following clans: —

Alutor Clan (Олюторский родъ), which includes 117 sedentary persons (61 men, 56 women) and 81 nomads (43 men, 38 women), a total of 198 persons. Of the sedentary people, 101 (52 men, 49 women) lived in the Alut village, and 16 (9 men, 7 women) in the Kichin village.

Kultusno Clan (Культусный родъ), which consists of 202 sedentary persons (96 men, 106 women) and 149 nomads (73 men, 76 women), a total of 351 persons. The sedentary people lived in the villages of Vivnik and Tilliran. No separate numbers are given.

Тилраан or Tilechinski Clan (Тилченский родъ), which comprises 84 sedentary persons (46 men, 38 women) and 8 nomads (3 men, 5 women), a total of 92 persons. Of the sedentary people, 61 (31 men, 30 women) lived in the Tilliran village, and 23 (15 men, 8 women) in Vivnik.

Vivnik Clan (Вивникский родъ), consisting of 96 sedentary people (54 men, 42 women) and 14 nomads (10 men, 4 women), a total of 110 persons. Of the sedentary people, 79 (44 men, 35 women) lived in Vivnik village, and 17 (10 men, 7 women) in the Kichin village.

Кичин Clan (Кичинский родъ), which consists of 95 sedentary persons (56 men, 39 women) and 63 nomads (34 men, 29 women), a total of 158 persons. Of the sedentary people, 86 (50 men, 36 women) lived in Kichin, and 9 (6 men, 3 women) in Tilliran.

The whole number of the five clans of the Alutor Koryak, according to the census of 1897, shows 909 persons (476 men, 433 women).

In the manuscript notes of Mr. Patkanov the villages of Vetvey and Timlati are not mentioned at all.

The census of Mr. Bogoras, of the Alutor Koryak, was made by villages. For purposes of comparison I will quote also available older official data.

37. The village Alut, according to the census of 1859, had 147 inhabitants (79 men, 68 women); according to the report of the governor (1898), 101 persons (52 men, 49 women), with eleven underground houses. The data of Mr. Bogoras, however (1901), show only 80 persons with seven underground houses. This decrease is apparently to be ascribed to mortality from disease. The inhabitants of Alut have recently been converted to the Greek Orthodox faith.
38. Kultusnoye (Iilir), by the census of 1859, had 222 persons (119 men, 103 women). According to the report of the governor of the Maritime Province (1898), there were twelve underground houses with 144 inhabitants (66 men, 78 women). In the data of Mr. Bogoras (1901), only eleven underground houses are indicated, and three camps, or 25 nomads, belonging to the ilir village.

39. Tilir or Tilechiki had 57 inhabitants (30 men, 27 women) according to the data of 1859, 98 (51 men, 47 women) according to the report of the governor of 1898, and only 42 persons according to Mr. Bogoras (1901).

40. Vetvey had 20 inhabitants (11 men, 9 women) according to the data of 1859, 10 (6 men, 4 women) according to those of 1898. In the data of Mr. Bogoras (1901) only three underground houses are indicated.

41. Vivnik had 88 inhabitants (53 men, 35 women) according to the data of 1859, 102 (59 men, 43 women) according to the report of the governor (1898), with eight underground houses, while according to Mr. Bogoras (1901), there were only four underground houses with one camp of nomadic people belonging to this village.

42. Kichin consisted, according to the data of 1859, of 145 persons (81 men, 64 women); according to the report of the governor of the Maritime Province (1898), of 170 persons (95 men, 75 women) with fifteen underground houses; and, according to Mr. Bogoras (1901), of 113 sedentary persons with 12 camps or 120 persons of nomadic people belonging to the village.

43. Timlatt is not mentioned in the census of 1859. According to the governor's report (1898), this village had 48 persons, while Mr. Bogoras found seven underground houses there, but he does not indicate the number of people.

In comparing the different data concerning the Alutor Koryak, we may draw the conclusion that the data of Mr. Bogoras are incomplete, and therefore we cannot say in how far the number of the Alutor Koryak has diminished since the census of 1897 and older data.

**Petropavlovsk District.** — The Maritime Koryak of this district are Russianized, like the Kamchadal. The official reports do not divide them now into clans, as they do arbitrarily with the Koryak of other districts. Even the groups of Reindeer Koryak of the Petropavlovsk district are at present often designated in official reports as "nomadic communities" (коневое общество), and not as clans (роды). The census of 1897 indicates every settlement of the Maritime Koryak of the Petropavlovsk district as a "village community" (селевое общество) by itself, in the Russian sense of this word. Thus, concerning the sedentary Koryak of the Petropavlovsk district, we have to do only with an enumeration of villages, and not of clans. The villages Nos. 44-49 are on Bering Sea, and Nos. 50-54 on the Sea of Okhotsk.

44. Karaghha (Koryak Qare'ain). According to the statistical report of the governor of the Maritime province (1898), this village had 168 inhabitants
(87 men, 81 women) with twenty houses. Patkanov (census of 1897) informs me that there are only 103 persons (56 men, 47 women). It is difficult to explain the difference between these figures.

45. Dranka. Here are found, according to Patkanov (census of 1897), 82 persons (36 men, 46 women); the governor's report (1898) gives 86 persons (38 men, 48 women) with thirteen houses.

46. Ivashka. Here, according to both sources named, were 37 persons (19 men, 18 women) with six houses.

47. Khalula or Khalulinskoye. Here, according to both sources, were 21 persons (11 men, 10 women) with three houses.

48. Uka. According to both sources, 10 persons (5 men, 5 women) with three houses were found here.

49. Osernoye or Oserna. According to the census of 1897, 46 persons (25 men, 21 women) lived here, while the governor's report gives 43 inhabitants (23 men, 20 women) living in six houses.

Mr. Bogoras does not furnish any information with reference to the above six villages. The inhabitants of the villages 44-49 are also known under the name of "Uka people" or Ukints (Укints).

50. Voyampolka. According to the census of 1897 and the governor's report of 1898, there were 127 inhabitants (63 men, 64 women) with seventeen houses, while according to Mr. Bogoras (1901) there were only 93 persons (50 men, 43 women).

51. Kakhtana. Here were found, according to the census of 1897 and the governor's figures of 1898, 235 inhabitants (115 men, 120 women); but Mr. Bogoras found only 163 persons (84 men, 79 women). During the epidemic of measles in 1900, they lost, according to Mr. Bogoras, 36 persons.

52. Pallan. This settlement had, according to the census of 1897, 203 persons (100 men, 103 women); the governor's report of 1898 gives 226 inhabitants (112 men, 114 women); while Mr. Bogoras (1901) found here only 132 Koryak (63 men, 69 women) and 20 Russians. In 1900, 35 persons died here of measles.

53. Kinkil. According to both the census of 1897 and the governor's report for 1898, 133 persons (67 men, 66 women) were found here; but Mr. Bogoras found only 89 (50 men, 39 women). In 1900, 42 persons died here of measles.

54. Lesna or Lesnovskoye. By both the census of 1897 and the governor's report (1898) there were 180 inhabitants here (86 men, 94 women) with nineteen houses; but Mr. Bogoras (1901) found only 146 persons (71 men, 75 women). In this settlement 70 persons died of measles in 1900.

The inhabitants of the last five villages are known under the name of the "Pallan people" or Pallantsi (Паланты). Their total number, according to the census of 1897, shows 878 persons, while Mr. Bogoras (1901) found only
621, but he gives the number of persons who died of measles in 1900 as 183. If we add this figure to the 621 living persons, we find a total of 804, which is less than the figure of the census of 1897. Evidently the Pallantsi are decreasing in numbers. According to Mr. Bogoras, 61 nomadic people (31 men, 30 women) belong to the community of Lesna village, and I cannot say whether this group of nomads is included in the number of Reindeer people of the Petropavlovsk district of the census of 1897 given above.

**Estimate of the Number of Koryak.** — It is difficult to give the exact number of Koryak at present, on the basis of the above figures, which are taken from various sources. The figures from the last census, however, which follow below, are approximately correct. If a part of the Kerek, and small groups of Reindeer Koryak, not assessed for payment of tribute, are not included in the census figures, this deficiency, no doubt, will be more than covered by the numbers that died in the epidemic of 1900, since the mortality at that time in settlements and camps was from ten to thirty-three per cent. Thus the data of the census, even taking into consideration the increase of population in the last seven years, will be somewhat higher than the actual number of members of the Koryak tribe. We have compiled the following table on the basis of the census figures.

<table>
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<th>Districts</th>
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<td>Okhotsk</td>
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<td>—</td>
<td>—</td>
<td>126</td>
<td>118</td>
<td>244</td>
<td>244</td>
<td></td>
</tr>
<tr>
<td>Anadyr</td>
<td>33</td>
<td>42</td>
<td>75</td>
<td>52</td>
<td>50</td>
<td>102</td>
<td>177</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1964</td>
<td>1784</td>
<td>3748</td>
<td>1865</td>
<td>1917</td>
<td>3782</td>
<td>7530</td>
<td></td>
</tr>
</tbody>
</table>

The greatest number of Koryak, 59 per cent, falls to the Gishiga district. The total numbers of Reindeer and Maritime Koryak are about equal, — 3748 and 3782. The number of women is less among the Reindeer Koryak than it is among the Maritime division. The number of women among the former is less than that of the men, — 90.8 women to 100 men. The number of women among the latter exceeds that of the men, — 102.6 women to 100 men. The difference in the number of women in these two groups may be

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1 I do not include here the 13 Reindeer Koryak scattered over the Okhonsk district, since I believe that this group is either a part of the Gishiga Reindeer Koryak, or that they are the group of Reindeer Koryak who have been assimilated by the Tungus, and are considered officially as belonging to the Koryak of the Yamsk settlement. On the Korkodon River I once met with a Koryak family from the Okhotsk district who could not speak the Koryak language, but who spoke the Tungus, as well as the Russian language.
explained by the fact that the life of a Reindeer Koryak woman is much harder than that of her Maritime sister. The hard work incident upon their wandering and the pitching of tents, which duty devolves upon the women, and the constant struggle with cold and inclement weather, are unknown in the life of the Maritime Koryak women.

Without available correct data as to the numbers of Koryak in earlier times, it is hard to say whether, as a tribe, they are on the increase or not. If we take the figures of 1852 given by Dittmar,\(^1\) — 235 Kamentsi and Paren people,\(^2\) 872 Pallan people, 413 Ookintsi, and 1750 Reindeer Koryak assessed for fur-tribute, making a total of 3270 persons, — we see plainly that they do not represent even half of the present number of Koryak. Dittmar himself estimates the number of Reindeer Koryak not assessed at about 1000. He does not indicate the number of the Alutor people, although he mentions them. Furthermore, he does not even mention the Kerek, the Itkana people, and the Russianized Koryak west of the Gishiga district.

Personally I am inclined to believe that the number of Maritime Koryak is at present smaller than that of the not remote period of 1852. Such a conclusion with reference to some groups may be drawn from the data quoted by me in enumerating clans and settlements. Besides, I saw, between the mouths of the Gishiga and Nayakhan Rivers, traces of old dwellings of a few rather large settlements whose inhabitants had disappeared completely; and I was told that such ruins are found in other places on the shores of Okhotsk and Bering Seas.

As will be seen from the last chapter, the number of Maritime Koryak killed in wars with the Russians was considerable; and since peaceful relations with the Russians have been established, frequent epidemics and famines have deprived the Koryak of a part of their population. The decline is particularly noticeable among the Russianized settlements; for instance, Nayakhan.

The Reindeer Koryak who have not been in such close contact with the Russians have preserved their primitive vigor to a greater degree. Disease may carry off the increase of more favorable years. Of course, we cannot say that the number of Reindeer Koryak is greater at present than it was in preceding periods; but the fact that they are nearly equal in number to the Maritime Koryak indicates that conditions are now more favorable among the former than among the latter, since in olden times, I believe, the Maritime population was greater than that of the Reindeer division.

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\(^1\) Die Kortken, pp. 8, 12, 14, 38.
\(^2\) With reference to the subdivision of the Koryak into groups, by Dittmar, see above, p. 439.
IV. — HABITATIONS.

The Reindeer as well as the Maritime Koryak call their dwellings yayaⁿt or li'ge-yan¹ ("genuine house"). The Maritime Koryak call the tents of the Reindeer Koryak ca'u'ĉewyan ("Reindeer people's house"), while the latter call the dwellings of the Maritime Koryak wa'plxai ("jaw-bone [of a whale] house"). This name is of great interest. From it the conclusion may be drawn that in olden times the Maritime Koryak used for the construction of their underground houses bone of whale,² which is still used by the Eskimo.

Remains of underground dwellings the framework of which was of bone of whale were seen by Wrangel and Nordenskiöld along the shores of the Arctic. Mr. Bogoras saw ruins of such houses in the villages of the Maritime Chukchee and Asiatic Eskimo on Bering Sea. These houses are called by the natives wa'lkar, which also means "jaw-bone house."³

Reindeer Koryak. — The dwelling of the Reindeer Koryak consists of an outside tent and an inner sleeping-tent. The frame of the outer tent is built after the type of the movable dwellings of the nomad Mongol and Turkish tribes of Asia; such as the cattle-breeding Kirghiz and Kalmuk,⁴ who cover the frame of their tent with a felt covering, and the reindeer-breeding Tungus,⁵ who use birch-bark or reindeer-hide for the same purpose.

The characteristic feature of this type of dwelling is its construction in two parts; the lower part being cylindrical, and the upper part or roof conical, in shape. The Koryak reindeer-skin tent, however, is clumsier and heavier than the felt habitation (kibitka) of the Kirghiz, and the leather or birch-bark dwelling of the Tungus. The lower part of the outer tent of the Reindeer Koryak does not form as regular a circle as do the lower parts of the tents of the above-mentioned tribes. Still it is more symmetrical than that of the Reindeer Chukchee, which, on the whole, it resembles.⁶

The frame of the outer tent (yayaⁿt) of the Reindeer Koryak consists, first of all, of three foundation-posts (Fig. 59), or ye'lxel, arranged in the form of a tripod, and tied together at the top by means of strong thongs.

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¹ In the Chukchee language li'ge-ya
² I found no ribs or jaw-bones of whales in the framework of the excavated ancient underground house of the Koryak in Gishiga Bay, while bones of whales were scattered all round the pits of the old dwellings.
⁴ For a detailed description of the dwellings of the Turkish and Mongol tribes see the interesting paper of N. Charusin, The History of the Development of the Dwellings of the Nomadic and Semi-Nomadic Turkish and Mongol Tribes of Russia (Ethnographic Survey, Journal of the Ethnographic Section of the Imperial Society of the Friends of Natural History, Anthropology, and Ethnography [Moscow, 1896], Vol. XXVIII, No. 1).
⁵ A detailed description of the different types of Tungus habitations will be given in my work on the Yukaghir.
The height of these poles, upon which depends the height of the dwelling, varies from 3.5 metres to 5 metres, according to its size. Around this tripod are placed, at a distance apart of from one to two metres, strong stakes (d), in sets of two or three, from 1.3 to 1.5 metres in height. The upper ends of these stakes are tied together with thongs passing through holes. To the tops of these poles are tied the ends of horizontal wooden bars, or wi'ye\-ye\-'xalu (c). These cross-bars with their supports constitute the lower, circular part of the frame. However, as I pointed out above, the lower part of the frame does not form a regular circle, as the cross-bars are too heavy and long. When uncovered, they look more like beams forming the sides of a polygon; but the heavy reindeer-skin cover of the frame conceals to a great extent the angles formed by these cross-bars. 

The conical part of the frame is composed of slanting poles, or yevi'ne (d'), extending from the middle of the cross-bars (c) and from the tops of the tripods (b) towards the top of the foundation-posts. By means of thongs both ends of these poles are securely fastened to the corresponding parts of the frame. The following parts also belong to the frame.

Poles (e), the lower ends of which are driven into the ground, and to whose upper ends are fastened curved pieces (f) which serve to prop up the cover. The ends of these curved pieces are tied to the roof-poles by means of thongs. The number of these stretchers (e, f) depends upon the size of the tent. In a medium-sized tent there are from three to four.

Poles (g) with their cross-bar (h), which serve for suspending the kettle over the hearth.

Stakes (i and k), which are usually placed before the entrance of the winter tent to protect it from snow-drifts. These stakes serve as the frame of a small entrance-room, which is covered with reindeer-skins; but such entrance-rooms do not occur often.

The frame of the Koryak tent is very substantial, and capable of withstanding the strongest wind. The thongs which connect the wooden parts make the tent flexible and elastic. During a heavy snow-storm the tent creaks and shakes like a ship at sea; but when the storm is over, it settles back as firm as ever, unless the wind should have broken the lashings. In a frost following thaws, the thongs become hard, and are liable to break. The tent-cover (xece'getol), if it is well secured to the frame, in its turn keeps the frame firm, and protects the poles and stakes from the wind.

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1 Fig. 59 represents a model of a small tent, with a single inner tent. In place of the central tripod, we find here a separate kettle-stand (g). All large tents have the central tripod described above. It serves at the same time as a kettle-stand.

2 The lower part of the tent of the Tungus and of the Kirghiz is, on the contrary, of a more regular cylindrical form. In the Tungus tent the cross-bars consist of round thin and short sticks, and in the Kirghiz tent the crossbars are curved.
Fig. 59. Complete Framework, Outer Framework, and Kettle-Stand of Model of Tent.
The cover consists of reindeer-skins sewed together, with the hair side out (Plate xix, Fig. 1). Worn-out skins which have previously served for the inner tent are used for making this cover. In order to lessen its weight when moving from place to place, the hair is clipped close with a sharp knife. It is made in two or more pieces. The upper part of the cover, where the smoke accumulates, is made of much-worn skins sewed together. The lower parts, consisting usually of two pieces, are attached to it. The ends of the cover overlap on the entrance side of the tent. Inside, the parts of the cover are fastened firmly together and to the stakes and poles with thongs. The lower ends of the cover are tucked under, and weighted down inside the tent with stones and heavy bags filled with clothes, or with loaded sledges. Outside, around the cylindrical and conical parts, as well as up and down, the cover is fastened with thongs the ends of which are attached to loaded sledges surrounding the tent and to stakes driven into the ground or the snow. Water is poured over the snow around these stakes, which freezes and thus makes the snow a solid, resisting mass of ice. Light driving-sledges, when not in use, are tied to the roof of the house, thus fastening the cover to the frame.

The Koryak outer tents are usually more spacious than those of the Chukchee. Several Koryak families live in one tent. The sleeping-tents are placed all around the inner space of the tent, with the exception of the entrance side.

The Chukchee have usually only one sleeping-tent, near the wall opposite the entrance, for unrelated families do not live in the same tent. For this reason the sides of the tent are drawn closer together. The front part with the entrance looks as though it were truncated; and the back part, which contains the inner tent, is extended backward. The diameter of a large Koryak tent is from eight to nine metres. The middle space is so taken up with poles and stakes that it reminds one of the scaffolding of a building in course of construction. The hearth is not placed in the centre of the tent, as with the Tungus, but is on the middle of a line drawn from the front wall of the sleeping-tent in the rear to the entrance. The opening for the smoke (see Plate xix, Fig. 1) is therefore rather in the direction of the slope of the roof on the side of the entrance. The back part is covered to the tops of the poles.

While, in other Asiatic movable tents of the type here described, the inner tent serves as a bedroom only, among the Koryak and Chukchee it serves as a living-room also, particularly in winter. The inner tent (yoyoñäh) is in the form of a rectangular box placed upside down. It is made of the dressed hairy skin of full-grown reindeer killed in the fall, with the hair side in, and is sewed with sinew-thread (see Fig. 59).

I did not see among the Reindeer Koryak such spacious inner tents as
FIG. 1. TENT OF REINDEER KORYAK.

FIG. 2. LARGE TENT USED DURING A FAIR.

The Koryak.
I saw among the rich Reindeer Chukchee of the Kolyma River, in which it was possible to stand up comfortably. The height of the Koryak inner tent varies from 1.3 to 1.5 metres; its length, from 2 to 4 metres; and its width, from 1.3 to 2 metres. To the upper edges of the longer walls, thongs are fastened, by means of which the rear part of the tent is attached to the cross-bar of the frame of the outer tent. The front part, facing the hearth, is tied to a stake (Fig. 59) resting on the cross-bars attached to the frame of the tent.

The floor of the sleeping-room is strewn with willow-branches covered with reindeer-skins. The lower parts of the cover on the rear and side walls of the inner tent are tucked inside, and the bedding is placed upon them; while the cover of the front wall is tucked under only when the inmates go to bed. I shall dwell here only on the difference between the Koryak and the Chukchee in the use of the inner tent.

The Koryak seldom break up their inner tent in order to beat it on the snow and dry it. They dry it during the day by lifting up the front part of the cover. Thus the dampness collected from the exhalations of the sleepers during the night, and lodged in the hair of the skins, and the vapors rising from the tea and warm food, mixed with dirt and fat, are only partially dissipated during the day. For this reason the inner tents of the Koryak are dirtier than are those of the Chukchee.

In the evening the inner tent is closed, the lamp is lighted, and the family drink tea and take supper. At this time the skin dwelling gets heated to such a degree that the men strip off their coats and remain half naked. During the night the fur sleeping-tent gets cooled off, so that the temperature inside is but three or four degrees higher than that prevailing outside.

A Koryak tent seldom has less than three or four inner sleeping-tents. The master, the families of his relatives and of his herdsmen, live in the same tent; and often members of the same tribe, not related, but wandering together, live in one tent.

During the fair on the Palpal (see Plate xix, Fig. 2) the Reindeer Koryak put up one common tent with two hearths placed like the foci of an ellipse, and with a passageway, on the two sides of which were sixteen inner tents (eight on each side). Over a hundred persons occupied this tent, the longer diameter of which exceeded twenty metres in length. Kennan mentions a large tent of Reindeer Koryak in northern Kamchatka in which he counted twenty-six inner tents. I had no chance to see tents accommodating so many, except the one at the fair. The large tent of the Taigonos elder (see Plate xix,
Fig. 2) had six sleeping-tents for thirty people. Among them were eleven persons not related to him, — herdsman and their families.

The difference between the summer and winter tents is in the quality of the cover. For winter it is made of better and heavier skins. All holes and openings in it are sewed up and covered over, and the snow is piled up all around the tent. The inner tent for summer is made of old skins with the hair clipped short. Among some Reindeer Koryak of the Taigono Peninsula I saw inner tents made of dressed reindeer-skins, like those of the Tungus.

To my mind, the Koryak tent with its inner sleeping-place appears to be a compromise between the tent of the Asiatic nomads and the snow-house of the Eskimo. The inner tent is illuminated and partly heated by a lamp fed with reindeer-fat, like the oil-lamp of the Eskimo house; while the hearth of the outer tent is intended for cooking mainly.

Except on particular occasions, when Reindeer Koryak assemble in numbers, either for purposes of trade or for the celebration of festivals, a camp (ya’mkin, “people,” the Koryak term for a camp of Reindeer people) is seldom composed of more than three tents. At least, I have never seen any more populous camps. A camp (see Plate xxi, Fig. 2) is usually composed of families, or groups of families, connected by ties of kinship (by blood or by marriage); or of a wealthy reindeer-owner and the families of his herdsmen; or of families not at all related to one another, but who, for the convenience of common pasture-grounds and the supervision of the herd, have combined their small herds.

The camp does not move from place to place as frequently as the Arctic nomads are supposed to do. There are four main removals during the year. Towards winter, in October, they put up their tents in the river-valleys, under the protection of high banks, among poplar and aspen groves. In spring, at the end of March, before the fawning-period begins, they descend into the open tundras of the lower courses of rivers, which are covered with lichen. In summer, in the month of July, they ascend the mountains to be near the river-sources. In the fall, at the time of the fawn festival, they return from the ridges to the elevated tundras of the watersheds and the river-valleys.

Other removals depend upon special causes; for instance, the exhaustion of pasturage, the prevalence of an epidemic among the people, or of some disease that attacks the reindeer; and sometimes the removal is for purposes of trade.

In olden times, according to tales of the Koryak, when an attack by a hostile neighbor was anticipated, and also during the wars with the Russians, the camps were surrounded by sledges, and the reindeer were driven inside of this fortified camp.

**Maritime Koryak.** — Like the tent of the Reindeer people, the dwelling of the Maritime Koryak is called, besides ḫge-yan (“genuine house”), also
INTERIOR OF SUBTERRANEAN HOUSE.

The Koryak.
yaya'ńiñ. It is an underground, or rather semi-underground, solidly built, permanent dwelling-place. It is of wood, mainly of poplar or aspen, which grows to a considerable height even along the lower courses of the rivers of the Koryak territory. The Koryak float the timber down in summer to the mouths of the rivers; and sometimes they use driftwood. Driftwood carried down by the current from the river-heads may be found mountain-high in the bays and at the mouths of the rivers.

The dwellings vary in size according to the number of inhabitants. Small houses occupied by a family of from five to eight persons may be found frequently. From excavations undertaken by me on the sites of ancient settlements in Gishiga Bay, it appears that in olden times the underground houses were more spacious than those of the present time. Families separated more rarely, and all relatives used to live together. The average number of occupants of one house at present is from six to thirteen. Out of 110 underground houses on the shores of Penshina Bay, of which I took a census, in only one (in the Paren settlement) did I find twenty-one persons, and they comprised two families. According to tales of olden times, there were formerly underground houses occupied by as many as forty persons. Among the Kerek we still find twenty-five persons in one house. A house in Mikino (Plate 22) inhabited by fifteen people was found to be 15 metres long (not including the entrance-room), 12 metres wide, and 7 metres high. Such a house is somewhat larger than the average present-day underground house; and those but half as large, or even smaller, may often be found.

In order to build an underground house, a circular hole from 1 to 1.5 metres deep is dug, in which the walls are put up in the form of an octagon. The octagon is not equilateral. The sides a (Fig. 60) are longer than b; and the sides c are half as long as b. Eight poles (P) about as long as the height of a man are driven into the ground at the eight corners. Between the poles two vertical rows of split logs, or large poles, or round stakes, are driven into the ground, and the spaces between them are filled in with dry grass. The tops of the eight outside corner poles (P) are notched, and

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1 See p. 440
into the notches wooden cross-beams are placed. Each pole holds the ends of two cross-beams. The upper ends of the inner vertical poles forming the walls are fitted into grooves in the cross-beams. In some houses, one row of the wall-boards, either the inner or the outer one, is set horizontally, and fits into grooves in the corner poles. When the vertical walls are thus prepared, they are covered to the top with earth taken from the hole (see Fig. 61, $f$).

![Fig. 61. Cross-Section of Underground House.](image)

Four main posts ($P'$) are driven into the ground in the middle space enclosed by the walls (Figs. 60 and 61). These posts support the roof of the house, and form a square. In large houses the diameter of these posts is more than 30 cm., while their height is from 5 to 7 metres and over. Into the notches on the top of these posts two beams are placed, across the grooved ends of which two other cross-beams are fitted and lashed. These four cross-beams together form a square frame. One pair of such beams resting on the posts may be seen in Fig. 61. From these beams, slanting down to the top-beams of the walls $a$ and $b$ (Fig. 60), poles of poplar or aspen logs split in two are placed, thus forming four sides of the roof. The triangles between the cross-beams $c$ and the inner posts $P'$ (Fig. 60) are covered with stakes of varying sizes, the lower ends of which rest on the beams $c$, and the upper ends on the extreme side-logs of the rectangular slopes.

All the crevices between the poles are carefully filled up with dry grass and loose earth, and on top is placed a row of cleft logs. In this manner the slanting roof of the house is formed. From each corner of the square frame formed by the four main inner beams, two posts rise obliquely (see Figs. 61 and 62 $g$). Their lower grooved ends rest on the beams on each side of the corner posts. They diverge widely, and their upper sides rest on posts ($h$) which are grooved at the top for this purpose. These posts, called tivo'-aivq'gil, are driven into the ground outside of the house. Logs ($d$)
are placed on the poles $g$ (see Figs. 61, 62). This structure (see Plate xxii, Fig. 2), consisting of three parts $g, h, d$ (Fig. 61), has the appearance of a funnel, or of an umbrella turned upside down, and placed over the square frame on top of the roof. This funnel is called, in the Koryak language, t'votil, and is built for the purpose of protecting the upper entrance to the underground house from the drifting snow piled up by the raging winter storms. The snow driven by the gale from any point of the compass whatsoever strikes against the lower part of the funnel, and is scattered in all directions.

Inside of the funnel is the square upper roof with the square winter entrance in the middle (see Fig. 62). The upper roof (Fig. 62, $l$) consists of logs covering the frame made of the four top beams, and forms the bottom of the walls of the funnel. In the middle of the roof a square well-shaped opening, each side of which is about 1 metre long, is made. This is the winter entrance (čina'ugčični), through which, by descending a ladder (yičigit), people enter the house (Figs. 61, 62, $E$). This opening serves at the same time as a smoke-hole. The poles of the flat roof are double, like those of the slanting roof, and the open spaces and crevices between them are filled with dry grass and earth.

One side of the funnel, which is above the roof of the narrow passage serving as an entrance-room (Fig. 62, $V'$), is narrower and lower than the others. A ladder is placed against it for the purpose of getting up from the roof of the entrance-room to the upper roof of the house (see Part I, Plate viii, Fig. 1; see also Plate xxiii, Fig. 2). The entrance-room is a narrow covered passage leading into the house. It is also excavated. Four short straight posts are driven into the ground, with stakes placed between them, forming two side-walls. A low door is made in the front wall. The wall of the house serves as the rear wall of the ante-room. A small door is placed in that wall also. Both doors turn on wooden hinges. Cross-beams are
placed upon the posts of the ante-room, and on top of them are horizontal poles forming the roof, which is covered with earth. The two side-walls of the entrance-room are covered outside with earth up to the top (see Part I, Plate viii), so that the roof of the ante-room is accessible without a ladder. The height of the passage is hardly that of an average man. I had to stoop considerably to pass through the ante-room into the house. The door leading from outside into the entrance-room, and that leading from the entrance-room into the house (see Fig. 61), are each only a little over 1 metre in height, so that one has to stoop very much to enter the passage and the house.

The dirt floor of the entrance-room slopes slightly down toward the door leading into the house. At the entrance from the ante-room into the house there is a threshold. The dirt floor of the house is on a somewhat lower level than that of the ante-room. The entrance-room, or passage, is called ya’xel.

The door leading from the entrance-room to the house is in use only during the fishing and sealing season, — from the early part of May till the end of October.1 In October, when the skin boat is taken out of the water and put away for the winter, the entrance to the passage is closed up. It is first covered with grass, then earth is put over it, and pressed down with heavy logs (see. Fig. 182 and Plate xxiii, Fig. 2). The custom of shutting off the door for the winter might be very simply explained as due to the wish to avoid the unpleasant necessity of constantly clearing the entrance from snow-drifts.

In the Kamenskoye settlement my wife and I occupied a small Russian log-cabin belonging to a cossack who was absent at that time, and we had ample opportunity of experiencing the inconveniences of this type of dwelling in that climate. Every wind, violent or not, would cover our house with snow to the top, and we were fastened in until my men (a cossack and an interpreter), who slept in a neighboring Koryak house, came, together with Koryaks, and cleared away the snow from our door.

But the Koryak attach a religious importance to the custom of closing up the lower entrance during winter. It is sinful, they say, to go into the house through that entrance in winter-time. However, none of the Koryak were able to explain the meaning of this taboo, and but one offered a plausible explanation.

Just as the entrance to the tent of the Reindeer Koryak faces the side where the sun rises, so does the lower entrance to the house of the Maritime Koryak face the sea. In summer the door of the lower entrance is open in order to give free access to the sea-mammals, as though they were visitors; but if, without any cause, the door should be left open in winter, when all

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1 Schrenck’s (II, p. 25) statement founded upon verbal information given by Baron Maydell, that the Koryak enter the underground house through the entrance-room only once during the year, is inexact. Baron Maydell was apparently misinformed (see Part I, p. 14).
hunting for sea-mammals is at an end, then the animals would avoid that house the next summer, and the occupants would be unsuccessful in their hunt. The lower doors of the houses which are occupied only during winter are, for the same reason, not opened at all.

When the lower door is walled up, a ladder is placed vertically on the floor of the house, rising toward the side $f$ (Fig. 62) of the entrance-place in the roof (see Plate xx). The ladder is made from half of a split poplar-tree. On the side where it was cleft, that is, on the back of the ladder, the wood is hollowed out like a trough, that it may be easily grasped with the hands. Instead of steps, holes are cut through at distances of from 30 cm. to 40 cm. apart. These holes are like flattened disks in form. They are large enough for the small feet of the Koryak, particularly those of the women, and children's feet would enter up to the instep; but my feet, in shaggy winter stockings and boots, could hardly get through them. On ladders with small holes I had to get up by the tips of my toes only. Once, as I remember, the fur toe of my boot slipped off the step, and I should have fallen down into the house from a height of five metres, had I not clutched the ladder with my hands, and in this manner slid down. Once my cossack, carrying in one hand a bowl of flour for dinner, was going down into the house. In changing the bowl from one hand to the other, he let go of the ladder, and, losing his balance, fell into the house flat on his back.

Occasionally a Koryak falls from the ladder; but as a rule they run up the ladder carrying heavy loads in one hand, their children on their backs, or with heavy buckets of water, or with pails filled with hot soup for the dogs. It is particularly interesting to see how skilfully they strike the holes, coming down without even looking at their feet. Children three and four years old climb up the ladder as quickly as squirrels, and slide down on their hands to save time. Such a way of sliding down is not quite safe, as I found out for myself. The ladder is planed smooth, so that the hands shall not get hurt by splinters. In course of time it becomes covered with a layer of fat mixed with soot, which makes it look as though it were covered with a dark, glossy varnish. The edges are so slippery on this account that it is quite impossible to hold fast to the ladder with the hands, particularly if they are mittened. If one foot slips out of a hole before the other has had time to get into the next, a fall is likely to follow. In such case, one should by no means let go of the ladder, or he will surely land in the house on his back.

In houses occupied all the year round the ladder is removed in summer, and put away on the floor of the house, near the wall, until the next autumn. When the ladder is put up, it is anointed with fat, and charmed, in order that it may not admit any evil spirits into the house. As we have seen before,¹ the ladder is one of the family guardians, and its top is carved in

¹ Part I, p. 43.
the form of a human face. The top of the ladder rises about 1.3 metres above the opening, so that it can be grasped with the hands when one begins to descend. The ladder is fastened with thongs to the entrance-hole (Fig. 62, $f$), lest it should shake or fall backward; and it is placed nearer to the left-hand corner, when facing the side $f$. This is done to prevent articles or heavy loads carried in the right hand from striking against the right side of the frame of the entrance-opening. The vertical position of the ladder is accounted for in the same way; namely, that buckets, loads, or children carried on the back may not strike the rear side of the frame of the opening. Very heavy or bulky articles are lifted up, or let down, into the house, by means of thongs.

The hearth usually consists of two oblong stones placed on the dirt floor at a distance of about 50 cm. from each other (see Fig. 60, $F$). The fire is made of wood in the space between them. The hearth is about 50 cm. from the ladder, toward the entrance-room. Whether in or out of the house, a person always faces the fire. The smoke escapes through the entrance-opening in the roof. Cinders and hot air also rise from the hearth, and escape along the ladder through the opening. The upper part of the ladder becomes so hot while there is a fire, that it burns the hands.

At first we had a very hard time getting down into the house while the fire was burning. As soon as we put our feet upon the ladder, the smoke blinded our eyes, and the heat nearly took away our breath; but after getting over the first trying moments, and as soon as we had descended a little, we felt relieved. The Koryak, however, do not experience any discomfort from having the opening serve the double purpose of a means of exit for people and of escape for smoke.

The arrangement for a draught is as follows. The door leading from the house to the entrance-room, even in winter, is left open, for the entrance-room serves also as a cold-storage place. Seals killed late in fall are put away there, and also blubber, berries picked for winter use, frozen fish, and other provisions. Shelves (see Fig. 61) are arranged there for this purpose. Owing to the exigencies of the climate, a part of the provisions has to be kept near at hand; for during violent winds it is difficult, especially for women, to get out to the store-houses, which are built on poles. A round opening sufficiently large for a man to get through is left on the roof of the entrance-room (see Fig. 62, $W$). This opening is called na'účin. Women and children often get in and out of the house through this opening, in order to avoid going up and down the ladder. The men consider it incompatible with their dignity to enter the house through this opening. In olden times, men "transformed" into women (kavau) used to go in and out through this opening. Provisions, dogs' harness, and other articles, are lowered down through it. Besides, it serves as a draught-hole.

1 See Part I, p. 53.
When the fire is not burning in the house, the entrance-room door is closed and the opening on its roof is stopped up by a plug plaited of the stems of *Elymus mollis*. When the fire is started, the plug is removed from outside, placed upon the roof of the entrance-room, and the door leading from the latter into the house is opened. Thus a current of cold air forces the smoke upward into the roof-hole; but, since the opening is not directly over the hearth, the smoke strikes the ceiling, and spreads over the upper part of the house. When sitting on the floor, it is possible to remain in an atmosphere which is not charged with smoke. For instance, I could easily take notes when sitting on a log; but when I stood erect, taking anthropometrical measurements, while the fire was burning, my eyes would begin to water. During very violent or irregular winds, a return-draught or a changing draught is formed, and the house becomes completely filled with smoke.

In the fall the Koryak chop driftwood into thin billets, and put them upon the roof around the funnel, except on that side by which the people ascend to the roof. This is done in order to have handy a supply of wood during severe snow-storms, which often rage for several days in succession, when it is utterly impossible to get out of the house. Of course, in good weather the supply of wood is sometimes renewed in winter. The wood is split into small bits to secure a fire quickly.

When the fire is first started and the entrance-room door is opened for the draught, the cold air strikes the feet, and the house is quite cold; but after the wood has burned out and the draught is shut off, the house begins to grow warm. It gets very warm when only red coals are left on the hearth and the smoke-opening is covered up. The temperature sometimes reaches 20° Centigrade. When the entrance-opening is covered up, the heat remains for a considerable time. During the night the house gets very cold, and the temperature in the morning is often below zero. Thus the temperature drops between the times when the fire is made. To save fuel, the fire is not made often, only two or three times during the day. It is made invariably in the morning directly after getting up, and in the evening, before going to bed, — at the time of the two main meals. During the day, fire is sometimes made in order to prepare tea, or if company should come.

The Maritime Koryak dwelling, compared with the tent of the Reindeer Koryak, provides the people with good shelter from frosts and winds. I think, therefore, that this type of Arctic dwelling is more ancient than the tent, which must have appeared in the far northeast of Asia together with the domesticated reindeer.

The cover used for shutting the roof-hole is made of boards tied to two cross-pieces by means of thongs drawn through holes. The cover is somewhat wider than the square opening of the entrance. A half-circular section is cut out at the side for the ladder to pass through, and thus the entire opening
is covered up. During the day, however, the entrance is seldom closed, since people are constantly coming and going. In the evening, after all are in bed, the entrance is always covered up. The one who closes it gets up the ladder, and with his hand pushes out the cover from below over the opening. Of course, crevices enough remain for ventilation.

The cover of the entrance-opening also serves to regulate the draught while the fire is burning. It is placed vertically, near the entrance to face the wind, in order to prevent it from blowing into the entrance. The grass plug on the roof of the entrance-room is also utilized for regulating the draught. It is placed at the edge, in a direction opposite that of the wind, which, after striking against the plug, gets into the opening. Of course, all these arrangements are of no avail when strong winds are blowing.

The inner arrangement of the underground house is as follows. On the side opposite the door leading to the entrance-room, behind the posts, is a platform, from 30 cm. to 60 cm. high, made of boards (see Figs. 60 and 61). This place (ay0'-ai) serves as a seat and as a bedroom for visitors. It is covered with seal and reindeer skins. Upon it, near the walls, are stored away household articles that are in frequent use. The right and left sides of the house are called yel'hit-xal. On the right side lives the master; on the left, his brothers, relatives, and neighbors. The places behind the posts are called yoyo'mt. They serve for bedrooms, and have a dirt floor like the centre of the house. These places are separated from the middle of the room by means of logs (Fig. 60, L). The floor is strewn with willow-branches covered over with dry grass (grass mats are used in northern Kamchatka), and then with seal and reindeer skins. Sleeping-tents are pitched over these skins.

These tents are of the same shape as the inner tents of the Reindeer Koryak, but, instead of being made of heavy reindeer-skins, they are made of old skins which have served for bedding before; or they are made of old fur clothing. The hair of the skins is closely clipped with a knife. These tents serve as bedrooms only, and are let down at night. In the daytime the front side of the tent is raised, and fastened on top with thongs. The children are kept on the skins under the raised tents, and the women also sit there with their work (see Plate xxxvi). The men sit, during the day, on logs in front of the tents, unless they are lounging in bed. They sleep in the tents with their heads toward the middle of the house. Bags filled with clothing, scraps of skin, nets, and other household articles, serve as pillows, while the bolster is supplied by the log.

To give better support to the main roof-beams in large houses, three additional posts are driven in between the central posts (Fig. 61, P'), except on the side opposite the door.

1 By this name the sleeping-tents or the inner tents of the Reindeer Koryak dwelling are also called.
Near the four main central posts \((P')\) stakes of the height of a man are driven into the ground. On their upper ends, which are fastened with thongs to the main posts, cross-pieces are put, upon which clothes, shoes, and other household goods are hung. There is no such cross-piece on the side where the hearth is; but above the hearth, across the entire width of the house, several stout timbers are placed, their ends being tied with thongs to the upper cross-beams. These form a grating, upon which clothes, shoes, and wood are put to dry. To these poles, hooks of wood, iron, or reindeer-antler, are attached, from which pots and kettles are suspended over the fire (see Fig. 61 and Plate xx).

The corners of the house, the spaces between the sleeping-places, and the place for visitors, are ordinarily used for storage purposes. Nets, dogs' harness, hunting-implements, snowshoes, tools, and other things, are hung up there. A large iron pot for water, dishes, tea-kettles, wooden and leather pails, and chamber-vessels (see Plate xx) are kept on the side of the door leading to the entrance-room.

If, as appears to me, the tent of the Reindeer Koryak is built after the type of the dwelling of the Asiatic nomads, but adapted to the needs of the arctic climate, so the underground house of the Maritime Koryak represents a type of palæ-Asiatic-American dwelling. We do not find such a dwelling among the Turkish-Mongolian tribes. All so-called palæ-Asiatic tribes formerly had, or now have, underground houses similar to the house of the Koryak type. The ancient Kamchadal dwelling as described by Steller\(^1\) differed from the present-day house of the Maritime Koryak only by the absence of the umbrella-shaped storm-roof, by having no entrance-room, and by having notches instead of holes in its ladder.

The Kerek do not build storm-roofs, because of their lack of the required timber.\(^2\) I also found on the Tilqai River\(^3\) one Koryak house without a funnel. It stood in a forest where the winds were not so violent. According to the Koryak belief, the houses of evil spirits (kalau) have no storm-roofs. We may rightly suppose that this peculiar part of the construction, which we find only among the Koryak, is not characteristic of the general type of this dwelling.

The dwelling of the Kamchadal has no entrance-room, for the underground house serves them as a winter dwelling only; but among the Koryak the entrance through the ante-room is also closed up for the winter. In the Kamchadal dwelling, an underground passage leading out from the hearth\(^4\) takes the place of the ante-room of the Koryak. Women, children, and men transformed\(^5\) into women, used to go in and out through this passage. It

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\(^1\) Steller, p. 212.


\(^3\) See p. 437.

\(^4\) See the cut in Steller, p. 212; Krasheninnikof, II, p. 40.

\(^5\) See Part I, p. 52.
served as a storehouse; and it had a grass plug, which was taken out while the fire was burning, to secure a draught. In summer the Kamchadal used to live in conical huts placed upon platforms raised on tall posts. As we shall see below, the Koryak also put up such structures on piles for their storehouses.

Sternberg states that the Gilyak adopted the Manchurian type of winter house, which is above ground, only in places near the Amur River. In other places they preserved their semi-subterranean dwelling of the Koryak type. Schrenck gives a detailed description and a cut of that dwelling. The smoke-hole on the roof of the Gilyak house does not serve at present as an entrance, and they have no ladder; but Sternberg surmises that in former times the smoke-hole in the roof also served as an entrance, as with the Kamchadal and Koryak. Even now this opening is used as a door on certain occasions. At the bear festival the Gilyak descend into the house, carrying the skin and flesh of the killed bear, by means of a pole inserted for the purpose through the smoke-hole. At the close of the festival all the ritual accessories, as well as the bones of the bear, are removed from the house through the same smoke-hole. Now the Gilyak enter the house through a narrow passage which slopes down to the door, similar to the Koryak entrance-room. The door faces the side most protected from the prevailing winds. The floor of the house is lower than that of the passage. The hearth is placed in the middle of the house, under the opening in the roof. The underground house was in common use among the Ainu people as well. We find in Schrenck the description of a modern underground dwelling of the Ainu in the southern part of Saghalin Island. It is entered through a side-door. The roof extends far enough over the entrance to form in front of it a covered landing-place or ante-room, with steps leading inside. The hearth is nearer the door; but in dwellings of smaller size it is also placed in the middle. Large houses possess two hearths at the corners, on the side of the door, with an opening in the roof over each hearth for the exit of the smoke. Not infrequently a channel runs from the hearth itself to the passage, for increasing the draught of the fire. Grimm describes a modern Ainu dwelling on the island of Shikotan. The hearth is in the right-hand corner of the earth hut on the side of the door, while the above-ground summer hut forms a passage to the winter pit-dwelling.

The important questions relating to the remains of ancient subterranean
dwellings found on the islands of Yezo and Sakhalin will be discussed in Chapter X, in the section on ancient pottery of the Koryak.

I stated before that Koryak underground houses no longer exist in Gishiga Bay; but remains of such ancient dwellings may be seen on the shores and islands of Gishiga Bay and the Okhotsk Sea as far as the village of Yamsk, and possibly still farther south.

A link between these remains and those of former Gilyak-Ainu earth dwellings and their present underground houses seems to be found in the ruins of such dwellings on the banks of the lower course of the Amur River and at its mouth,¹ which may also be ascribed to the ancient Gilyak.

Returning to the Arctic palæo-Asiatics, we find that the ancient Yukaghir had underground houses.² We shall discuss these dwellings in greater detail in the work devoted to the Yukaghir.

The Chukchee, even the Maritime branch of the tribe, now make their houses of reindeer-skins;³ but along the Arctic shore, from Cape Erri (or Shelagiski) to Bering Strait,⁴ and along the Chukchee shore of Bering Sea, south of East Cape (or Chukotsky),⁵ remains of underground dwellings are found. The frames of these houses were mainly of bone of whale, because timber was not available.

Wrangell, having heard from the Chukchee that these dwellings formerly belonged to the Onkilon, assumed that they were left by the Eskimo who had lived on the Asiatic shore of the Arctic, but who subsequently wandered off to America. It has been shown before (p. 407) that Onkilon is a wrongly recorded Chukchee-Koryak word, Ainqala'n ("maritime dweller"). Even now the Koryak and the Chukchee apply this name to every maritime inhabitant. This name, however, does not throw any light on the tribal relationship of the dwellers.

From the resemblance between the remains of subterranean dwellings on the Asiatic shores of the Polar Sea and those found on the islands and the northern shores of America, Markham⁶ has formed the theory that the Eskimo emigrated into Greenland from Asia, the groundlessness of which theory has been proved by Professor Boas.⁷

Schrenck⁸ has suggested that the remains of underground houses along

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⁸ Schrenck, II, p. 28.

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the shores of the Arctic Ocean were the ancient dwellings of the ancestors of the present Chukchee, in which they lived before they adopted the tent made of skins. On the shore of the Chukchee Peninsula in Bering Sea, Mr. Bogoras¹ saw remains of underground dwellings in the settlements of the Maritime Chukchee, as well as in those of the Asiatic Eskimo.

According to the description of Mr. Bogoras,² this underground dwelling, called by the Chukchee "jaw-bone house" (wa’lkar), had also two entrances; but, contrary to the Koryak underground house, the upper entrance at the upper part of the wall was used in summer, and in winter a long and narrow underground passage which in summer was filled up with water. The level of the floor of the inner room was above that of the underground passage, so that the water could not injure the living-room.

In houses of the Koryak, Kamchadal, Gilyak, and Ainu, on the other hand, the floor of the inner room, as mentioned before, is lower than that of the ante-room or the draught-passage. The underground houses of the Kamchadal were full of water in summer; and this explains, according to Steller and Krasheninnikoff,³ why they lived in summer in houses built on piles. Like the Eskimo snow-house, the "jaw-bone house" of the Chukchee was heated and lighted by means of an oil-lamp. The opening in the roof, which was covered with the shoulder-blade of a whale, served only to admit light.

Turning to the American side, we see from the descriptions of Russian and other travellers, such as Sarytcheff,⁴ Sauer,⁵ Langsdorff,⁶ and Veniaminov,⁷ that an underground house similar to that of the Kamchadal served as the ancient dwelling of the Aleut. The frame was built of driftwood or whale-ribs. The opening in the roof served as smoke-hole, window, and entrance to the house, which was heated by a hearth fire, and the people descended to it by means of a notched log. Outside of the main living-room, or the middle of the house, were other smaller side-rooms with narrow passages leading outside, the latter being very much like the Kamchadal draught-channel.

From the Kadyak Islands along the American shores of Bering Sea and the Polar Ocean, as far as Greenland, we meet with remains of underground dwellings. The type of these dwellings shows some variations.

To judge from the descriptions of former travellers, underground houses of the Aleut type were met among the Eskimo in the southern part of Alaska; with this difference, however, that along with smaller underground

² Ibid., pp. 181, 182.
³ Steller, p. 212; Krasheninnikoff, II, p. 40.
⁵ Sarytcheff, Reise (Berlin, 1802), p. 294.
⁷ Veniaminov, Notes on the Islands of the Unalashka District (Russian edition), II, pp. 204 - 211.
dwellings, subterranean public houses (kashim) were found, which were designed for festivals, entertainments, or steam-baths. In some places remains of similar underground houses of the Gilyak type were found.

On Bering Strait the Eskimo were found to possess underground houses\(^1\) of the wa’kar type of the Chukchee Peninsula, described above. On the shores of the Arctic Ocean we find again small earth huts of the Kamchadal type, with entrance through the smoke-hole, but with a frame made of the bones of whales. Farther east we find stones also used as building-material for the walls of the earth hut, with a roof made of bone of whale. The stone walls frequently penetrate but very slightly into the ground, or are erected on the surface of the soil, being fenced up with an earth rampart.\(^2\)

On the shores of the Arctic Ocean the subterranean winter houses have been almost superseded by snow dwellings.

Remains of underground houses, or tales about them, have been found among many Indian tribes of northwestern America, and among some of them underground dwellings are found even now.

One tale of the Bella Coola, a coast tribe of British Columbia which belongs to the Salish stock, points to their former possession of subterranean dwellings.\(^3\) We also find a reference to the underground house, exit from which is made through the smoke-hole, in one myth of another tribe of the Salish stock, the Quinault Indians, who dwell on the coast of Washington.\(^4\)

Among the Ts’ets’a’ut, an Athapascan coast tribe, the house is made of bark, and, though constructed above ground, it is arranged for the winter to live in as in a Koryak underground house. When snow falls very deep, the door is blocked up, and the exit is effected through the roof.\(^5\)

The custom of building underground or semi-subterranean houses prevailed in former times, or is still observed among the inland tribes of the Salish stock. All such houses were or are still used as dwellings only during the winter.\(^6\) The smoke-hole in the middle of the roof is used as an entrance, through which one descends into the house by a notched log. As with the Koryak and Kamchadal, the hearth is on the floor at the bottom of the ladder. The roof is constructed of poles or timber. Most of these dwellings are circular in shape, though some are square.\(^7\) The pit is dug out from four to five metres in diameter, and a metre and a half deep. The roof is covered with grass, and the whole is covered up with earth, so that from a distance the underground house looks like a mound. These underground dwell-

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2. See Boas, The Central Eskimo, p. 539; Turner, p. 228.  
3. See Boas, Bella Coola Indians, p. 79.  
4. See Farrand, Quinault Indians, p. 94.  
5. See Tenth Report on the North-Western Tribes of Canada (Report of the British Association for the Advancement of Science, 1895, p. 561).  
ings have no side-entrance, entrance-room, underground passage, or draught-channel, like the underground houses of the palæ-Asiatics, Aleut, and Eskimo.

Until quite recently underground winter dwellings were found among the Shuswap, the Thompson River Indians, the Lilooet, on the lower course of the Fraser River. Remains of ancient underground houses have been found among the Chilcotin, in the Thompson River region, at Nicola Lake (Athapascan), and in other places in the interior of British Columbia.

Farther to the south we find underground houses of the Salish type among the Indians on the Klamath Lakes, Oregon, and in northern California among the Hupa and Maidu. It is interesting to note that the Indian coast tribes, like the Tlingit, Tsimshian, Haida, whose myths bear the greatest resemblance to those of the inhabitants of the underground houses on the Asiatic side of the Pacific, now live in large wooden houses. The house, however, has a smoke-hole similar to that of the underground house; and in olden times the centre of the house was excavated.

From this short review of different types of underground or semi-subterranean dwellings on both sides of the North Pacific, we may draw the conclusion that the underground houses of the palæ-Asiatic tribes bear more similarity to those of the Aleut and Alaskan Eskimo than to the underground dwellings of the Northwestern Indians.

It is difficult to admit the theory of independent invention for the construction of the underground house over this whole area. It seems to me that imitation played its part here, while the climatic conditions contributed to the spread of underground dwellings.

The Koryak underground house serves for a winter as well as for a summer dwelling. As I said above, there are settlements in which people live only during winter, and others which are inhabited only in summer. The houses of the summer and winter settlements are built alike. The use of a dwelling for summer or for winter depends upon its being near the seashore or up the river. The houses occupied only during summer are called ale'-yan ("summer house"), and winter dwellings are called la'xlañ-yan ("winter house").

The Maritime Koryak build their storehouses on platforms raised on poles from four to six metres above the ground, so that dogs, bears, or other beasts shall not steal their provisions. To build a storehouse (Plate xxii,

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1 See Sixth Report on the North-Western Tribes of Canada, etc., p. 635.
3 Teit, The Lilooet Indians, p. 212.
4 Sixth Report on the North-Western Tribes of Canada, p. 633.
5 Twelfth Report on the North-Western Tribes of Canada, p. 646.
7 See description by Schurz, Urgeschichte der Kultur, 1900, pp. 422-423.
9 Bous, Tribes of the North Pacific Coast (Annual Archaeological Report, 1905, Toronto, p. 236).
FIG. 1. STOREHOUSE.

FIG. 2. TENTS AND POLE-GAME.

The Koryak.
FIG. 1. KAMENSKOYE SEEN FROM THE SEA.

FIG. 2. VIEW OF STORM-ROOF.

The Koryak.
Plate XXIII.

Fig. 1. View of Big Itkana.

Fig. 2. View of Kuel.

The Koryak.
Fig. 1), three stakes are driven at each corner of an elongated rectangle. These stakes meet at the top, thus forming tripods. Two long cross-beams, the long sides of the platform, are placed on top of these tripods, and are supported in two or three places by additional posts. Across these long beams, and tied to them with thongs, four or five cross-pieces are laid at equal distances from one another. These are supported in the middle by posts on which rests the platform, which is made of long stakes or of split logs. The storehouse is placed in the middle of such a platform. It is in the form of a gable-roof. Two logs or rafters, the upper ends of which are so tied together as to form an acute angle, are placed three or four metres distant from two other logs tied in like manner. The two angles are connected by a ridge-pole. From the ridge down, on each side, poles are placed. All the spaces between the poles are carefully filled with hay. To give greater firmness to the sloping sides of the storehouse, heavy logs are leaned against them, reaching up to the ridge. The two ends are formed by stakes put in a somewhat slanting position. Into one of the sloping sides facing the ladder, a frame is put, in which a door swings on wooden hinges. The platform around the storehouse is fenced in. For this purpose, long stakes (four or six on each side) are driven into the ground around the longer sides of the platform. These stakes are as high as the ridge of the storehouse. To keep them from moving, they are fastened in notches in the cross-beams of the platform. Through holes in the upper part of the stakes, above the platform, rails are put, which form the fence. The part of the platform where the ladder is placed is not fenced in. The fence around the platform is for the safety of women and children. Fish, nets, skins, and other household articles, are often hung on it. The ladder for getting to the platform is like the one used for entering the house; but it is put in a slanting position, so that it is easier to get up to the platform than to get out of the house. When leaving the winter house for a summer village, or vice versa, the storehouse ladder is removed and put on the platform.

Poles are often fastened under the platform for hanging up clothes; and during the summer rains, fish are hung there to dry.

The settlements of Maritime Koryak (m’mim, na’mnam, ne’mmem, or ne’mmem) often consist of but one house, as the settlements on the Tilqai River, or those on the Poqac’ River, or those of the Kerek; but sometimes they form villages of considerable size. For instance, in Kamenskoye there are about thirty houses inhabited during winter. From a distance this settlement, with its storm-roofs and its many storehouses scattered on all sides, gives one the impression of a large though singular town. In the settlement Kuel there are from thirteen to fifteen inhabited houses in the summer, and seven or eight in winter. The peculiar impression made by these villages is shown in the view of Kuel given on Plate xxiii, Fig. 2.
In the above enumeration of settlements it is indicated which are occupied only in winter, and which only in summer. With few exceptions, the settlements of Maritime Koryak are situated near the mouth of a river or brook, in order to have a supply of fresh water. The majority of the settlements are situated on the rocky coasts of the seashore.

Plate xxii, Fig. 1, represents the steep rocks at the mouth of Penshina River, behind which the Kamenskoye settlement is concealed; while Plate xxiii, Fig. 1, represents part of Big Itkana.

The Maritime Koryak of the Nayakhan settlement and the Russianized Koryak of the Okhotsk district have completely abandoned their underground dwellings, and live in log-cabins like those of the Russians. The flat roof of these houses is made of logs covered with earth, which lets in the summer rain. Inside is a fireplace or a chimney like that of the Yakut, made of beaten clay.

The Koryak of northern Kamchatka who have embraced the Christian faith have abandoned their former dwellings under the pressure of the Russian Administration. Some of them live in log-cabins like those described above, and others live in houses of the Yakut type, which have been introduced into Kamchatka by the Russians. This structure consists of a flat roof with four slanting walls, and reminds one of a truncated pyramid. The walls are coated with clay to keep in the heat. Instead of the Yakut fireplace in the right-hand corner of the house, with a chimney for the escape of smoke, we find a hearth in the middle of the house and a smoke-hole in the roof.

Owing to the lack of timber, the Kerek build their semi-underground houses without the storm-roof. Since the smoke-hole does not serve as a means of exit, they have no ladder with holes. The frame of the house, placed in a pit, consists of crooked stakes covered with earth. The inside is covered all around with pieces of skin. In winter, to secure more heat, the dwellings are covered with a thick layer of snow. The entrance to the house, in summer as well as in winter, leads through a long, narrow hall. The inner arrangement of the house is similar to that of other Koryak underground dwellings.¹

¹ Bogoras, The Chukchee (Vol. VII of this series, p. 183).
V. — REINDEER-BREEDING.

The Beginning of Reindeer-Breeding. — The domestication of wild reindeer is probably of less ancient origin than that of other draught-animals. This is shown by the fact that the domestic reindeer still differ but little from the wild variety. In the prehistoric period the reindeer lived much farther to the south than they do at present. Numerous remains of this species have been found in the palaeolithic stations in Switzerland and in France. But the ancient inhabitants of Europe confined themselves to hunting reindeer without making any effort to tame them. As with the passing of the glacial period the climate became milder, the reindeer abandoned central Europe, retreating gradually northward. In Asia, however, the reindeer still occurs as far south as the Amur River, the southern extremity of Sakhalin Island,¹ and on the Sayansk Mountains. The wild reindeer are still met with in certain localities in the mountains of Kuznetsk-Alatau Ridge.²

Professor Keller, relying on the statement of Professor Fröjs of Christiania, that the Lapps of northern Scandinavia were engaged in fishing and hunting as late as the ninth century, and cared for reindeer only as game, admits the possibility that the beginning of the taming of the reindeer does not date farther back than a thousand years;³ but a period comparatively so short is hardly sufficient for the completion of the difficult undertaking of taming a wild animal.

The process of domesticating wild animals is a gradual one, passing through different stages of taming, and the reindeer are not yet wholly domesticated. The taming of the reindeer presented special difficulties, owing to their low intelligence. Even the most tame and docile reindeer do not recognize their master, and turn off the road if not directed, or unless tied to the sledge ahead of them in the train. Among the reindeer-breeders of northern Europe and Asia, from the Lapps to the Chukchee,⁴ we still find

¹ See P. I. Smidt, The Island of Sakhalin (Makazin des Russischen Reiches, [St. Petersburg, April, 1905], p. 155).
² They are found there only on the high summits, and by their presence prove that at one time the region passed through the glacial period, at the expiration of which the reindeer retired to the summits. This was pointed out by Prince Peter Kropotkin and Dimitri Klementz. The traces of glaciers in the river-systems of the Kuznetsk-Alatau region were made a subject of study by I. Tolmachev. According to the verbal statement of Mr. Klementz, Alatau hunters regard the reindeer as a special variety of the wild goat (Capra), and call it by the Turanian name Aks-kix, which means "white wild goat" (ac, "white"; kix, "wild goat").
⁴ The following tribes are at present engaged in reindeer-breeding, — the Lapps (Scandinavian and Russian), the Zyryans, the Samoyeds, the Ostyak, the Dolgan, the Karagos, the Soyot on the Yenisei, the northern Yakut, the Yukaghir, the Tungus tribes, the Koryak, and the Chukchee. In 1770 the domesticated Scandinavian
different stages of domestication of that animal. The domestic reindeer of
the Chukchee and the Koryak are only slightly tamed, and may be regarded
as in a primitive stage of domestication. Left to themselves, they readily
return to the wild state. On the other hand, we know of no other instances
of the domestication of wild reindeer. Thus, the traveller Maak relates an
instance in which all attempts to tame captured wild fawns ended in failure.1
The same is reported by Sieroszevsky,2 although the offspring of domestic does
and wild bucks become tame when reared in a domesticated herd. However,
though they are much better runners and much stronger than the offspring
of domesticated bucks, they develop an abnormal stubbornness.

It is difficult to solve the question whether reindeer-breeding originated
in one place, from which it spread in various directions, or whether different
tribes of the northern part of the Old World succeeded independently in the
difficult task of domesticating the wild reindeer.

I. Lippert supports the hypothesis that the German Scandinavians were
pioneers in domesticating the northern reindeer, and later imparted their
knowledge to the Lapps, from whom the domestic reindeer spread farther
east.3 On the other hand, E. Hahn locates the origin of reindeer-breeding
in northeastern Asia,4 whence, in his opinion, it spread westward.

The latter hypothesis does not seem to me very plausible, because in
northeastern Asia, among the Chukchee and the Koryak, reindeer-breeding is
even now in a more primitive state than it is in the west. Besides, if
northeastern Asia were the birthplace of the domestication of the reindeer, it
would be difficult to explain why it spread to the west only, while the
Eskimo and the Indians of the extreme north of America remained outside
the sphere of influence of this civilizing factor. Both species of the American
Rangifer tarandus — the barren-ground caribou and the woodland caribou —
still remain in a wild state. The Government of the United States, desirous
of introducing reindeer-breeding into Alaska, had to import domesticated
reindeer from the Old World. If we are to assume that reindeer-breeding
had its inception in but one place, Lippert’s hypothesis would be the more
probable.

reindeer were introduced into Iceland, and of late years attempts have been made to introduce reindeer-breeding
into Alaska. In Iceland the attempt failed completely. The imported reindeer soon returned to the wild state,
and now they are hunted only (see Fr. Ekhard, Islands Natur und Volkskunde [Copenhagen, 1813], p. 90). The
importation of reindeer into Alaska was begun by the United States Government in 1890. In 1903, when the
importation had ceased, the herds in Alaska contained 614 head. In 1905 they increased to 10,241 head. It is
difficult to predict whether or not reindeer-breeding will ultimately prove successful (see G. B. Gordon, Notes
on the Western Eskimo [Transactions Department of Archaeology, University of Pennsylvania, 1906, Vol. II,
Part I, p. 73]).

2 Sieroszevsky, p. 149.
3 I. Lippert, Kulturgeschichte der Menschheit, 1886–87, I, p. 541. That the Lapps have learned to tame the
reindeer from the Scandinavians is asserted by Professor Friis in the paper mentioned before (Globus, XXII, 1872, p. 2).
4 E. Hahn, Die Haustiere und ihre Beziehungen zur Wirtschaft des Menschen (Leipzig, 1896), pp. 263, 265.
JOCHELSON, THE KORYAK.

The best-trained race of reindeer is that owned by the Lapps, who make use of the watch-dog for guarding their herds. The Lapps, moreover, lay in stores of reindeer-moss,¹ so that the reindeer are better cared for by them than by other reindeer-breeders. All this points to the fact that reindeer-breeding in the extreme west of the Old World is of more ancient origin, since, in the domestication of animals, the more advanced the system, the longer is the period required to develop it.

Schrenck considers the Tungus as primarily a reindeer people, and he advances the hypothesis that they transmitted reindeer-breeding both to the East and to the West, to the Samoyeds and Lapps inclusive.² He thinks³ that the Koryak and the Chukchee may have obtained domesticated reindeer from the Tungus, who came to the polar region from the south.

Bogoras admits the possibility of an influence of Tungus reindeer-breeding in inducing the Koryak and the Chukchee to breed domestic reindeer of their own; but he thinks that they may have tamed wild reindeer which they had found in their own territory, without actually obtaining domesticated animals from the Tungus. “This would seem the more plausible,” says Bogoras, “since their reindeer is quite different from that of the Tungus.”⁴ In support of this hypothesis, the fact, could be cited, that, while the Tungus are principally reindeer-riders, the Koryak and the Chukchee use their reindeer harnessed to sledges.

Whatever the origin of reindeer-breeding among the Koryak and the Chukchee may have been, there is no doubt that its development was stimulated by hunting-expeditions into the interior of the country on the part of the maritime inhabitants. In those years when they had no luck in fishing, hunting-expeditions in search of land-animals were more frequently undertaken, and lasted longer. This was necessary for the support of the population. At the same time, a protracted stay of individual hunters, and sometimes of entire hunting-parties, in the interior of the country, led to the taming of wild reindeer or to the acquisition of domesticated reindeer from neighboring tribes. The acquisition of domesticated reindeer or the taming of wild ones insured the people against starvation in case of failure in fishing, and against accidents in hunting land-animals. It also made it possible for certain parts of the tribe to remain entirely in the interior of the country; and it facilitated, moreover, migration from place to place.

The domesticated reindeer not only began to furnish food and clothing, but rendered possible the transportation of tents, household goods, and supplies. In the interior of the country the reindeer proved a more convenient

¹ Schrenck (II, p. 178) once met two reindeer-sledges of Saghalin-Orok loaded with lichens.
² Schrenck, II, p. 178.
³ Ibid., II, p. 176.
draught-animal than the dog. The reindeer found its own food, while the
dog required supplies of fish, which could not be had in the interior of the
country, especially in the mountains. On the other hand, the reindeer com-
pelled its tamers to begin a nomadic life in search of pastures; and in this
manner the more or less settled inhabitants of the maritime and river regions
became nomads. This process controverts somewhat the accepted scheme of
the development of civilization, in which a settled state is usually considered
to denote a higher stage of culture than a nomadic state; while here the
nomadic state appears as a later step in the development of Koryak culture.

The taming of the reindeer is undoubtedly a civilizing factor of high
order. Still, under given conditions of Koryak life, reindeer-breeding repre-
sents primarily material progress. The reindeer-breeder is more secure and
wealthier than the maritime inhabitant, but, on the other hand, he is coarser.
Constant worry connected with the care of his herd, the struggle with nature,
and the moving from place to place, claim all the time of the reindeer-
breeder, and stunt his mental development. On the contrary, the compara-
tively warm home of the settled Koryak, and his leisure in winter, stimulate
habits of reflection, and develop his mind and his powers of observation.
The different forms of primitive art, as we shall see later, are found developed
principally among the sedentary Koryak.

It is strange that some travellers have thought that the sedentary Chuk-
chee and Koryak were the descendants of Reindeer nomads who had lost
their herds through epidemics or wars. Thus, Krasheninnikoff, Ermann,
Dittmar, Kennan, and Slunin say of the sedentary Koryak, that they were
formerly reindeer-breeders, but that in the wars with the Chukchee — or
through epidemics, as Slunin says — they lost their reindeer;\footnote{1} while Sary-
tcheff, Wrangel, and Schrenck say of the Maritime Chukchee, that they were
formerly reindeer-breeders, but, having lost their reindeer through epidemics,
left the interior of the country for the coast to engage in hunting sea-animals.\footnote{2}

As a matter of fact, several groups of sedentary Koryak, such as the
Opuka Koryak, are claimed to have been reindeer-breeders; but, as a rule,
reindeer-breeding appears as a higher economic type in the development of
material culture than do fishing and hunting. There is no doubt that the
remote ancestors of the Reindeer Koryak of to-day were a maritime people,
and began to leave the shores for the interior of the country, only after the
development of reindeer-breeding. The custom of carrying burdens and chil-
dren on their backs by means of head-bands, which is still prevalent among
the women (see Plate xxxv, Fig. 2, and Plate xxxvi) is a survival of the

\footnote{1} See Krasheninnikoff, II, p. 204; Ermann, Reise um die Erde (Berlin, 1838), p. 423; Dittmar, Die Korkken,
pp. 7, 36; Kennan, p. 150; Slunin, I, p. 354. The same is maintained by Professor D. Auschin (Russian Encyclo-
time when, in wandering from one place to another, they had to carry their possessions, like the American Indians, on their own persons.

The fact that, of the three related tribes, — the Chukchee, the Koryak, and the Kamchadal, — the last-mentioned has not developed reindeer-breeding, shows to what extent expeditions into the interior were responsible for the domestication of the reindeer. The land of the Kamchadal consists of a rather narrow peninsula with a long stretch of coast-line, adapted for maritime and river settlements. Hunting-expeditions in search of wild reindeer and mountain-sheep in the mountains of the central Kamchatka range did not take the hunters far away from their settlements. Besides, fish are more abundant in the Kamchatka rivers than in those of the Koryak country, and the food-supply obtained from the sea by the Kamchadal was more regular than that of their northern neighbors. In my opinion, this accounts for the fact that we find no domesticated reindeer among the Kamchadal.

In the Koryak territory the extent of coast-line, in comparison with that of the interior country, is still considerable; but among the Chukchee the interior is extensive as compared to the length of coast-line. Hence I believe the relative as well as the absolute number of Reindeer people is greater among the Chukchee than among the Koryak. According to the census of 1897,¹ 75.6 per cent (9,208 persons) of the total number of Chukchee are reindeer-breeders; while the reindeer-breeders constitute only about 50 per cent of the Koryak (3,748 persons). Bogoras received the impression that in the last few decades reindeer-breeding among the Chukchee has been on the increase.² This opinion is supported, among others, by the fact that, during the sixties of the last century, part of the Chukchee reindeer-breeders who before had been wandering in the territory east of the Kolyma River asked permission of the Russian Government to pass over to the western side. They felt crowded in the east. In a few years they spread in the west from the Kolyma to the Indighirka River.

The same cannot be said of the Koryak. Their reindeer-breeding industry, we have reason to suppose, has increased in the north of the Kamchatka Peninsula in the Parapol Dol. Some groups of the Reindeer Koryak, such as the Koryak wandering along the rivers Oklan and Tilqai, who were formerly wealthy reindeer-breeders, have now become impoverished; while part of the Koryak on the rivers Opuka and Khattrka, who were formerly reindeer-breeders, are now settled. It is true that we also see the reverse process. Some groups of sedentary Koryak have taken to wandering with their reindeer; but that is true only of those Koryak groups³ which consist of mixed families, nomads and settlers, and which do not possess large herds. The owners of large herds, numbering, perhaps, thousands of heads,

¹ See Patkanov, pp. 19, 27.
³ See p. 434.
are found only among the genuine Reindeer nomads of the Taigonos Peninsula, the Palpal Ridge, and in the Parapol Dol. It is quite possible, as I said before, that the proportion of Reindeer Koryak has now increased, but that is because a considerable part of the settlements has disappeared as a result of wars and of a high rate of mortality.

To answer the question which of the two tribes, the Chukchee or the Koryak, engaged in reindeer-breeding first, is no less difficult to answer. If Schrenck's hypothesis, that these two tribes had obtained the domesticated reindeer from the Tungus, is correct, it would necessarily follow that the nearest neighbors of the Tungus, the Koryak, would be the first to acquire them. But that is just what cannot be maintained.

If we turn to the myths, we shall see that they throw little light on this question. The Chukchee myths represent the Koryak as a people engaged exclusively in reindeer-breeding, and the Koryak myths maintain the same thing of the Chukchee. This mutual characterization of the two peoples by their myths reflects the surroundings amidst which they came in conflict at a period when reindeer-breeding had already begun. During that period, wars were waged, principally between the Reindeer Chukchee and the Reindeer Koryak. If, according to Russian annals, the Reindeer Chukchee not only waged war on the Maritime Koryak of Bering Sea, but also penetrated to the shores of the Sea of Okhotsk, there is no indication, on the other hand, that the Reindeer Koryak ever attacked the Maritime Chukchee. The northeastern branch of the Maritime Koryak, the Kerek, may, of course, in times past, have had intercourse with the Maritime Chukchee near the mouth of the Anadyr River; but the Maritime Chukchee on the shores of the Arctic Ocean, and the Maritime Koryak of the Sea of Okhotsk, not only could not have met, but they had as vague an idea of each other as they have to day. The remote maritime people of the north are known among the Maritime Koryak under the name of "Aiwan;" but that is the name under which the Asiatic Eskimo are known on the Chukchee Peninsula.

The myths give no tangible data as to the origin of reindeer-breeding. The appearance of domesticated reindeer is represented in legends rather as an act of special creation. Sometimes they are lowered down from heaven by the Supreme Deity, and sometimes the heroes put life into the wooden figures of reindeer. Most frequently we find, in the myths, tales relating how Big-Raven, or his son Eme'mqut, would pull poles out from the ground, and how reindeer would come out of the holes. According to this account, domesticated reindeer, previous to their appearance on earth, had lived, by the will of the culture-heroes, in the underground world. On the whole, Koryak myths give no hint regarding the process of domestication of the wild reindeer.

The Koryak, like other reindeer-breeders of northern Siberia, have special
names for the wild (o'lgolu) and the domesticated (qoya'nî) reindeer, as if the origin of the domesticated reindeer from the wild had entirely disappeared from the memory of the reindeer-breeders. Thus, it is interesting to note that the stories of the reindeer produced by heroes from holes in the ground are related by the Eskimo and the Indians in connection with the caribou; while the Koryak tell the same tales about the domesticated reindeer.

It is likewise of interest that in Chukchee mythology we find the domesticated and the wild reindeer identified. One of the Chukchee incantations for attracting wild bucks to a domesticated herd is called "The Buck Incantation," or "Incantation for converting Wild Reindeer into Domesticated Ones" (Qaalva't-e'wgan, Kirñat-e'wgan eu'rrm). Furthermore, one of the Chukchee myths contains the following story as to the origin of reindeer-breeding:

"Old Creator, having taken on the image of a raven, flew up to the Supreme Deity (Añañ-Va't'rgn) and asked him for reindeer for the people. The Deity gave him wild reindeer. The Creator brought them down to earth. The people met the reindeer with cries, which frightened them and caused them to disperse over the tundra. The Creator again went up to heaven and brought down to earth other reindeer, which remained with the people."

According to the Koryak myths, Big-Raven, their ancestor, owned domesticated reindeer. Yet he is represented rather as a Maritime hunter; and the real Reindeer people — the Chukchee and the Tungus, as well as the Koryak reindeer-breeders — are pictured as people strange to him, of low intelligence, and most frequently hostile to him. This divergence between Reindeer and Maritime inhabitants is even more strikingly illustrated in the Chukchee myths, in which ancient Chukchee life is depicted in an exclusively maritime aspect.

Draught and Riding Reindeer. — The Koryak, like the Chukchee, use their reindeer exclusively in harness, and even consider it a sin to ride them. In summer the herdsmen themselves not only walk from one pasture to another, but even carry with them their belongings. Only in localities where the Chukchee and the Koryak live in close proximity to the Tungus, intermarry with them, and interbreed their reindeer in order to make them tamer, do they ride their reindeer, and then principally in the summer, when it is impossible to use sledges, owing to the swamps. Such is the custom of the Koryak on the Varkhalam and Gishiga Rivers, and of the Chukchee near the Indighirka River.

According to the accounts of Lehrberg, cited by Hahn and Keller, the

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1 Thus, the Yukaghir call the domesticated reindeer "4a'cz," and the wild, "to'los;" the Tungus call the domesticated reindeer "o'ron," and the wild, "buyu'a;" and the Yakut call the domesticated reindeer "tala,'" and the wild, "meru'a." The Yakut have another name for the wild reindeer, namely, "tala'kül." "Kil" means "a wild animal." This name is probably a translation from the Russian дикий олень.
3 Bogomaz, Chukchee Materials, p. 2.
4 Ibid., p. 168.
Samoyeds of the fifteenth century used to ride their reindeer at that time, but also used them in harness.1 At present, the Samoyeds, like their neighbors the Ostyak, use the reindeer only in harness, but that does not exclude the possibility of other uses of the reindeer by them in the past.2 In the opinion of ethnologists, the original country of the Samoyeds extended at one time considerably farther south than at present, or as far as the region of the Sayansk Mountains, whence they were crowded to the north by the Turko-Tartar tribes. Moreover, some of the Samoyed tribes which remained in the Sayansk Mountains and along the upper course of the Yenisei River have become assimilated with the Turks or the Mongols. These tribes include the Tartarized Karagos and Soyot. The small tribe of the Karagos, and part of the Soyot, are still engaged in reindeer-breeding, and use their reindeer for riding only.3

But the principal and typical reindeer-riders at present are the Tungus. The use of reindeer by them as pack and riding animals is evidently influenced by the character of the locality in which they live, as well as by their mode of life. The Tungus occupy the most mountainous as well as the most wooded part of northeastern Siberia, and, as typical hunters, they are always wandering about. In summer they have to pass over deep swamps, or to cross not only mountain-streams but also large rivers; and it is exceedingly difficult to cross high mountain ridges, or to penetrate wild, dense woods, with sledges. This necessitates the use of pack and riding animals. For the same reason the Karagos and Soyot, living in mountains not easily accessible, have trained their reindeer to riding. According to the verbal statement of Klementz, the Karagos, in ascending and descending mountains, dismount, and lead their reindeer by the rein. The same is done in the mountains by the Tungus, who take great care of their reindeer when travelling. Being a comparatively frail animal, the reindeer is easily exhausted, or succumbs to bruises and strain. The Tungus, therefore, always see to it that their reindeer are not overworked, and that wounds are not caused by the friction of the saddle and packs.4

The Scandinavian Lapps, in spite of the mountainous and woody nature

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1 E. Hahn, Die Haustiere und ihre Beziehungen zur Wirtschaft des Menschen (Leipzig, 1896), p. 265; Keller, Naturgeschichte der Haustiere (Berlin, 1905), p. 201. On the other hand, Middendorff (Vol. III, p. 494) cites the opinions of Martens (Archiv für Naturgeschichte, 1858, 1) and of Marsden (Travels of Marco Polo, 1818, p. 222), which discredit the statements of ancient writers as to reindeer-riding. But the fact that at present, as we shall see further on, some tribes make use of the reindeer as a riding-animal, justifies the conclusion that the a priori reasoning of the writers quoted above, as to the past, has no foundation in fact.

2 Judging by their epos, the Ostyak used the reindeer as a draught-animal in ancient times as well. At the time described in their legends, reindeer-breeding among the Ostyak was developed to a greater extent, and extended farther south, than at present. See S. Pakkanov, The Type of an Ostyak Hero, according to Ostyak Legends and Hero Tales (St. Petersburg, 1894), pp. 34, 35.

3 My information as to the Karagos and the Soyot was obtained personally from Dr. Dimitri Klementz, curator of the Ethnographic Division of the Museum of Emperor Alexander III., St. Petersburg, who is known for his explorations, principally archaeological, in southern Siberia and Mongolia.

4 Reindeer-riding will be described in detail in the work on the Yukaghir.
of their territory, use the reindeer only in harness; but their narrow, canoe-
like sledges easily glide along paths that are otherwise hardly passable.
Besides, they harness only one reindeer to a sledge, after the manner of the
freight-sledges of the tundra Yukaghir, the Chukchee, and the Koryak.

However, some Tungus tribes, when they come in contact with people
using sledges, employ their reindeer in harness and for riding, and for
carrying packs, or for use in sledges exclusively. Schrenck thought1 that the
Saghalin Orok are the only Tungus tribe which make use of reindeer both
for riding and for hauling sledges. According to his opinion, they adopted
the idea of using sledges from the dog-breeders, the Gilyak. That is, of
course, possible; but, as I have said before, there are other Tungus tribes
who use sledges. Thus, all over the extensive northern tundra — between
the Kolyma and Lena Rivers, where the Tungus tribes come in contact or
intermingle with the Yukaghir or the Yakut — they have in certain cases
adopted the sledge-harness without giving up reindeer-riding. The same may
be said also of the Tungus living in other parts of the province of Yakutsk.
On their trips through the mountains, or on hunting-expeditions, they still
use reindeer for riding and for carrying packs; but, for transporting merchan-
dise and mail between post-stations, they hitch their reindeer to sledges.
Such contracts, however, are taken up only by rich Tungus who own large
herds. In some localities the Tungus have, in later times, begun to train
their reindeer to draw sledges. Thus, on the trail between Ola (a bay of
the Sea of Okhotsk) and the upper course of the Kolyma River, which was
opened only ten years ago, the local Tungus have trained their reindeer,
which were formerly used exclusively for carrying packs, to carry goods on
sledges. The Dolgan, a Yakutized Tungus tribe in the Yenisei tundra, and
the Khangai, a Yukaghirized Tungus tribe in the Kolyma tundra, are now
using the reindeer in winter in sledge-harness, and in summer as riding and
pack animals.

Races of Northern Reindeer. — In eastern Siberia two principal races
are distinguished, both among the wild and the domesticated reindeer. The
wild reindeer are divided into mountain and tundra reindeer. The former
are characterized by their greater height and the gray or light-gray color of
their fur. In summer they retire from the mosquitoes to the summits of the
mountains, and in winter they come down to the river-valleys. The tundra
reindeer are not so tall, and they have darker hair. They, too, flee from
the mosquitoes in summer, but to the shores of the Arctic Ocean and to
near-by islands; and in winter they return to the northern forest-line. These
migrations are carried out in large herds, which are waylaid by hunters on
the Anadyr River and on the lower course of the Kolyma River in the spring
and fall, when the reindeer cross those streams.

1 Schrenck, II, p. 179.
It is worthy of note that the pregnant females leave for the north ahead of the males, crossing the rivers on the ice, so as to reach the summer places before the fawns are born. One of the distinguishing peculiarities of these two races of reindeer is the form of the hoof. The mountain reindeer have a high, steep hoof; the tundra reindeer, a rather flat, platelike hoof.

The domesticated reindeer are likewise divided into two races, corresponding to the races of the wild reindeer; namely, the Tungus and the Koryak-Chukchee reindeer. The Tungus reindeer is taller in stature, has longer legs, a more elongated muzzle, and hair of a lighter color (mostly gray or reddish gray), than the Koryak-Chukchee reindeer. The body of the Koryak-Chukchee reindeer is larger in proportion to its height. The color of its fur is darker than that of the Tungus reindeer. The hair of the fawns is especially dark; frequently it is black in the fall, and toward winter, as they grow older, it turns somewhat gray. The dark color of their fur seems to me to be caused by the humidity of the climate. In maritime regions the coloring of the reindeer is darker than in the mountains and in the continental climate of the Yakut territory. Among the Koryak-Chukchee reindeer we also meet more frequently with white (as though in contrast with the dark shades) and with dappled reindeer than we do among the Tungus. The spotted skins are highly prized for clothing, and the white ones for funeral dress. Spotted skins are never found among wild reindeer.

All that I have said here about the two races of reindeer is based upon accounts of the natives and on my own superficial observations. Professor Allen, in describing the material furnished by our Expedition, says, however, "Although this material seems considerable, it is insufficient, both in quantity and in character, to enable one to make satisfactory comparisons between the wild and the domesticated animals, or between the two commonly recognized domestic races, — the Lamut and the Chukchee." Further on he says, "The color of these skins is much like that of our eastern woodland caribou, at least, in general effect: the antlers, however, are longer and more slender, and partake more of the Greenland type."1

The domesticated reindeer of the tundra Yakaghir and of the polar Yakut belong to the Tungus race of reindeer. We know that the reindeer-breeding of the polar Yakut is of recent origin, and that they adopted the reindeer from the Tungus; but of the tundra Yakaghir this can hardly be said. It is quite possible that their first reindeer were of the Chukchee race, and that, after amalgamation of the tundra Yakaghir with the Tungus, the reindeer of the former gradually approached more nearly to the type of the Tungus race. A change of that kind may be observed in the reindeer of the Chukchee group which settled but thirty years ago on

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the Yerchen, a tributary of the Indigirka River. It may be observed, in this connection, that the sledge of the tundra Yukaghir belongs to the Koryak-Chukchee type, and not to the Tungus-Yakut type.

Degree of Domestication. — Next to the Chukchee reindeer, the Koryak reindeer are the wildest, and, but for their gregariousness, it would be difficult to manage them. The number of driving and draught reindeer in each Koryak herd is very small, seldom exceeding that necessary for moving the family. The driving and draught reindeer are more accustomed to man and his habitation, but, after spending a summer with the herd without being used, they return again to their native state. The Koryak reindeer is mainly part of the herd, and feels but little its connection with man and his habitation. Human urine is an essential attraction for the reindeer in a nomad camp in winter.

The Koryak very seldom travel alone or with light supplies; that is, without family, baggage-train, tent, and herd. When stopping over night, the driving and draught reindeer are allowed to join the herd; and in the morning, before starting out for the journey, they are caught by means of a lasso. Whenever I happened to travel by reindeer-sledge without the herd, family, and baggage-train of the drivers, nearly half a day would be spent in trying to catch the reindeer. In spite of the fact that the wilder among the driving-reindeer had yokes suspended from their necks, which dragged before their front-feet and interfered with their running, they managed to get away many miles from the camping-place during the night.

The heavy Koryak tent is less adapted for frequent migrations than that of the Tungus. The herd, after eating all the moss around the tent on a new place, wanders farther and farther away from it. The Tungus are more mobile than the Koryak, and, as soon as the lichen around the camp is eaten, they move to another lichen-covered place. The reindeer must always be near the habitation. Moreover, two or three times during the day, the Tungus herdsmen round up the herd, bringing it close to the tents, so that the reindeer may remain accustomed to people and their habitations. No matter how large a Tungus herd may be, its owners try to ride as large a proportion of the animals as possible. Even the females are laden with packs during migrations, or are made to carry the children and the young. Thus the greater part of the herd is used to the saddle. The smaller a Tungus herd is, the tamer; because in that case all the reindeer are trained to ride, and are more accustomed to man. On the contrary, the Koryak manage a large herd more easily. For that reason the owners of small numbers of reindeer combine their herds into one large one.

When I crossed the Stanovoi Mountains, on my way from Gishiga to the Kolyma River, I had with me in the early part of my journey two Tungus herdsmen with ten pack-reindeer and a few reindeer for slaughter.
for food.\footnote{I engaged the Tungus with the reindeer to accompany my caravan for a few days. In order to relieve my pack-horses, they carried part of the provisions, as long as any remained.} When halting for the night, we took the reindeer to a lichen-covered place, where we left them, and in the morning the herdsmen would bring the reindeer to the camp before our Yakut drivers had had time to find their horses.\footnote{As a rule, we stopped for the night in river-valleys, along the banks of which we found grazing for the horses; while the reindeer would be taken by the Tungus to the summits of the mountains.} But, whenever I had occasion to drive Koryak or Chukchee reindeer, the capture of them around the camp consumed so much time that usually we were not able to start on our journey until several hours after rising.

At the appearance of wolves, the Tungus reindeer run straight to camp, as if to seek the protection of man. In a Tungus camp in the Indighirka tundra, I once had occasion at night to observe the reindeer, pursued by wolves, come running into camp with their tongues out, and fall exhausted at the tents. The men ran out with fire-brands in their hands, and the women with frying-pans and copper kettles, beating them with anything they could get hold of, so as to frighten away the wolves with the glare of the fire and the noise of the metallic utensils.

The Yakut have a general reputation as cattle-breeders, and, in comparison with the Koryak reindeer, their reindeer are more tame. An insignificant part of this tribe\footnote{Of the two hundred and fifty thousand Yakut, only twelve thousand live at present in Verkhoyansk and Kolyma, the northern districts of the Yakut Province. Of these twelve thousand, not more than a fifth have reindeer.} migrated quite recently, at the time of the invasion of the Yakut territory by the Russians, to the polar region of the Verkhoyansk and Kolyma districts. No doubt, the climatic conditions of the Far North have had a retrogressive effect on the civilization of the Yakut. Where cattle-breeding proved impossible or unprofitable, they turned into fish-eating dog-breeders or reindeer-breeders; but at the same time they tried to adapt their new, more primitive life to the habits of the higher culture which they had acquired under a settled mode of life. Thus the Yakut tried to make their reindeer as tame as possible. I had opportunity to observe Yakut reindeer-breeding all over the north between the Kolyma and Lena Rivers, and was surprised to find how much more gentle, in most cases, were their reindeer than were those of the Tungus. The Yakut have even tried to carry the domestication of their reindeer to the point of teaching them to eat hay; but these attempts have failed. They have not hit upon the idea of laying in a supply of lichen,\footnote{Schrenck once met on Sakhalin a reindeer caravan of Orok who had two sledges loaded with lichen, to be used as fodder (see Schrenck, II, p. 186).} probably because that would involve too much labor; and would be impracticable with a large number of reindeer.

In summer, when the reindeer live on fresh grass and leaves, many Yakut keep them near the house, instead of driving them off to the mountains, as a protection from the mosquitoes, as is done by the Koryak and
the Tungus, or to the arctic shores, as is the custom of the Chukchee. In
the Indigirka tundra I had opportunity to observe how the Yakut reindeer
crowded, in summer, about the blinding smoke of the smoke-pits near the
houses. To prevent the reindeer from getting burned, or from stepping on
the hot cinders, the smoke-pits ¹ are fenced in with poles, the tops of which
are tied together in a manner that resembles the conical frame of a tent.
The Kolyma-Chukchee, in imitation of the Yakut, have tried to introduce
smoke-pits; but their wilder reindeer burned their feet, and injured their hoofs,
in the fire.

The Yakut dogs do not guard the reindeer, as is the case among the
Lapps; but the two kinds of animals get along very well with each other.
The dogs become accustomed to the reindeer while young, and the latter
are not afraid of them. When the pups begin to bark at a reindeer or to
chase it, they are trained, by beating, to distinguish the domesticated animal
from the wild one. When a dog is particularly obstinate, one of its legs is
cought in the collar, so that the dog has to jump on three legs, and cannot run.

In the Yakut settlements along the lower courses of the Indigirka, Yana,
and Lena Rivers, even the draught-dogs are not so hostile to the domesticated reindeer as are the Kolyma and Gishiga dogs. When a nomad Koryak
pays a visit to one of those settlements, he usually leaves his reindeer behind,
at a certain distance from the village, to which he comes on foot. Only
when all dogs in the settlement are tied, will the Koryak venture to enter
with his reindeer. In the above-mentioned Yakut settlements, it is a common
thing to see people ride up to the houses on reindeer, and only exceptionally
ferocious dogs are kept on the chain. According to Yakut custom, the owners
of the dogs are responsible for the reindeer injured by them. From my own
experience, I know that draught-dogs can be taught by proper training to
behave peacefully in the presence of domesticated reindeer.

Along the lower course of the Lena River I also saw reindeer spending
their summer in Yakut settlements. To protect them from mosquitoes, long
sheds were built in the form of corridors, with entrances on either side, by
which the reindeer escaped from mosquitoes and from the heat. Before each
of the entrances, smoke-pits, fenced in by poles, emitted smoke. The reindeer
were generally put out to pasture at night, when the temperature fell consider-
ably and the mosquitoes hid from the cold in the grass. The mosquitoes
disappear at noonday also, when their thin wings are so dried up by the
rays of the sun that they easily break. During that part of the day the
reindeer also seek shelter from the heat in the shade of the shed. The
mosquitoes are especially fierce in the morning and at dusk. Then the rein-

¹ In making a smoke-pit, the Yakut build a fire in the pit, and cover it up with refuse, dung, turf, grass,
or leaves, so as to allow the fire to smoulder only, and thus produce a smudge.
deer crowd about the smoke-pits, or stay in the shed. In one household I saw a shed built to accommodate two hundred reindeer. These reindeer were so tame that they would upset my photographic apparatus, and had to be kept at a distance to enable me to photograph them. The Koryak reindeer could not be approached near enough with the apparatus to be photographed, but would scatter in all directions, in spite of the fact that the herdsmen tried to keep them in place.

Not far from Shigansk, on the Lena River, where immense larch-forests cover large areas, I met among the Yakut another type of reindeer-management. These Yakut leave their reindeer in the woods, free from any supervision, during the summer, while they themselves engage in fishing along the islands and on the Lena. In the fall, on the appearance of snow, the reindeer are rounded up. They do not stray far away from the winter dwellings, and it never happens that they get lost during the summer. There are no wolves in the depths of the forests, as in winter they avoid the deep, soft snows of dense woods. The polar wolf lives and propagates mainly on the tundra, amidst the shrubbery, on the outskirts of forests. There he finds in abundance wild reindeer, hares, and, in case of extreme necessity, lemmings. The dense woods of northern Siberia surprise the traveller by the scarcity of animal life and by their deadly stillness.

Reindeer spending their summer in the woods try to protect themselves from mosquitoes by running back and forth on the outskirts of the forest, thus forming a wide beaten path, or by getting into the water of rivers or lakes. On cloudy days, when the mosquitoes are numerous, the reindeer will spend the entire day in the water up to their necks, and will venture into the pastures only at night to satisfy their hunger and to rest on the grass. In winter the Yakut settlers do not manage so easily with their reindeer. Owing to the lack of food-supplies, they cannot keep them in their winter settlements. During summer, whenever there are Tungus in the vicinity, the Yakut, as a rule, keep their reindeer in a Tungus herd; or a few households get together, and the owners take turns in pasturing them.

On the lower course of the Yana, Omoloi, and Lena Rivers, I saw still another form of reindeer-management. In summer the Yakut reindeer are taken to the mountains by the Tungus or Yukaghir, while the Yakut owners remain on the river, fishing. In winter the herdsmen return to the Yakut houses, and the Yakut divide their supplies of fish with them. The wealthy Yakut, who own large herds of thousands of head, always keep hired Tungus or Yukaghir herdsmen. Of late years, good reindeer herdsmen are developing among the Yakut themselves.

Since the care and the use of a Koryak herd are almost the same as those of a Chukchee herd, I shall not attempt to describe at length the manner of driving, the harness, the sledges, the life of the herdsmen, and the diseases
of the reindeer. All that has been described in detail by Mr. Bogoras. I shall confine myself, therefore, to giving some additional information and to indicating some points of difference.

**Food of Reindeer.** — In summer, as is well known, the reindeer like fresh grass, especially the young sprouts of reed-grass, the leaves of the birch, willow, and poplar, as well as mushrooms. In winter they feed exclusively on lichens; but wherever the horse-tail (*Equisetum scirpoides* Mich.) is to be found, they readily eat it in the winter as well, and frequently prefer it to lichens. But this low-growing weed is found only in certain localities, — in the sandy valleys of mountain-streams, where, in some places, it thickly covers large areas. In spite of the fact that in winter it is covered up with snow, the reindeer discover it by their sense of smell, as they do the lichen. More than once in the winter, I had an opportunity to see, in the mountain-valleys between the Indighirka and Yana Rivers, how ravenously the reindeer devoured that plant. The Tungus told me that they fatten on it, the same as do horses. It retains its juice throughout the winter, and does not dry up like grasses. During the winter the reindeer in the woods also eat lichens growing on trunks of trees.

When the reindeer feed exclusively on lichens, they acquire a special longing for the urine of human beings. This longing attracts them to human habitations. Fig. 63 represents a vessel (*qoya'-oča'-lhin*, which signifies "the "reindeer’s night-chamber") made of seal-skin, which every herdsman carries suspended from his belt, and of which he makes use whenever he desires to urinate, that he may keep the urine as a means of attraction in capturing refractory reindeer. Quite frequently the reindeer come running to camp from a far-off pasture to taste of snow saturated with urine, a delicacy to them. The reindeer have a keen sense of hearing and of smell, but their sight is rather poor. A man stopping to urinate in the open attracts reindeer from afar, which, following the sense of smell, will run to the urine, hardly discerning the man, and paying no attention to him. The position of a man standing up in the open while urinating is rather critical when he becomes the object of attention from reindeer coming down on him from all sides at full speed.

While subsisting exclusively on lichens, the reindeer develop also a liking for animal food. This peculiarity has been noticed by many travellers. It

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1 Bogoras, The Chukchee, Vol VII of this series, pp. 80—95.
2 See p. 399.
3 See p. 386.
is said that reindeer catch mice. I myself saw reindeer in our train eagerly seize the skin and other refuse of dried fish that had been thrown away by the drivers.

As I said before, the Reindeer Koryak do not like to roam about without their families; but at certain seasons the herds wander far from camp, and compel the herdsman to follow them. This happens in winter, especially when the weather is exceedingly cold, and in summer, when communication by sledge is interrupted. The dwelling of the Reindeer Koryak then remains fixed in one place for two or three months; while the herd, after eating all the lichens near by, gradually moves farther away. The herdsman at that time undergo great privations. In winter, food can be brought from the camp to the pasture in sledges, and the sleeping-tent can be transported in the same way; but in summer the herdsman have to carry their food, bedding, teapots, and kettles. The herd is especially restless in the summer when annoyed by mosquitoes, and the herdsman must watch day and night lest the reindeer scatter in all directions. Usually the old men, old women, and little children spend the summer on the bank of some river, fishing; while the other members of the camp, including ten-year-old boys and girls, wander about with the herd, assisting the herdsman.

SLEDGE AND HARNESS. — Plate xxiv, Fig. 1, represents the owner of a camp in a light sledge, about to leave his old camp; and Fig. 2 represents the front part of the train, ready for departure. The first sledge is occupied by one of the wives of the owner. Then follow other sections of the train. The rear is brought up by the herd with the herdsman and grown-up boys. Some of them walk, while others drive in sledges drawn by a pair of reindeer, or by one reindeer, and in which they ride to round up stray reindeer, and keep them with the herd.

This picture was taken early in April, and, as it shows, most of the reindeer still had their antlers, with the exception of the one in front, whose antlers were sawed off so that the woman could manage it more easily. Some of the reindeer had already cast one of their antlers. The males commence to cast the antlers at the end of November; but the geldings,3 yearlings, and the barren does, cast their antlers in the month of April. Pregnant does cast their antlers from three to ten days after delivery.

Plate xxv, Fig. 1, represents the camp of a not very wealthy Reindeer Koryak in spring. The herd, consisting of four hundred reindeer, was rounded up to be moved with the camp to another place. The camp consisted of two tents, housing five families, including the owner of the herd,

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1 See p. 480.

2 Brehm (Vol. III, p. 453, of the Russian translation) says that "the antlers of castrated reindeer always remain in the same position; that is, they preserve them if they happen to be castrated at a time the antlers were on, or they remain without antlers if they happen to be castrated just at the time they cast their antlers." No information is vouchsafed as to where the observation was made; but the error is probably due to the fact that geldings usually cast their antlers much later than normal bucks.
**Fig. 1.** Reindeer-Sledge.

**Fig. 2.** Train of Reindeer-Sledges.

The Koryak.
Fig. 1. Camp of Reindeer Koryak.

Fig. 2. Reindeer with Fawn.

The Koryak.
his relatives, and herdsmen. Between the Koryak tents my own little tent was pitched. To move the entire camp required from forty to forty-five sledges. The moving of the camp of the Taigonos chief — who has a herd of five thousand reindeer, twelve herdsmen with their families, and three large tents — requires not less than a hundred and fifty sledges. The train is made up as follows: —

First comes the owner in a light sledge drawn by a pair of racing-reindeer. He drives fast, and leaves the train far behind. On the way he looks up pastures, and selects a halting-place. The sledges, loaded with household goods and tent-furnishings, each drawn by one reindeer, are conducted by women. One woman leads a train of seven or eight sledges. The first sledge, in which the woman-driver is sitting, is pulled by a gentle reindeer, usually one that belongs to the woman. This sledge is followed by a covered sledge for children. Next come sledges with clothing, dishes, provisions, bedding, and the tent-covers. The last sledge drags behind it the poles of the tent, since no reindeer follow it. The transportation of the driving-sledges is effected by placing them on top of the baggage in the freight-sledges.

Plate xcv, Fig. 2, shows a doe just after delivery (May 7), with the antlers still on.

A description of sledges and the points of distinction between the different kinds — such as racing-sledges, driving-sledges (men's and women's), family sledges, freight-sledges, and sledges for carrying the poles of tents — has been given by Mr. Bogoras.¹ Koryak sledges are in no way different from those of the Chukchee. The plan of construction is as follows: —

Instead of straight stanchions there is a series of arches or ribs, the ends of which fit into sockets in the runners, to which they are tied by means of leather strips passing through holes. On these arches, which stand upright and are parallel to one another, a long rectangular frame is placed, having longitudinal and transverse bars forming a grating. The frame is attached to the arches by means of thongs. In racing and riding sledges, these gratings are used as seats. In freight-sledges there is an upright grating all around, and a horizontal grating forms the bottom of the body of the sledge. As in the case of the Chukchee, the riding-sledge of the woman is somewhat larger than that of the man.

The dimensions of the riding-sledges which I collected on my expedition are as follows: —

<table>
<thead>
<tr>
<th></th>
<th><strong>Man's Sledge</strong></th>
<th><strong>Woman's Sledge</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>216 cm.</td>
<td>228 cm.</td>
</tr>
<tr>
<td>Width</td>
<td>39 &quot;</td>
<td>46 &quot;</td>
</tr>
<tr>
<td>Height</td>
<td>28 &quot;</td>
<td>37 &quot;</td>
</tr>
<tr>
<td>Weight</td>
<td>17.5 lbs.</td>
<td>25 lbs.</td>
</tr>
</tbody>
</table>

The racing-sledge is so small and light that it can be lifted with one finger.

While the question as to the origin of reindeer-breeding among the Koryak and the Chukchee must for the present remain open, there is no doubt in my mind that the type of the Koryak-Chukchee sledge — with arches instead of pairs of stanchions, and with runners the fore-ends of which are curved upward and joined to the upper rails¹ — is of local origin. Nowhere is this type of sledge to be found, except among the Reindeer Yukaghirs (the nearest neighbors of the Chukchee and the Koryak) and among the Yukaghirized tundra Tungus, between the Kolyma and Yana Rivers. The Yukaghir driving-sledges are not as carefully finished as those of the Chukchee and Koryak, and are somewhat higher than those of the latter; but this does not prevent the Yukaghir from riding astride the sledge, like the Chukchee and the Koryak.

The sledge which was described by Bogoras under the name of Tungus sledge,² I should rather call Yakut. I believe that the northern Tungus riders who have recently begun to use sledges adopted this type of sledge from the Yakut. This sledge is a combination of the ox-sledge of the southern Yakut and the northern dog-sledge. By its lesser length and greater width as compared with a dog-sledge, it resembles a Yakut ox-sledge; but in its stanchions, the thonged grating around the sledge, and the horizontal arch attached to the front parts of the runners, it resembles the dog-sledges. The northern Yakut also use these sledges in driving passengers with horses, or in drawing loads. The driver usually sits astride the horse, and from each side of the saddle a line runs to the front of the sledge.

Mr. Bogoras has pointed out the difference between the reindeer-harness of the Chukchee and the Koryak on the one hand, and that of the Yakut and the Tungus on the other. I wish to call attention here to the advantages of the harness of the latter. The Yakut always use two reindeer to a sledge, and therefore we must take for comparison the Koryak racing and driving sledges, which likewise are drawn by two reindeer. In the case of the Koryak sledges, both the reindeer to the right and the one to the left pull with the left shoulder, and the collar is slipped over each reindeer so as to take in its right fore-leg. The line running from the collar of each reindeer to the sledge, commencing at the right fore-leg, passes on the side of the reindeer by the right hind-leg, which remains on the left of the line. In the case of the Yakut, the reindeer to the right pulls with the right shoulder, — that is, the collar takes in its left fore-leg, — while the reindeer to the left draws like the Koryak reindeer. The angles of both collars are thus between the two reindeer, — on the right side of the left reindeer and on the left

¹ See Bogoras, The Chukchee, Vol. VII of this series, Fig. 17 p. 90; and Plate xxiv, and Plate xxxix, Fig. 2, of this volume.

² See Bogoras, The Chukchee, Vol. VII of this series, Fig. 4, p. 70.
side of the right reindeer respectively. These angles are joined, by means of a wooden or bone clasp, to the ends of a leather line which passes loosely through the front arch of the sledge. The Koryak and the Chukchee use a separate line for each reindeer, both of which pass from their collars to the sledge, and are firmly attached to the sledge-front. The Yakut harness offers the following advantages:

It compels both reindeer to pull alike. If one of them pulls with greater strength, it will pull forward its end of the traces, and shorten the line of the other reindeer, whose hind-legs will then be struck by the arch of the sledge. This forces the lazy reindeer to make an effort and pull at its end of the traces equally with its mate. This kind of harness requires the reindeer of each team to be of equal strength. If the driver should not pay attention to this, the weaker reindeer would succumb. The stronger reindeer pulls out its arm of the traces; but the weaker one, unable to cope with the former, becomes still weaker the farther they proceed, until finally it drops from exhaustion. This happens quite frequently with inexperienced drivers.

When a train of freight-sledges using Yakut harnesses comes down a mountain-slope, the reindeer can swerve to both sides, — the right reindeer to the right, and the left one to the left, — and the sledges will come down by their own weight without striking the reindeer's legs. This is very important in using teams of two reindeer. In coming down a mountain-slope, the horizontal arch of the rear freight-sledge of the Yakut strikes the back of the front sledge with great force, and would crush the legs of the reindeer if they were unable to swerve to different sides. The Yakut reindeer of each succeeding sledge are tied separately, with a line about a metre long, to the rear end of the preceding sledge. The line passes from the halter. In the case of the Koryak, the freight-sledge is drawn by one reindeer, which can swerve to the left when going downhill.

The reindeer do not have to pull all the time with the same shoulder. As the Yakut always use two reindeer to a freight-sledge, the drivers frequently change the reindeer from right to left, and vice versa.

In the manner of guiding the movement of the reindeer, the Koryak-Chukchee and the Yakut do not differ greatly. The reindeer is not directed with the bridle. In the team-harness of the Yakut there is only one rein, which is attached to the halter of the reindeer on the right side. The Koryak employ two reins in their team-harness, — one for each reindeer. The reins end in knotted loops, which are slipped on the left hand of the driver. To make the reindeer go to the right, it is necessary to pull the reins. However, it is principally the reindeer to the right that learns to change the direction and to pull his mate along. The halters of both reindeer are connected by a line about half a metre long. To make the reindeer turn to the left, the driver thrusts forward, along the side of the right reindeer,
a thin pliable rod of willow, which takes the place of a whip. The right reindeer then, as though trying to avoid the blow, pushes the left reindeer to the left. The rod thus used as a whip has a length of from 120 cm. to 130 cm. (Fig. 64). It has a head of antler at the grip end, and a pointed ivory cap at the other, with which the reindeer is prodded on. The Yakut drivers use, instead of a whip, an ordinary pole from three to four metres long,

Fig. 64 (545). Reindeer-Whip. Length, 152 cm.

or a willow switch. When the driver thrusts the pole forward to the right of the reindeer, the latter turns to the left. As stated before, the Yakut use only a rein for the reindeer at the right. When the driver pulls the rein lightly, the right reindeer turns to the right, and pulls along the left reindeer. If the driver gives the rein a strong pull, the reindeer turns halfway round, and stops. At halting-points on the road, the driver thrusts the pole into the snow, and ties the rein to it. Then all the rear sledges of the train come to a stop.

In using the driving and racing sledges, the Koryak and the Chukchee drive sitting astride (see Plate xxiv, Fig. 1), while the Yakut sit sideways on the right side of the sledge. Plate xxiv, Fig. 2, shows a Koryak woman leading a train of sledges, and sitting sideways, like the Yakut driver, because she happens to be in a freight-sledge having a grated railing. As a rule, however, a young woman prefers to lead a train of sledges driving her own smart driving-sledge drawn by a pair of her own reindeer.

**Management of Reindeer-Herds.** — To pick from a large herd a number of a certain kind of reindeer is a very troublesome task. This must be done, for instance, when reindeer have to be given away with a daughter who is marrying into a strange camp, or when relatives or neighbors who kept reindeer in one herd separate to leave for different places, or when, in spring-time, the owner of the herd takes the pregnant does to a separate pasture.

Whenever this has to be done, all the herdsmen, as well as boys, girls, and children, get together. The scattered herd is collected and driven to one place, where it is surrounded by a chain of watchers, who do not allow the reindeer to disperse. In order not to frighten them, the watchers sit on their heels; but, whenever the reindeer attempt to break through the chain, the watchers jump to their feet, and stop the flight. In the midst of the herd is the owner of the reindeer, who intends to remain on the place, with some assistants. They capture their reindeer one by one with lassos, and tie one front-leg of each one to the corresponding hind-leg by means of a
short leather thong. When all the required reindeer are secured in this manner, the watchers drive the herd to one side.

The tied-up reindeer remain behind until they are entirely separated from the free reindeer. Then they are driven back to the old pasture. I once witnessed the separation of a large herd, and saw what an amount of trouble this primitive method of surrounding the herd with people gives. Refractory reindeer break through the chain constantly, and lead away the rest of the herd. The fleeing reindeer then have to be rounded up, and returned to the enclosure. If the herd is not large, the enclosure is made of sledges arranged in a semicircle.

The Yakut reindeer-breeders have regular enclosures, made of poles, near their houses. The enclosure is in the shape of a rectangle, the sides of which form high fences, so that the reindeer cannot jump over them. The rectangle is approached at one corner by a long passage, continuing one of the short sides of the rectangle, through which the reindeer are driven. Inside the enclosure, the herdsmen very seldom make use of the lasso, but capture their reindeer with their hands. Such enclosures are to be found at all the polar post-stations of the Yakut territory. Whenever reindeer are required to carry mail or passengers, the entire herd is brought from the pastures inside the enclosure, and, after the necessary reindeer have been selected, the herd is set free.

The size of reindeer-herds among the Koryak is, in my opinion, greatly exaggerated by some writers. For example, Slunin says that the Koryak herd number from ten to eighteen thousand head.1 I had an opportunity of seeing some of the herds mentioned by Slunin, and our figures are greatly at variance. For instance, the Koryak Kulo, according to my information, had a herd of not more than three thousand reindeer; while, according to Slunin, it numbered fifteen thousand.

On my way from the Gishiga to the Kolyma River I spent two days in the camp of a wealthy Tungus by the name of Abraham, whose herd was estimated by Slunin at eighteen thousand head.2 I myself saw that herd. It was not very large, and I was told that there were eight hundred reindeer in it. It is quite possible that not all of Abraham’s reindeer were there, but that part of the herd was elsewhere. Even if we were to multiply by five the number that was given to us, we should get only four thousand, and even that number is too large for the herd of a Tungus breeder in the Gishiga district. In the district of Verkhoyansk I knew a Tungus who had

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1 See Slunin, I, p. 634. Krasheninnikoff (II, p. 208) also gives improbable figures concerning the numbers of Koryak reindeer. He says that rich Koryak have from ten to thirty thousand reindeer, and more. The elder Etel Sopliskoff had nearly a hundred thousand head. Kennan (p. 195) gives similar incredible figures. He asserts that the Reindeer Koryak of northern Kamchatka have herds of from eight thousand to twelve thousand head, and one of them had thirty thousand reindeer.

2 Slunin, I, p. 634.
three thousand reindeer, and the largest herd that I ever saw near the
Indighirka River was estimated at something over five thousand reindeer.

It is true that the Tungus, when speaking to Russians, always under-
estimate the number of their reindeer, so as to appear poor, since they do
not like to kill them for meat, for which the Russians come; but such is not
the case with the Koryak. They are very vain and boastful in that respect,
and are prone to exaggerate the size of their herds. In the Taigonos Penin-
sula the chieftain would frequently say to me, "I am a rich man: I am very
rich in reindeer." On the contrary, Abraham, the Tungus whom I mentioned
above, tried to underrate in my opinion the size of his herd, calling my
attention to the fact that it did not belong to him alone, but that all of his
relatives had a share in it.

On the Taigonos Peninsula, where the Koryak have mastered the art of
counting, I took a census of the reindeer by households (I use the word
"household" and not "family," because usually brothers and other relatives
keep their herds together). I do not consider the figures that follow absolutely
accurate, but they will give an approximate idea of the value of the Koryak
reindeer industry.

I enumerated sixty-three households, which gave a total of 17,000
reindeer. The four largest herds numbered 2,000, 2,500, 3,500, and 5,000
head respectively. The remaining households had from five reindeer to eight
hundred reindeer each. Thirty-four households, or more than half, had from
five to fifty reindeer each. The majority of owners of small herds had no
households of their own, but worked as herdsmen for the wealthy reindeer-
breeders. Dividing 17,000 (reindeer) by 318 (the total number of Taigonos
Koryak), and multiplying the quotient by 3,748 (the total number of Reindeer
Koryak), we get 200,000, the probable total of Koryak reindeer.

The Koryak reindeer are intended mainly for slaughter. With the
exception of a small number used for racing, driving, and as draught-animals
in their migrations, the entire herd of a wealthy Koryak serves for consump-
tion in various ways. From his herd he gets meat for food, and skins for
clothing and tents, and he exchanges the slaughtered reindeer and their skins
for articles of consumption which he does not possess. From the Maritime
Koryak he gets by barter walrus and seal thongs, fat, oil, and meat, iron-ware
made by their smiths, embroidered funeral dress, and dried fly-agaric. From
the Russians he receives in exchange tea, tobacco, bread, printed cloth, and
other imported goods. With the hunters he exchanges his reindeer-meat and
reindeer-skins for the furs of fur-animals, which he again exchanges with
Russian merchants for imported goods.

The great mass of the Tungus find in the reindeer merely a means of
transportation. The Tungus households which own large herds are not of a
uniform type throughout. In the Gishiga district the Tungus household has
beyond barter. or sale transportation. products some of the characteristics of the Koryak. The herd, though, consists mostly of reindeer trained as riding and pack animals, but they are not let out by their owners. Like the Koryak, the Gishiga Tungus have not advanced beyond barter. The poor Tungus, in exchange for squirrel-skins and other products of the chase, receive from their rich fellow-tribesmen riding-reindeer, meat, and skins for clothing. The reindeer-management of a wealthy Tungus in the territory of Yakutsk resembles that of the Yakut reindeer-breeder.

The type of the Yakut reindeer-management is the very opposite of that of the Koryak. The profits from a Yakut herd are not derived from the sale or barter of meat and reindeer-skins, but from the use of the animals for transportation. The wealthy Yakut uses his reindeer for carrying merchandise all over the northern part of the province of Yakutsk, taking furs from the northern districts down to the Aldan River in the south, or to the Lena River in the west (where steamers ply in summer). He takes contracts for carrying the mail, and supplies the post-stations on the main and branch roads with reindeer and drivers. The Koryak reindeer are not adapted to such use. Besides, the Yakut population in the north is greater, trade is more considerable, and intercourse between different parts of the territory is livelier, than in the Koryak territory. In the latter the Russian merchants use dogs almost exclusively in carrying their goods, and hire their drivers mainly in Russian settlements.

The Kolyma merchants tried to avoid the transportation of goods from Yakutsk, or, by the recently opened trail, from Ola, by employing Chukchee breeders with their reindeer-sledges to bring merchandise from Gishiga to Kolymsk. Owing to their low standard of life, the Chukchee charge an insignificant price; and this method has proved cheap, but unreliable and slow. The Chukchee made the trip in their usual fashion, travelling with their families and herds, and making about seven miles a day, so that the trip from Gishiga to Sredne Kolymsk took them about five months. The Yakut reindeer would cover the same distance with the same freight in from twenty-five to thirty days.

Comparing further the two types of use of the reindeer, — that of the Yakut and that of the Koryak, — we find that the respective uses made of the herds generally determine the great differences between the methods of training, composition, value, and profit from the herds.

As already stated, the Yakut originally obtained their reindeer from the Tungus, but they have greatly improved the Tungus breed. At present the Yakut reindeer is larger not only than that of the Koryak-Chukchee, but

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1 The first year the Chukchee received from the merchant who hired them two bricks of tea (according to Gishiga prices, fifty cents) for each sledge drawn by one reindeer for the entire distance from Gishiga to Sredne-Kolymsk. Each sledge carried one package of brick-tea, weighing five and a half pud (about two hundred pounds). For the same weight and distance, the Yakut would have charged five rubles per pud, or 27.50 rubles per sledge (about $15.50).
also than that of the Tungus. I remember one Yakut herd not far from Bulun, on the lower course of the Lena River, which surprised me by the great size of the reindeer. The Yakut have achieved this, first of all, by careful selection. The Yakut reindeer-herd undergoes constant change in its make-up. A wealthy Yakut reindeer-breeder is continually trading or selling his poor or stunted breeders, and buys, wherever he can, large, strong bucks and does, being ready to pay good prices, and thus all the time improving the race. Besides, the Yakut reindeer-breeders make a specialty of selling their trained reindeer for post-stations. The marks of the owners of the reindeer, in the shapes of initials, are branded by the Yakut with red-hot iron seals on the hind-quarters of the reindeer. Quite frequently Yakut reindeer are found marked with several brands, which shows that they have passed through several hands.

A Koryak herd undergoes but little change in its make-up, except what is occasioned by natural increase by birth, or by decrease from disease and from slaughter for food. The herd is closely connected with the family cult. The reindeer is the bearer of luck, and the protector of the family. Although the head of the family has control of the herd, it is still considered as the common property of the whole family.¹

Moreover, each individual member of the family has under his or her own mark a certain number of reindeer which are considered as his or her personal property. Every new-born member of the family, independent of sex, receives, as a gift from the first fawns born after his or her birth, one or more female fawns. In time, under favorable circumstances, these become an entire herd, which are branded with a special mark, distinguishing them from other groups of reindeer in the herd. The Koryak mark of ownership is made on the ear of the reindeer. The operation is performed on the new-born fawn by biting off, or cutting off with a knife, a piece of the ear. The marks of ownership do not differ much. They are in the shape of a straight or curved line, an acute angle, or of two or three incisions in zigzag form. The Koryak readily distinguish their marks, even though they strongly resemble one another.

Although of late years wealthy Koryak herd-owners, for the sake of the improvement of their herd, are buying trained reindeer or good breeders from the Tungus, nevertheless they consider it a sin to sell any live reindeer. Reindeer that are sold carry with them the luck of the herd: therefore, when selling their reindeer for slaughter, the Koryak do not part with them alive, but kill them themselves. Under such circumstances, the slaughter of a reindeer that is sold is considered as a sacrifice to the Supreme Deity, and can bring no bad consequences.

¹ See Chap. XII.
The relative proportion of males and females in a herd differs in the Koryak and Yakut herds. A Koryak herd is intended principally for slaughter. To prevent the herd from greatly diminishing, the Koryak kill principally the males, young bucks, or old barren females. For this reason the females in a Koryak herd usually are from sixty to seventy per cent of the total number. The Koryak, when speaking of the wealth of a reindeer-breeder, quite often have in mind only the number of grown does, not counting the bucks and fawns.

On the other hand, the Yakut reindeer are principally considered as working-animals; and more value is therefore attached to the bucks, as being the stronger. Only under exceptional circumstances do the Yakut kill reindeer for food; nor do they sell them for food at all, since the meat would prove too expensive. The polar Yakut herdsmen subsist principally on fish with a modicum of imported flour. At times they have horse-meat or beef, cow's butter, and milk, all of which are brought in the winter, in a frozen state, from the more southern Yakut settlements, where cattle-breeding is carried on. The Yakut would rather kill a female than a working buck; and the bucks all work, — not only the geldings, but those kept for breeding also. For that reason, it is quite common to find in a Yakut herd the number of females less than that of the males, the proportion of the former being from forty to fifty per cent. The Yakut harness even the female reindeer, not excepting the pregnant ones. I had occasion to drive pregnant does on the post-road even in April, when they were about to be delivered. In the two types of uses of the reindeer just described we also find a different treatment of the reindeer from the day of their birth.

The period of rut of the domesticated reindeer continues from the end of September until the beginning of November, while delivery takes place between the beginning of April and the end of May. The greatest number of births occurs early in May. Both the period of rut and of the birth of the fawns takes place among the wild reindeer from ten to fourteen days later than among the domesticated race.

In the month of March, usually, the reindeer-breeder separates the pregnant does from the rest of the herd, and keeps them in another pasture. The herdsmen must look out for all the new-born fawns to prevent their freezing to death during the cold nights. I visited at the period of delivery, on May 7, 1901, a herd of does belonging to the Taigonos chieftain. More than half of them had already given birth to fawns. The place was an entirely open, treeless tundra, near the Chaibuga River. The snow, blown about by winter winds, was not deep. During the day it was beginning to thaw from the sun's rays, and here and there black hillocks, and earth covered with lichen, moss, and the previous year's grass, could be seen. The herd was scattered over an enormous area. Each doe seemed to keep apart with
her own fawn. Most of the fawns, but recently born (in fact, only one or two days old), were already running about with their mothers, who would run off at every attempt on my part to approach them. In a Yakut herd on the Lena River (1897), I could easily catch the little fawns, since their mothers were not afraid of people.

Almost all the fawns of the Koryak herd mentioned here were of a black or dark-brown color. Of the total number of almost five hundred fawns, I saw but ten or twelve pure white ones, and approximately the same number of dappled ones. I spent about two hours with the herd, during which time two does gave birth to their young. One of them, together with its new-born fawn, is shown on Plate xxv, Fig. 2. I took her picture during delivery, before the appearance of the placenta, when she was lying quiet.

The reindeer does produce young once a year. Not more than two or three barren females can be found in a large herd. When the weather is favorable in the spring, but few of the new-born fawns perish, usually from ten to fifteen per cent; but when the nights are cold, especially if there are snow-storms, many of them freeze to death. In a bleak spring the loss of fawns sometimes reaches as high as thirty per cent or more. On cold nights the Yakut reindeer-breeders place the does with their young in the long sheds described above, which diminishes the mortality of the fawns.

As a rule, the Koryak do not milk the does. Only on rare occasions, in the entire absence of food on the tundra, and when they do not like to kill the reindeer, do the herdsmen make use of reindeer-milk. The Koryak doe will not allow herself to be milked. The herdsmen throw her down on the ground, and suck the milk from the udder, like fawns. Some Koryak in close proximity to the Tungus have learned to milk the does. The Tungus are very fond of reindeer-milk, and drink it with tea. The milking is done by the Tungus as follows:

A few men capture the doe and let the fawn come up to her, then suddenly pull it away from the udder, and draw the milk into a wooden basin. Not more than about three cups of milk can be obtained from a doe in a day. The milk is thick, very fat, and sickish to the taste. I thought its flavor resembled that of sheep's milk. The milking of the doe, of course, affects unfavorably the growth of the fawns. The Yakut do not milk their does, and that is one reason why the Yakut reindeer are taller and stronger than those of the Tungus.

The value of a Tungus, and especially of a Yakut, herd, is considerably higher than that of a Koryak-Chukchee herd. The price of a Koryak reindeer sold for slaughter varies from two to five rubles. The Russians usually buy slaughtered reindeer from the Koryak for from two to four bricks of tea per head. When buying slaughtered reindeer from the Koryak for food, I generally paid six bricks of tea, which was considered an unusually high price.
A brick of tea\(^1\) is sold at Gishiginsk (the centre of Russian trade) for fifty kopeks (about twenty-five cents); but, as the distance into the interior from that point increases, the price rises, until it reaches a ruble or more.

I have already stated that the Koryak do not sell their reindeer alive, especially the driving or breeding bucks; but they exchange them for other reindeer. A good Tungus driving-reindeer is usually worth two Koryak reindeer. The Tungus seldom sell their reindeer for slaughter. On my trip from the district of Gishiginsk to the Kolyma River, I bought on the Var-khalam River, in the camp of Abraham, the Tungus I mentioned before, a few reindeer for provisions on the way, and took them along with me. I paid six rubles per reindeer. A good Tungus riding-reindeer is valued at ten rubles. In the north of the Yakut territory, where the wealthy Tungus harness their reindeer to sledges and engage in transportation, a driving-reindeer is valued at from twelve to fifteen rubles. A Yakut draught-reindeer is valued still higher. On the Yana River and at the mouth of the Lena River, a good Yakut draught-reindeer is prized at twenty-five rubles. Not far from Verkhoyansk my dog frightened a team of harnessed post-reindeer. They started off, ran into a tree, and one of them broke its leg. It had to be killed; and by agreement with its owner, I paid him half of the cost of the reindeer, namely, twelve rubles. Since the Yakut will not kill their reindeer, they buy the skins of Chukchee reindeer or of wild reindeer for clothing. Not infrequently Yakut reindeer-herdsmen may be seen dressed in coats made of skins of musk-deer (Moschus moschiferus) or mountain-sheep, or of skins of calves of cows, lined with the fur of hares.

A reindeer-herd multiplies very quickly under favorable conditions. Starting with a herd of a hundred females in the second year of their life, when they just begin to breed,\(^2\) and assuming that they, as well as their female offspring, will continue to produce one fawn each per year for the following ten years,\(^3\) and, further, that the number of bucks and does born each year will be the same, we find that in the eleventh year the original herd of a hundred females would have grown to a herd of 11,420 head (5760 does, 5660 bucks). From this calculation it may be seen with what rapidity a reindeer-herd would multiply if its growth were not moderated by mortality among the fawns, by slaughter for meat and skins, and, above all, by epidemics. Barren does are so few, and stillbirths so rare, that these two factors need not be taken into account.

Of the annual offspring, the wealthy Koryak kill about half for meat

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\(^1\) A brick of tea usually weighs two and a half Russian pounds (one kilo); but some bricks weigh two pounds, and others two pounds and three-quarters.

\(^2\) Quite often rut sets in among the does the first autumn after their birth, and they become pregnant.

\(^3\) The average life of a reindeer is fifteen years, and the does bear until the end of their lives. Cases of the birth of twins are not rare.
and skins. The fawns are generally slaughtered in the fall, when they are from five to seven months old. The skins are used for clothing, and are in great demand for barter. Further slaughtering of grown reindeer in the winter by the owners for their own consumption, and for food for the Maritime Koryak and the inhabitants of Russian settlements, affects very unfavorably the growth of the herd. That is why there are so few owners of large herds among reindeer-breeders. Some herd-owners have become impoverished because the Russian officials compelled them to sell large numbers of reindeer for the Russian settlements in times of famine. The smaller a herd is, the more its growth is affected by the slaughter of the reindeer.

After all has been said, the great drawback to the growth of reindeer-herds is the frequent occurrence of epidemics, which, in a few days, may pauperize a rich reindeer-breeder. Detailed information on epidemics and diseases of reindeer has been given by Mr. Bogoras.¹

It goes without saying, that the Yakut herds are not immune to epidemics; but in other respects the growth of the Yakut herd is much faster. Many Yakut in the Verkhoyansk district who but a comparatively short time ago purchased a few dozen reindeer from the Tungus, and engaged in their propagation, are now wealthy reindeer-breeders.

The Koryak reindeer-breeder has not passed as yet beyond a primitive economic stage; that is, all that he needs for living he derives from his herd. Although the herd of the Koryak may be said to constitute his capital, in so far as the labor of hired herdsmen furthers the accumulation of that capital, the only benefit which he derives from the exchange of reindeer for other things is the acquisition of articles to satisfy the current needs of the family. Under such conditions, the profit derived from a Koryak herd is insignificant. A large number of reindeer are slaughtered annually, — that is to say, part of the wealth is destroyed, — and in exchange for that, the reindeer-breeder seldom gets anything that will serve him for any length of time. We have here a case of most primitive barter.

As opposed to the Koryak, the Yakut reindeer household is founded on a money basis. The reindeer serve here, not only as an article of barter for goods necessary in the household, but as a source of earnings. The income derived from the maintenance of post-stations and the transport of goods is very considerable, and is received in money. Wealthy Yakut herd-owners have considerable capital, and even send deposits to banks. Communication over the entire length of the Government trail from the Aldan River, south of the Verkhoyansk mountain-ridge, to Sredne Kolymsk (a distance of 1350 miles) and over all branch-trails leading from that principal trail, is kept up by the Yakut in winter with reindeer, and in summer on horseback. This

explains why the herd of a Yakut constitutes capital in the real sense of the word, and why the income derived from it, as well as its value, is considerably greater than anything the Koryak can realize.

For carrying my collections from Sredne-Kolymsk to Verkhoyansk (a distance of 928 miles) I paid my Yakut driver five rubles per pood (sixteen kilograms). For great distances a sledge drawn by a pair of reindeer is loaded with from five to seven poods. Thus, in twenty-five days, the time it takes reindeer to carry a load the distance between the two points just mentioned, each pair of reindeer earned for its owner from twenty-five to thirty-five rubles, with no expense attached, except the small pay of the driver.

One driver is supposed to take care of from eight to ten sledges. He drives the reindeer attached to the first sledge, while each of the other teams is tied to the preceding sledge. The first sledge, carrying nothing but the driver and his provisions, is drawn by the most docile reindeer, yet they must be very strong animals. Quite frequently the reindeer in the rear — either because they are not used to the harness, or through laziness or exhaustion — refuse to go, and pull back; while the reindeer in front, prodded by the pole of the driver, have to drag them on and force them to go. It often happens that when the reindeer are tired, all the rear reindeer lag, while the front pair are compelled to draw the entire train. Sometimes one or more reindeer in the train fall from exhaustion, and the front pair of reindeer drag them along on the snow until they are compelled to get up. If, at such times, the front pair become exhausted, the driver substitutes others, and hitches the former to the last sledge.

When the reindeer are exhausted or very tired, they begin to pant, and lie down on the ground, and no amount of beating will induce them to get up. It frequently happens that the exhausted reindeer fall dead. In my travels with post-reindeer, which are usually over-driven, my reindeer would fall by the wayside, exhausted or dead. If a reindeer lies down so that it cannot be raised, the driver unhitches it, and leaves it. If it should recover, he will pick it up on his return-trip. It frequently happens that wolves devour such abandoned reindeer.

I remember that, at one station in the district of Kolymsk, the keeper harnessed to my train teams composed of Yakut and Chukchee reindeer. The latter he had purchased from the Chukchee to make up for the loss of station-animals. In spite of the fact that they were fat and strong animals, the Chukchee reindeer, being unaccustomed to fast driving, could not long

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1 For short distances a pair of Yakut reindeer can carry from nine to twelve pooods.
2 The distances between post-stations on the lonely polar trails vary from sixty to four hundred versts (40 to 265 miles). According to the rules governing post-stations, the reindeer must make fifty versts (thirty-three miles) per day. The same set of reindeer cover the entire distance between the stations.
keep up with the Yakut reindeer, and soon began to pant and fall, in spite
of severe beating. We abandoned them one after another, leaving on the
trail a few sledges with provisions, and finally reached the station on foot.
The Chukchee reindeer were the usual little-trained draught-animals, which
made from seven to ten miles a day in nomad trains, walking at an easy
gait the entire distance.

Comparative Remarks. — In conclusion I wish to sum up the chief
peculiarities of the three types of use of the reindeer.

The domestication of the reindeer of the Koryak-Chukchee is very
primitive. The economic conditions are still in the simple stage in which the
herd serves merely to satisfy the wants of the family. Its principal object is to
serve as a source of supply for food and clothing, the reindeer being kept
mainly for slaughter. Transportation is but a secondary purpose of the
reindeer.

The Tungus reindeer represent a more advanced type. Their chief use
is as a means of transportation over the hunting territory, both as riding and
pack animals. The household of the wealthy Tungus herd-owner approaches
either the Koryak or the Yakut type, according to its location.

The Yakut reindeer are an improved Tungus race. Their principal use
is commercial. They are the chief source of money earnings. The owners
of one or two dozen reindeer seldom use them for their own household,
but hire out themselves with their teams for the transportation of merchandise;
or they rent their reindeer to Yakut contractors for a money consideration.

The Domestication of the Wild Reindeer. — To what has been said
on p. 471 concerning the possibility of taming wild reindeer I wish to add
the following remarks.

It has been said that the Amur Tungus domesticate wild reindeer. I
consider these reports, which are confirmed by my friend Mr. Sternberg in his
review of Bogoras’s work on the material culture of the Chukchee,1 worthy
of little credence. If the Amur Tungus could increase their herds by taming
wild reindeer, they would surpass in skill the tamers of our zoological gardens,
who succeed only to a certain degree in taming wild animals. In a personal
talk with me on this subject, Dr. Sternberg told me that in the original
draft of his manuscript he had written “enticing” instead of “taming,” which
might refer to the skill of the Tungus in enticing wild reindeer with the help
of specially trained domesticated animals. This I know is done also by the
Tungus of the Province of Yakutsk, and of the Gishiginsk and Okhotsk
districts of the Maritime Province; but in those places it applies only to
hunting wild reindeer, and not to capturing them for purposes of taming.

In the districts named, three ways of hunting wild reindeer with the

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help of domesticated animals are known. The first is by means of specially trained reindeer, called "hunting reindeer," or man'sči'k (маньшчык, from manit' [манитъ], "to entice"), by the Russians, and ondada' by the Tungus. In my travels over northeastern Siberia I had occasion to meet Tungus hunters riding reindeer, who led another reindeer (ondada') by a long line. Above everything else, the ondada' is a good guide: it leads its master through woods and other impenetrable places by the surest paths; directed by its scent and hearing, it brings him to the pasture of wild reindeer. Then the hunter pays out the line, and lets the man'sči'k go ahead, while he himself hides behind a bush or hill. The man'sči'k begins to dig in the snow to get some lichen. When the wild reindeer, noticing the man'sči'k, and impelled by love of gregariousness, approaches, the hunter begins gently to draw in the "enticer," until the wild reindeer, following step by step, gradually comes within easy range of the hunter. The second method is employed by the Tungus in the autumn during the rutting-season of wild reindeer. The hunter starts out on his expedition with his best two stags, the strongest in the herd. Having found the tracks of a herd of wild reindeer, the hunter lets one stag loose, after having tied a thong in several loops around its antlers. Feeling itself free, the rutting stag, taking the scent of the tracks of the wild dams, runs to overtake them. The wild stag does not allow his adversary to approach the females, but engages in single fight with him, and becomes entangled in the thong. The hunter, mounted on the other stag, finds the combatants with their antlers entangled, and slays the wild reindeer. Sometimes he succeeds also in killing a female, which, according to the hunters, watches from afar the struggles of the males, and takes flight only on the approach of man. The third method consists in enticing wild stags in the autumn by means of domesticated dams. This method is resorted to in wooded localities that are free from wolves. Having found a pasture of wild reindeer, the hunter leaves there, alone and unguarded, some dams from his herd, which are then in their rutting-period. The dams attract the wild stags. A day or two later the hunter stealthily approaches his dams, and endeavors to shoot the wild reindeer that have imprudently gone too near them. The Koryak, too, take advantage of the wild stags visiting the tame dams in their herds, and slay them, while the Chukchee consider it an ill omen if in such cases the wild stag escapes from the herd. It will thus be seen that the principle in all three methods is to kill the wild reindeer; and in the last method it is also desired to obtain a stronger and larger breed from the domesticated dams.

Mr. W. D. Nemirovich-Danchenko, in two articles on "The Mezen Tundra", and "The Country of the Lapps", informs us that the Samoyed are not able to tame the wild reindeer of the Mezen Tundra, but that the Lapps

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1 Picturesque Russia (Russian), St. Petersburg 1881; Vol. I, pp. 95, 178.
succeed easily with those of their country, by catching them with the lasso and keeping them tied up for three days before feeding them. After that treatment, he says, the reindeer are as tame as those of the domesticated herd. Presumably this report is based on a misunderstanding and refers to the first training of unbroken reindeer that are taken out of the herd.

I discuss the possibility or impossibility of taming wild reindeer thus fully, because the answer to this question is of the utmost importance not only from the point of view of the economic interests of the reindeer-breeders, but for the history of domestic animals in general. It is true that the domesticated reindeer differs little from the wild reindeer. So far, zoologists have found no anatomic differences which would justify us in considering the domesticated reindeer as a distinct variety. From this it may perhaps be inferred that reindeer-breeding is of comparatively recent origin; but the fact must also be taken into consideration that the reindeer-breeders know hardly anything of artificial selection, and that domestication was not accompanied by changes in the feeding of the animals. However this may be, the more pacific nature, the familiarity with man (so to speak) and the readiness to obey him, which we find even in the primitive race of the Chukchee-Koryak reindeer, do not develop at once. These qualities are gradually acquired, and are transmitted by inheritance through a whole series of generations. This applies all the more to the race of Tungus reindeer. The comparative weakness of the reindeer is an advantage to man in the taming of this animal, which could not be accomplished by superior physical strength alone. I have already cited an instance of how the draught-reindeer of a primitive Chukchee herd, when first put into harness with Yakut reindeer, might be beaten to death, but could not be made to draw the sledge as fast as the Yakut reindeer do. Should a wild stag, notwithstanding its innate fear of man, join the herd, attracted by the dams, there would be danger of the herd-owner, however vigilantly he might keep watch, losing a large part of his herd, which the wild stag would probably lead away into the wilderness. The invariable custom of the Chukchee of killing the wild reindeer attracted to the herd by sexual instinct appears to me to have been called into existence in a great measure by this very apprehension, and hence this custom is invested with a religious significance. When I consider reindeer-breeding as of recent origin, I still do not mean to assign to it a beginning very near to our times. The Chukchee-Koryak cult related to the domesticated reindeer, with its numerous rites and festivals, required much time for its evolution and establishment. As it is a matter of great importance, from the point of view both of science and of domestic economy, for reindeer-breeders really to be able to increase their herds by the taming of wild reindeer, let us hope that

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1 See p. 497.
future investigators of the reindeer-breeding tribes will pay to this interesting and important question the attention which it deserves.

In connection with the question of the occurrence of cases of taming wild reindeer, I will mention the account of a certain Yukaghir, quoted by Bogoras, concerning the taming of wolves, and of their use in harness with dogs. I, too, have heard this story among the Yukaghir of the Lower Kolyma, and, like Bogoras, I consider it a myth.

I will give another example showing how a mythical episode may turn into an account of a real event. We know from the Koryak myths that the evil spirits (kalau) keep herds of mountain-sheep (Ovis nivikola Eschholtz) instead of reindeer. Now, Dittmar tells as a real fact, which evidently he had heard from the Kamchadal, that a group of Kamchadal from the river Moroshechnaya, fled into the mountains in order to free themselves of the necessity of paying fur-tribute, and that they wandered about there with a small herd of mountainsheep tamed by them.

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3 See Dittmar, Reisen in Kamtchatka, p. 413 (Russian translation, p. 366).
VI. — DOG-BREEDING.

The Beginnings of Dog-Driving, and Its Former and Present Extent. — No doubt the dog was domesticated long before it was used for driving. According to a tradition recorded by me in the village Ikana, the use of dogs for driving, among the Koryak, began as follows. Once upon a time some children who were playing with a dog tied it to a wooden chamber-vessel (oça’lyo). The dog dragged the vessel along. "Ah," said the people, "it can draw!" and they hitched the dog to a sled.1 This tradition points to the fact that in the memory of Koryak now living a reminiscence has been preserved of the time when the dog, though already a domesticated animal, was not employed for driving-purposes.2

According to the statements of early travellers and writers, like Marco Polo and Witsen, dog-driving in western Siberia was formerly employed much farther to the south than it is now. As stated by Witsen, at the time when he wrote (1785) there were no horses in the northern parts of the Yenisei district, but only dogs; and even near Tomsk horses were used in summer for driving, and dogs in winter.3 Later on, the horse supplanted the Siberian driving-dog, and in the extreme north it found its competitor in the Arctic reindeer. In more southerly latitudes the dog has held its place as a driving and draught animal only in the southeastern part of Siberia, in Kamchatka, on Sakhalin Island, and in the Amur region. In the well-known expedition to the Yugra country in 1499 the Russian Army was accompanied, according to Lehrberg, by hundreds of dog-sledges.4 The same writer states that in former times dog-driving was in use west of the Ural Mountains in the government of Perm. Middendorf supposes that in Europe the driving-dog was superseded by the horse in antiquity, probably in prehistoric times. He

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1 Steller (p. 133) quotes the tradition of the Kamchadal, according to which their creator Kutka did not hitch up dogs, but dragged the sled himself.
2 It is interesting to note that in Koryak mythology reindeer-driving as a sign of wealth is contrasted with going afoot as an indication of poverty (see Part I, pp. 253, 281, 283), but not with dog-driving. In my judgment, it cannot be inferred from this that the Koryak dog was not used for driving until after the reindeer had been tamed. In the first place, the dog is the most ancient domesticated animal, and, besides, it was very easy to teach it to draw a sled; in the second place, primitive imagination, as well as the most modern, employs extreme situations to enhance contrast, unwittingly or purposely disregarding intermediate conditions that do not bring out the contrast so well. In one myth (see Part I, p. 210) Big-Grandfather asks his daughters to give him some soup for feeding the dogs. He goes out and calls the dogs, and the reindeer which have carried off the Fog-Man turn into dogs and run back to the trough with their sled. From this myth it may be concluded that the creator of the Koryak world is conceived of as having driving-dogs.
also thinks that the expression "pennikorm" of the Baltic Provinces (which means "a dog's load"), which is used instead of "geographical mile", recalls the vanished custom of dog-harnessing. We find, of course, in many European countries at present, also the use of draught-dogs harnessed to small carts. I observed it in Germany, Switzerland, Belgium, and Holland. Milkmen, green-grocers, tradesmen, artisans, distribute or bring their products to market in carts to which are harnessed one or two dogs. The driver, man or woman, helps them draw. But this particular, limited use of dogs as draught-animals is quite different from the breeding and harnessing of dogs of the Siberian tribes, to whom the dog furnishes the only means of communication and transportation. It is possible, however, that the present use of the dog in harness in Europe may be regarded as a relic of a more extensive use of the harnessed dog in antiquity.

Considering the available data concerning the former extent of dog-driving in the West, we are forced to the conclusion that the changes in the manner of harnessing and driving dogs among the dog-breeders of eastern Siberia, which have taken place in historic times, occurred under the influence of Russian invaders, who had been familiar with dog-driving previous to their meeting with the East Siberian tribes.

I have remarked before that the region in which dogs were used as draught-animals has narrowed down to a certain degree, owing to the introduction of the reindeer. Most of the Siberian tribes engaged in dog-breeding, like the Ostyak, Samoyed, Tungus, Yukaghir, Chukchee, and Koryak, employ also the reindeer to such an extent that in many cases a large portion, sometimes even the majority, of the tribe, are engaged in reindeer-breeding. The tribes which formerly did, and do now, use only dogs as draught-animals, are the Ainu, Gilyak, and Kamchadal in Asia, and the Eskimo and Indians of northwestern America. The Russians now living in hamlets in the Far North (principally near the mouths of rivers) and in the extreme east of Siberia also use dogs exclusively for hauling loads and for travelling. In a few localities these Russians, who are fishermen, possess a small number of horses for riding in summer, but none of them have taken up reindeer-breeding, — an occupation conflicting with the sedentary habits of their former home.

In the north of the Yakut Province a few Russians own small herds of reindeer, but the herds are under the care of Tungus.

Both the modern driving-dog of Siberia and that of northern America belong to the same wolf-like race of domestic dogs. Middendorf supposes that it represents a cross between a wolf and jackal. Schrenck, too, considers

1 Compare Middendorf, II, pp. 519, 520.
2 See the ethnographic map in Part I for Russian hamlets in the extreme northeast of Siberia.
3 See Middendorf, II, p. 547.
the Eskimo dog as related to that of Asia. He thinks that the dog of northern North-America has reached there from the Old World.¹

Except for its smaller stature (the average height at the fore-legs is between 50 cm. and 75 cm.) and more varied color, the dog is, on the whole, hard to distinguish from the polar wolf. Though a considerable percentage of dogs are of a uniform light or dark gray color, like that of the wolf, many of white color and black color occur; but particularly numerous are the piebald dogs, with white or black spots on their legs, chest, and sides. West of the Stanovoi Ridge more piebald dogs are found than near the coasts of the Sea of Okhotsk. For instance, along the Indighirka the majority of dogs that I saw were piebald, with white and black spots. This, in all probability, must be the result of intercrossing of the native dogs with the Tungus hunting-dog, which resembles the shepherd-dog, or with the dogs imported by the Russians. This may also explain the fact that on the Lena, among the Yakut dogs, I sometimes saw specimens with drooping ears. On the other hand, from crossing the driving-dog with the Tungus dog, which is smaller in size, there results a small fox-like type, with pointed snout, small erect ears, and bushy tail. Such dogs I met frequently on the Kolyma River. They very much resemble foxes, especially those with reddish fur. When in good humor, they turn their bushy tail upward; but when tired or disgruntled, they drop it and drag it, as foxes do. Then the round pupils of the eyes alone distinguish this dog from a fox.

The present method of driving dogs employed by the Koryak is identical with that used by the Russians and natives of eastern Siberia, and particularly also with that used by the Chukchee, which has been described in detail by Bogoras.² Therefore I shall point out here only a few peculiar traits of dog-breeding among the Koryak, and its relation to their domestic economy. I shall also give some additional information relating to the distribution and types of dog-breeding in Siberia.

HARNESS. — To the three types of dog-harness mentioned by Bogoras, two others may be added, — the modern Gilyak and the ancient Kamchadal type. Thus we find the following five types: —

1. The West Siberian Harness. — It consists of a round strap encircling the dog’s body like a belt across abdomen and back (Fig. 65). From the lower part of the belt, where the ends of the belt-strap are joined by means of a toggle, a trace runs between the hind-legs of the dog. Around this trace is wound some soft material, usually a piece of fur, to protect the legs of the animal. Thus the dogs are made to pull with their haunches. In describing the West Siberian dog-harness, Middendorf says that a small strap runs from the upper part of the harness, over the loins, to the main line, to

prevent the harness from slipping back upon the legs. From Middendorf’s description it does not appear whether he personally handled a West Siberian harness on the Yenisei River or a harness in use to the east of the Lena. I may add here that during my sojourn at the mouth of the Lena in 1897 I had occasion to see dog-breeder that came there from the Khatanga and Anabar Rivers, both west of the Lena, who had the same harness as is now found everywhere east of the Lena.  

2. The East Siberian Harness, also employed by the modern Koryak, consists of a long loop of skin (Fig. 66), the ends of which are united by a little strap terminating in a toggle, which is inserted in one of the rings of the main line. The loop is made of a piece of skin two or three fingers wide. The sides of the loop are united by means of one or two cross-strips of leather which go over the back of the dog. The dog is put into harness by passing its head through the opening between the top of the loop and the first cross-strip. At one side of the harness a small strap is sewed on, which serves as a belly-band. It passes under the dog’s belly, and is fastened with a wooden or bone toggle to the loop on the other side of the harness. Thus this type of harness resembles the Russian horse-harness. The top or the breast-piece of the harness, by which the dog pulls, rests on the chest;

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1 Middendorf, II, p. 521.

2 From the statement made by Middendorf (Footnote 3, p. 521), it may be inferred that in his time both kinds of harness were known on the Yenisei. He says that the Yenisei Yakut used to call the back-harness “Russian harness” (nuka’-alygga’), and the chest-harness “Yakut harness” (saxa’-alygga’). Judging from the name, Middendorf conjectures that the back-harness came to Asia from Europe.

3 See Bogoras, The Chukchee, Vol. VII of this series, Fig. 25, a, 4, p. 108.
but often the band across the back is too short, or in driving the breast-piece of the harness slides upward, despite the belly-band, and the breast-piece comes to rest above the chest, so that the dog pulls with its neck, thus making breathing difficult. This is the principal inconvenience of this type of harness.

3. **The Eskimo Harness.** — Murdoch\(^1\) describes this harness (Fig. 67) as follows: "The dog-harness consists of a broad strip with three parallel loops at one end. The head is passed through the middle loop, and a fore-leg through each of the side-loops, bringing the main part of the thong over the back." In a similar way Parry\(^2\) and Nelson\(^3\) describe the Eskimo dog-harness. The dog-harness of the Central Eskimo is constructed on the same principle. "It consists of two bights passing under the fore-legs. They are joined by two straps, one passing over the breast, the other over the neck. The ends are tied together on the back, whence the trace runs to the sledge."\(^4\) From these descriptions it is clear that the Eskimo dog pulls partly with its shoulders, but mainly with its chest. Furthermore, the breast-bight or breast-piece cannot slip up, as is the case with the East Siberian dog-harness, and therein lies the advantage of the Eskimo dog-harness over all the others. The Asiatic Eskimo seem to use a dog-harness similar to that of the Central Eskimo; but in the illustration of the dog-harness of the Asiatic Eskimo, given by Mr. Bogoras\(^5\), the breast-strap joining the two bights for the fore-legs is not seen, so that it appears that the dog pulls with the shoulders only.

4. **The Amur Harness.** — This type of harness (Fig. 68) is very simple and primitive, consisting as it does of only one loop, which is put over the dog's head, in the form of a loose collar, so that the dog pulls with its neck exclusively.\(^6\) In this respect the Amur harness differs, disadvantageously, from all others. Under great exertion or excitement, says Schrenck,\(^7\) the dog is easily subject to suffocation. This dog-harness is used by the Ainu on

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\(^1\) The Point Barrow Eskimo, p. 538.
\(^2\) See Parry, II, p. 517.
\(^3\) Nelson, The Eskimo about Bering Strait, p. 209.
\(^4\) See Boss, The Central Eskimo, p. 531, and Fig. 487 on p. 532.
\(^5\) See Bogoras, The Chukchee, Vol. vii of this series, Fig. 20, p. 98.
\(^6\) See Schrenck, II, pp. 172, 173, Plate xxxvi, Figs. 2, 3. Sternberg (American Anthropologist, N. S., 1905, Vol. vii, p. 324) has pointed out the error into which Bogoras has fallen (owing to the indistinctness of several of Schrenck's illustrations) by classing the Gilyak harness with the modern type of Kamchadal harness (Bogoras, The Chukchee, Vol. vii of this series p. 109).
\(^7\) Schrenck, II, p. 173.
Saghalin, the Gilyak, and the representatives of Tungus tribes on the Amur River, who have learned dog-driving from the Gilyak.  

5. The Ancient Kamchadal Harness. — The modern Kamchadal dog-harness (Fig. 69), named "oblique harness" by Bogoras, differs from the usual East Siberian type in that it is shorter, has only one band across the back, and has no belly-band; but, judging from Krasheninnikoff’s (1733—43) and Dittmar’s (1851—55) description, the Kamchadal of their times used for harnessing dogs simple collars or loops like those of the Gilyak, without cross-straps; but the manner of putting them on was like that of the Yakut reindeer-collars, which on the right-hand animal are put over the head and the left fore-leg, so that it pulls with the right shoulder and in part with the chest, while the left-hand animal has its head and right fore-leg in the collar, and pulls with its left shoulder.

I find that among the five types of dog-harness here mentioned, that of the Eskimo is most effective. Next to it, the most practical is the ancient Kamchadal harness, which, in simplicity, even surpasses that of the Eskimo. The East Siberian harness occupies an intermediate place between the Eskimo and the Amur types, the former of which requires the dog to pull with the chest, the latter with the neck. The Amur and the west Siberian harnesses are burdensome for the dog, each in its own way. The former also prevents fast driving; the latter is a torture to the dog when drawing a load.

The question now arises, to which tribe does the

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1 Schrenck, II, p. 175.
2 See Bogoras, The Chukchee, Vol. II of this series, Fig. 25, a, p. 108; also Tushov, “Along the Western Shore of Kamchatka” (Memoirs of the Imperial Russian Geographical Society, Vol. XXXVII, No. 2, St. Petersburg, 1906, pp. 77, 78; Figs. 12, 13).
3 See before, p. 487, and Krasheninnikoff, II, p. 79. I will here translate Krasheninnikoff’s own words, as his obsolele Russian and his inexact expressions, coupled with the absence of illustrations, may lead to misunderstandings: “The loops (collars) are made of broad straps, soft and folded double, which are put on the dogs over the shoulder-blade, — over the left shoulder-blade of the right-hand dog and the right shoulder-blade of the left-hand dog.” This means that the left shoulder of the right-hand dog is in the loop, and it pulls with its right shoulder, and vice versa in the case of the left-hand dog. That this description must be understood exactly in this way, may be seen from the passage in which Krasheninnikoff describes the Koryak harness of a pair of reindeer: “The loops by which the reindeer pull are like those of dogs; they are put on both reindeer over their right shoulder-blades” (Krasheninnikoff, II, p. 210); i.e., both reindeer pull with their left shoulders, as I have described before (p. 486). Dittmar’s description is much clearer. He says, “Jeder Hund trägt nämlich beständig einen festen Halsriemen mit einem daran hängenden Halen und alle Enden der Anspannriemen verlaufen in eine weite lose Schlinge durch die der Kopf und ein Vorderbein des Hunders gesteckt werden, während die Haken der Halsriemen in die Wiederrächen der Schlinge eingreifen. Die Hunde ziehen also mit dem Nacken und der Brust,
invention of the harness described here as the East Siberian type, which is used at present by the Koryak, belong? We do not know the type of harness used in olden times by the Koryak and Chukchee. It is likewise unknown what type was used by the Yukaghir who lived between the Lena and the Kolyma Rivers. I am inclined to think that the primary East Siberian dog-harness i.e., that of the native dog-breeders of East Siberia — consisted of one single bight like that of the Gilyak or Kamchadal, but that the Russian immigrants changed it by adding to the single bight back-bands

and a belly-band, and that the natives afterwards adopted from the Russians the harness modified in that way. The following considerations support this hypothesis.

The East Siberian dog-harness, with its cross back-straps and belly-band, recalls as I stated before, the back- straps and belly-band employed in the Russian horse-harness;¹ the Kamchadal have adopted the East Siberian harness from the Russians; and the Russians, not only all over eastern Siberia, but even on the Amur River,² employ this harness, evidently imported by them, and not that of Gilyak type. That the Yakut, according to Middendorf's statement, called the East Siberian type the Yakut harness, does not at all argue that it was actually invented by the Yakut, the northern branch of whom became dog-breeders very late. Their word for "dog-harness" (a'lyk)³ is not a Yakut word, but the Russians of various Siberian localities designate the dog-harness by this term.

I think that the Eskimo harness too, with three bights, is an improved type developed from the single-bight harness. The latter can be easily cast off by the dog, or it slips off⁴ — a great inconvenience — in driving over

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¹ It is interesting to add here that the West European dog-harness for pulling carts is of the East Siberian type; i.e., the type is, as I suppose, of Russian origin. The only difference between the West European and the East Siberian dog-harness lies in their back parts. While the East Siberian dog-harness ends with one trace, which is fastened to the main line, the West European dog-harness ends in two traces, — one on each side, — which are fastened to the ends of a whiffletree, as in a double horse-harness. The shape of the back part, and the manner of attachment to the main line, are another inconvenience of the East Siberian dog-harness; for the dog must run somewhat obliquely in order to draw with the chest, and this fatigues the dog extremely.


³ See Footnote 2, p. 505, alygya = alyk + ga; -ga is the possessive suffix.

⁴ It may be noted here, that, according to Dittmar's description, the former Kamchadal single looped dog-harness was also prevented from slipping off by fastening the breast-piece to the dog-collar (see p. 507, Footnote 3).
Dog-Sledges.

The Koryak.
snowdrifts, over hummocky ice, and rough ground, where the long traces of the Eskimo harness may catch.

The Koryak make the dog-harness of hide of the thong-seal (*Erignathus barbatus*), as well as of bear-hide. On the Kolyma, dog-harness is also made of ox, horse, and elk hide.

There is no information to the effect that dogs have been used in the Old World as beasts of burden; but, according to Klutschak, the Eskimo sometimes use dogs for carrying packs when sledge-driving becomes difficult or impossible. The dog of the American Indian is also used as a beast of burden. I have heard that prospectors in Alaska use the dog in the same way.

Methods of Attaching Dogs to the Sledge. — Like the Russians of eastern Siberia, the Koryak nowadays harness the dogs in pairs, one dog on each side of a long stout main line (Plate xxvi, Fig. 1; see also Fig. 183). Probably this method has also been introduced by the Russians to facilitate fast driving, since in this way many dogs can be harnessed to the sledge. Judging from certain survivals of former harnessing, the natives of Siberia, who harness dogs tandem, formerly used to attach them to the main line singly, and alternately on the right and left of the trace. The Yukaghir of the Upper Kolyma harness dogs that way even now; and the same is done by the Koryak when transporting household effects from the winter to the summer dwelling, and *vice versa*, if their dogs are few in number. According to some statements, the Koryak in olden times did not drive fast. They harnessed few dogs to the sledge, and the driver himself helped to pull or push the sled, as the western Eskimo do. The Koryak often do so even now when moving from their winter houses to their summer quarters. To avoid the trouble of loading and managing a sledge drawn by a small team, the Koryak, who have few dogs, often walk from village to village, if these are not too far apart, carrying their goods in a bag on the back. In olden times walking was more in vogue than it is now.

According to Schrenck’s description, the Gilyak, like the Yukaghir of the Upper Kolyma, attach the dogs at equal distances apart, alternately on the two sides of the main line, and there are only few dogs (about six or seven) in a team; while the Russians on the Amur attach the dogs in pairs, with the exception of the first (the leader), which may be single, the team consisting of from five to seven pairs. This latter method is used by the Russians all over East Siberia. According to Krasheninnikoff, the Kamchadal of his day would usually harness only four dogs to a sled, but would attach them alternately or in pairs.

The Eskimo generally attach the dogs so that the traces of each dog

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1 Klutschak, Als Eskimo unter den Eskimo (Wien, 1881), p. 85.
2 See Schrenck, II, Plate xxxvi, Fig. 2, p. 172.
3 Ibid., p. 173.
4 See Krasheninnikoff, II, p. 77.
run directly to the fore-part of the sled. The line of one dog (the leader), being somewhat longer, enables it to keep ahead; while the others, in running, are arranged like a fan. According to Bogoras, this method of harnessing was still in use on the Chukchee Peninsula in the middle of the last century. On the other hand, the Eskimo about Bering Strait now employ both the Asiatic and the American methods of harnessing; i.e., tandem and fan-like, having evidently adopted the former method from the Chukchee, or rather from the Russians in Alaska. At Point Barrow the Eskimo, too, now employ the Asiatic method of harnessing. As Murdoch states, "the dogs are attached in a long line, alternately on opposite sides of this trace, just so far apart that one dog cannot reach his leader when both are pulling;" i.e., as the dogs are attached by the Yukaghir of the Upper Kolyma, the Gilyak, and in many cases by the Koryak. The Eskimo about Bering Strait, in employing the tandem method, attach single dogs alternately, or in pairs if there are more than three dogs.

The Sledge. — The sledge now employed by the Koryak for dog-driving is of the same type as that in use in the whole of northeastern Siberia, but chiefly among the Russians. This sledge, with its three or four pairs of vertical stanchions, with a horizontal front bow tied to the upturned runners, and with a vertical bow at the first pair of stanchions and a netting of thongs on the sides and in the back, is also in use among the modern Chukchee, and has been described in detail by Bogoras. We do not know now what was the original type of the Koryak dog-sledge, but doubtless it was not the sledge above described. The ancient Chukchee dog-sledge had "curved ribs, similar to the reindeer-sledge." The ancient dog-sledge of the Kamchadal also had curved ribs. Accordingly there is no ground for assuming that the Russians adopted from the Koryak the above-described type of sledge with vertical bow. In Steller's time there were already in use in Kamchatka two types of sledges; namely, the ancient Kamchadal sledge with curved ribs, and the present narta imported by the Russians. As with the dog-harness, so also with the East Siberian dog-sledge, I think that in its fundamental form it is a type of dog-sledge of some native tribe, most likely the dog-breeding Yukaghir, with whom the Russians fell in on the rivers Yana, Indighirka, and Kolyma, far back in the first half of the seventeenth century.

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1 See Bogoras, The Chukchee, Vol. VII of this series, p. 98.
2 See Nelson, The Eskimo about Bering Strait, p. 209.
3 See Murdoch, The Point Barrow Eskimo, p. 358.
4 See Bogoras, The Chukchee, Vol. vii of this series, Fig. 21, pp. 104—106. It should be added, however, that our information concerning the method of harnessing and dog-driving of the Maritime Chukchee of the Arctic Ocean between Cape Enri and East Cape is as yet incomplete.
7 See Steller, p. 370.
8 The Cossacks founded the town Verkhoyansk on the Yana River, and reached the Indighirka as early as 1699. Since then the Russians have been improving the local means of transportation.
JOCHELSON, THE KORYAK.

But the Russians considerably improved upon the native type, and then carried it to Kamchatka, the Koryak, Chukchee, and to the Russian settlers on the Amur. Part of the Yakut, who became dog-breeders but lately, have also adopted this type of sledge. Its structure, dimensions, and firmness are well adapted for fast driving, for carrying heavy loads, and for making long journeys, — conditions of which the primitive tribes of Siberia had no need, or much less need than the Russian conquerors, — at first for military campaigns, and later for mercantile transports, the conveyance of officials and priests, and for carrying scientific expeditions. For the transportation of passengers the sledge had to be made long, with a comfortable seat in the rear;¹ and room in front for the driver. I also think that the vertical bow of the sledge is a Russian invention. When jumping off the sledge during the journey, either to run for a while or to urge the dogs along, the driver does not let go of this bow. If he should, the dogs, on scenting game, or aroused by something else, might suddenly run away, leaving the driver in the wilderness. This danger is great when the number of dogs in harness is considerable and the sledge is without freight. Once when I myself drove a team of dogs and got off to adjust the sledge, the dogs suddenly ran away and left me alone. Luckily there was a village seven kilometres away, where the dogs stopped, while I escaped with no more serious result than having to walk this distance in heavy travelling-clothes.² The Yukaghir of the Upper Kolyma, who have few dogs, and who are in the habit of helping them to draw the sledge, use no vertical bow. In travelling over the Yukaghir territory on the Upper Kolyma River, I could make no use of Yukaghir dogs. They are unfit for fast driving with passengers and heavy freight. I had to hire horses from the distant Yakut villages. The Yukaghir themselves, in their wanderings, go on foot or on snowshoes. Only children and the sick sit on the sledges. But whenever I had to make short journeys, and it was inconvenient to send for Yakut horses, the Yukaghir, in order to carry me some five or ten miles, would combine the dogs of two or three households into one team. I would sit on the sledge alone, without a native driver. One Yukaghir on foot, — sometimes on snowshoes — would run in front, followed by the team; while another would run behind the sledge, holding in his hand one end of a long thong, the other end being tied to the

¹ To a sledge intended for passengers a high netted back, made of sticks and strips of leather, is attached.
² I knew a certain Yakut, Nikolai Sletstsoff by name, who lived on the border of the forest, on the Kolyma tundra, and who in the spring was driving a dog-team over the open tundra, and fell ill with snow-blindness. Unable to see the trail, he could not drive, and he let the dogs go, in the hope that they would take him to the village. All at once he felt that the dogs had gotten off the trail and into the soft snow. He got off in order to feel for the trail with his feet; but the dogs, probably roused by some beast that passed by, ran away with the sledge, and left the blind Yakut alone in the tundra. Sixteen days he lay there, subsisting on melted snow. The Reindeer Yukaghir found him in a dying condition, and cared for him until he had regained his strength. The dogs and the sledge were found by the relatives of the Yakut, who went in search of him. They had strayed far away from the tundra, into the forest. The dogs, entangled in the bushes and in their own harness-stra they died there.

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back of the sledge, to prevent the dogs, which are not directed by shouts, from losing the trail, and to stop them whenever they might try to run away.

The Russian immigrants, although they have improved the local sledge, and have adapted it and the whole method of dog-driving to the new requirements of transportation, have nevertheless kept every feature required by local conditions. Thus the narrowness of the sledge has been preserved, which is necessary on account of the absence of roads, and the lashings by means of which all parts are held together. These give the sledge not only strength, but also elasticity, which enable it to resist the jolts that would break a sled joined with wooden pegs or iron nails.

1. Whymper's book "Travels in Alaska," we find an account of Russian-Indian dog-driving on the Yukon River. It is to be regretted that it contains no detailed description of the sledge and harness; but it states that five dogs were harnessed to each sledge, that the sledges carried freight only, and that the men went on snowshoes. To judge from the illustrations, as far as they can be made out, the sledges were constructed somewhat like the East Siberian type. They had neither vertical nor front bow. The dog-harness, too, is apparently like that of eastern Siberia. The dogs are placed abreast, after the manner of the Eskimo.

We have already seen that where there are few dogs in a team, the men usually walk, or even help draw the sledge. The manner in which the driver sits on the sledge varies in different regions. All the tribes using the sledge of the East Siberian Russians sit sideways on the right-hand side near the vertical bow, which is held with the left hand, while the shaft of the brake is held with the right. Thus the driver, without letting go of the bow, often jumps off the sledge and runs along, urging the dogs on with a shout, supporting the sledge on slopes, or pulling it aside from stumps, hillocks, and other obstacles on the trail. This sledge is also convenient for carrying passengers who sit in the back part of the sledge, their feet stretched forward, or who lie stretched full length under a blanket. The Gilyak sit astride of their light sledges, which have no bow, and are peculiar in that their runners turn upward both front and rear. The dogs' labor is lightened by decreasing the surface of friction; but, on the other hand, the sledge sinks more easily into soft snow. Bogoras says that the driver of the ancient Kamchadal sledge sat astride it; while Krasheninnikoff, in whose day the Kamchadal still employed the ancient type of sledge, says, "They sit on the sledge with their feet hanging down its right side; and to sit astride the

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1 See Whymper, Alaska, Reisen und Erlebnisse; illustrations on p. 188 and on titlepage.
2 The photograph of a sledge of the Alaskan Eskimo from St. Michael in Nelson's work (Plate LXXV) strongly resembles the illustration on the titlepage of Whymper's book.
3 See Schrenck, II, Plate XXXVI, Fig. 1; Sternberg, The Gilyak (Ethnographical Survey [Moscow, 1904]), Part I, p. 19).
FIG. 1. FEEDING OF DOGS.

FIG. 2. FISHING WITH HAND-NET.

The Koryak.
sledge is deemed a great sin, for thus the Kamchadal women sit on it."1
On the other hand, Steller relates that the Kamchadal sat more frequently
on one side of their sledge to be able to jump down quickly in dangerous
places, but sometimes when driving on a smooth plain they sat astride.2

TREATMENT OF THE DOG. Feeding. — The northern driving-dog, being
a carnivorous animal, requires for its nourishment the same food as man.
This has the advantage that the procuring and storing of food for both man
and his domestic animals may be attended to at one and the same time and
place. On the other hand, an abundant supply of animal food is required:
hence dog-breeding is possible only on the seacoast or near rivers rich in
fish. Besides, dog-breeding necessitates settled habits, as it requires large
stocks of animal food for the winter, when sea-hunting ceases, as is the case
in the territory occupied by the Koryak. The main food of the Siberian dogs
consists of fish. On the coast, fish is caught in summer in great quantities,
and is conveniently prepared for winter supplies. The Koryak dogs, too,
prefer fish to any other kind of animal food. The principal fish caught by
the Koryak is the dog-salmon (Oncorhynchus keta). It serves also as the
staple food for dogs. In part the dogs’ food is supplied by the small fish
uyo'k (Salmo socialis). Dog-salmon dried in the sun is fed dry to the dogs
during journeys. The skeleton of the dog-salmon, too, on which small pieces
of meat remain after the soft parts have been removed for drying, supplies
food after being dried in the sun. When at home, a thin soup for the dogs,
made from the bones and heads of dog-salmon, dried uyo'k, and other fish-
offal, is cooked in an iron kettle. Into this soup pieces of seal-blubber are
sometimes thrown. The soup for the dogs, when ready, is cooled a little
by pouring it into wooden or seal skin buckets (Plate xxvii, Fig. 1; see also
Fig. 104), which are then carried out of the houses on the backs of
the women by means of head-bands. As the food for the dogs is prepared
of those parts of fish which decompose most rapidly during the summer and
autumn, a strong stench fills the houses while it is being cooked. During
our residence in the underground houses of the Koryak, this stench from the
dogs’ food caused us the greatest annoyance. The dogs are fed outside of
the house. Plate xxvii, Fig. 1, shows two women pouring the warm soup,
which is of the color of iron-rust, from wooden buckets into a long wooden
trough. Before feeding, children untie those dogs, which for some reason
are tied up. Impetuously the dogs make for the trough, and furiously begin
to lap up the soup, dipping their snouts into the liquid up to the eyes,
searching for the more substantial solid portions of the food. Fights are rare
among the dogs while feeding, for they well know that the dog that starts
a fight will be struck over the head by the women or children who supervise

1 See Krasheninnikoff, II, p. 81.  2 See Steller, p. 371.
the feeding. No sooner, however, does a dog from another household approach the trough, than all will set upon it. A newly acquired dog is brought to the trough and watched, lest the other dogs attack it. After two or three days the pack recognize the new dog's right to come to the trough. A similar protection must be extended by the Maritime Koryak to a newly acquired dog that is for the first time put into a team.

As far as I know, among all the Asiatic tribes using the dog, only the Gilyak feed the dogs indoors. For this purpose a high platform is erected in the middle of the house, the trough with the feed is placed on it, and the dogs are taken there.\(^1\) The Koryak, Chukchee, Kamchadal, Yukaghir, northern Yakut, and coast Tungus feed the dogs out of doors. The Eskimo do not let the dogs into the house, but they lie in the entrance leading into the winter house. Murdoch says that the Eskimo women take care of the puppies as if they were babes, and carry them in their coats.\(^3\) Among the Central Eskimo, \^'\^young dogs are carefully nursed, and in winter they are even allowed to lie on the couch, or are hung up over the lamp in a piece of skin.\(^9\)

**Care of the Dog.** — Among all dog-breeders, — excepting the northern Yakut, who only lately reached the polar regions, where they took to dog-driving, — dogs are believed to play a certain part in the world of the dead. The Yukaghir, Koryak, Chukchee, and Kamchadal believe that dogs guard the entrance to the country of the shades.\(^4\) They must be bribed by the entering shadows. They give a very ugly reception to the dead who while alive tortured dogs. These ideas are not foreign to the Gilyak, Aleut, and Eskimo. We find an entirely different attitude towards the dog among the Yakut, who originally did not breed dogs. They consider the dog an unclean animal. The shaman whose protecting spirit appears in the form of a dog is deemed bad. While even horses and cattle possess souls (kut), the dog has none. Accordingly it is not fit for sacrifice to evil spirits. The Yakut were offended when I took my dog along into the house, especially when I placed it near me in the front corner, the place accorded to guests of honor. The dog, a Yakut told me, brings into the house the evil spirits (abasy) that sit by tens on the point of the dog's tail. Hence I never saw a Yakut fondling a dog. He treats the dog with great cruelty. Among true dog-breeders we meet with a different attitude towards the dog. The Koryak often fondle them, and in caring for them, both at home and on journeys, oftener try to train them by caresses and kind words than by the stick. The Yukaghir of the Upper Kolyma, and also the Maritime Koryak, build on the side of the house rather

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\(^1\) See Schrenck, II, p. 168; Sternberg, The Gilyak (The Ethnographical Review, Bulletin of the Ethnographic Section of the Society of Friends of Natural History, Anthropology and Ethnography [Moscow, 1904], 1, p. 18).

\(^2\) See Murdoch, p. 358.

\(^3\) See Boas, Central Eskimo, p. 538.

\(^4\) See Part I, p. 110.
roomy sheds for the protection of dogs during snow-storms. These dog-kennels are made of logs, and have roofs with two slopes covered over with bark to keep the snow of winter and the rain of summer from getting in through the chinks. The back of the kennel is formed by the wall of the house. The opposite side serves as an entrance. It is fenced off by a high threshold. The depth of the kennel varies from a metre to two metres, and its height is about a metre. These kennels are mainly intended for bitches with puppies. Schrenck says of the Gilyak, as Boas and Murdoch say of the Eskimo, that they keep the puppies in the house. Owing to the plan of construction of the Koryak winter house, it would involve great difficulties to keep puppies in the house; and for this reason they are not taken inside, notwithstanding the great care bestowed by the Maritime Koryak upon their dogs.

In the back part of the kennel, girls build a bed of dry grass for the slut and her litter. Special nourishing food is cooked for the slut. Small or even grown-up girls take the food to her by crawling into the kennel. They see to it that the dog warms, feeds, and does no harm to the pups. Often the sluts, especially if it is their first breed, display no affection for the pups, and are inclined to desert them. When the pups grow up, the girls accustom them to eat soup and finely minced fish from the trough. When the mother-dog can no longer cover the growing pups with her body, or when she begins to leave the kennel, the puppies warm one another by cuddling close together. Each pup endeavors to get to the middle. On very cold days they lie this way for days at a time, except when being fed, and they squeal on account of the cold. The pups are very timid. At the end of the second month they venture on sunny days to crawl over the kennel threshold to see the light of day; but at the merest approach of man or of a grown dog, they run back to their lair. The threshold is made principally for the purpose of confining the young puppies to the kennel.

Steller thus describes the Kamchadal method of raising puppies and training them for driving: "When the pups' eyes were open, they were placed with the bitch in a deep hole, that they might see neither men nor animals, and there they were fed. After they had been weaned, they were placed in another ditch. On reaching six months of age, they were harnessed

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1 Schrenck, II, p. 168.
2 See Murdoch, p. 358; Boas, Central Eskimo, p. 538.
3 I take occasion here to draw attention to the statements made by Kennan (p. 225) concerning Koryak dogs, and by Steller (p. 134) concerning Kamchadal dogs. Both authors state that they climb to the roofs of houses and into storehouses erected on posts. According to Steller, the Kamchadal dogs climb up ladders and steal provisions from storehouses; and Kennan relates that Koryak dogs will look into the opening from the roofs of underground dwellings and during their scuffles will roll down into the kettles in which food is being cooked. On no occasion have I seen Koryak dogs on house-roofs. They would climb over the roof of the ante-room and up the sloping walls of the house, under the cover of the storm-roof, where they found shelter from the winds. I could not teach a Koryak dog that I brought up myself to clamber from the roof of the ante-room to the house-roof by means of the holes in the post which serves as a ladder.

4 Steller, p. 138.
to a sledge along with trained dogs, and driven over a short distance, and then put back into the ditch." Thus they were often taken out of the hole to be trained for driving. Only after they had gone a long journey, and after they had become accustomed to being harnessed to a sledge every time they were taken out of their hole, were they tied to the posts under the storehouses with the older dogs. The Koryak also begin to break pups when they are six months old. They are first kept tied to a line. Being used to running about free, they are impatient when tied up. They howl and whine, and are overjoyed when hitched to the sledge. Most of the puppies display such eagerness to run, that they are driven a short distance only to prevent over-exertion.

Pups born in spring or summer are put in harness with the coming of winter; but those born in autumn or winter are not trained for driving until the end of winter or spring, and are not used for driving until the following autumn.

According to Schrenck,¹ the Gilyak do not use female dogs in harness; but all other dog-breeders of East Siberia with whom I came into personal contact, between the Lena River and Bering Sea, prize draught-bitches very highly. They are weaker than the males, but they surpass the latter in zeal, and perform their tasks more earnestly and diligently. Sluts, in addition, often exhibit more aptitude to act as "leaders" than do the males. Often a bitch is placed among the front pairs to induce the ungelded males to try to reach her and thus pull their lines well. No special care is given to pregnant sluts. They are usually harnessed up to the moment of delivery; but very often the women watch over them, and do not allow them to be hitched up. Should a slut deliver her pups during a journey, far from human habitations, the young ones are doomed to perish. One night when in camp on the snow, on our way from the coast village Kamenskoye to the Reindeer Koryak of the Palpal Ridge, a slut of one of the drivers who carried my freight was delivered of pups at night while in harness. It was bitter cold and windy. The slut burrowed in the snow, and, shivering with cold, lay over her young in the hole she had made. In the morning, when we had sipped our tea by the campfire and began to prepare for the journey, the cruel master took the slut off from her puppies and harnessed her with the other dogs to his sledge. The puppies remained in the icy hole: the snow, which melted from the heat of the slut and her pups, froze. Two of the pups had died from the cold, while the remaining two were yet moving, but soon froze to death. The wretched slut lagged for a time behind the other dogs, but soon began to keep pace with them.

If a dog becomes so ill on a journey that it can no longer run, it is

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unharnessed and abandoned in the wilderness. Nevertheless I had occasion to see that favorite dogs whose paws had been cut by the hard snow-crust, so that they could not run any longer, were taken on the sledge until the next camp was reached.

In spring, when driving with dogs is no longer possible, the sledge is suspended under the platform of the elevated storehouses to prevent the summer rains from drenching it. The dogs are set free, and from that time on they are given no food. Until fishing-time begins, the dogs content themselves with hunting mice, marmots, and other small animals in the tundra. When the fish ascend the rivers to spawn, the dogs begin to hunt for them in shallow places in rivers and at low tide on the seacoast. When fish are plentiful, they eat only the heads, and leave the bodies. The small fish uyo'k enters the small bays to spawn in such masses that after high tide a thick layer of roe remains on the shore. The Koryak do not eat it, but it attracts bears. The dogs are also very fond of it. In summer, while fish is abundant, dogs also indulge in vegetable food. They pluck off berries, principally sweet ones, like the bleaberry (Vaccinium uliginosum), cloud-berry (Rubus chamaemorus), and the fruit of the sweet-brier (Rosa rubiginosa). In all probability, these berries serve rather as a laxative in case of disordered digestion induced by excessive use of food, than as nutriment. I have had repeated occasions to see dogs eat herbs as an emetic. After having chewed and swallowed a sufficient amount of grass, the dog begins to vomit. Then he chews and swallows more grass. During the summer the dogs grow fat, and by autumn they are of well-rounded and handsome form. It is hard to recognize the same dog in autumn and in spring. After the labors and privations of winter, the dog has a surly appearance. It grows so thin, that the bones are seen through the skin, its movements are slow, and the hair, while being shed, hangs down in long tufts.

At this season the dog is subject to various diseases, some of epidemic character.¹ In rare cases the dog's food gives out toward spring, so that the teams are starving. In winter, if the supply of dog's food is early exhausted, the dogs have to be content with human excrement. Even well-fed dogs are fond of it, and are attracted by it as reindeer are by urine. When the dogs are hungry, it is not entirely safe to go to the privy without a stick in hand, owing to the fights among the dogs for possession of the excrement.²

If the dog has been poorly fed in winter, and is very lean in spring,

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¹ On the diseases of dogs, see Bogoras, The Chukchee, Vol. VII of this series, p. 104.
² The poor polar Yakut of the Kolyma tundra, who live on the scanty proceeds of fishing in the lakes and go hungry in winter, give hardly any food to their dogs, which carry wood and water and are used on short journeys. In summer their dogs are left to themselves and go hunting, and in winter their food consists mainly of human excrement. These Yakut felt insulted when I fed meat to my dog. "Thou givest thy dog food befitting the most honored men," my Yakut interpreter once said to me reproachfully. The dogs of these Yakut are of very small size, and are the most wretched specimens that I ever saw among driving-dogs. I have spoken before of the contempt with which the Yakut treat dogs, which are considered as unclean animals.
the shedding of hair begins late and proceeds slowly. Only late in summer, in July or even in August, does the dog cast off the last spears of the old, dirty, and faded hair. A fat dog begins to shed hair as early as April, and is covered with new hair in June. Pups born in autumn also shed their hair late; while those born in spring, or even at the end of winter, do not shed hair at all during their first summer. In autumn all dogs are covered with thick, long, soft, and glossy hair. In winter the hair of the fur grows long and stiff; but the fine downy fur, which is the dog's chief protection against cold and winds, becomes thicker. In autumn the color of the fur becomes darker, but in dogs of light color it grows whiter. During winter the dog's fur fades; and by spring-time the dark colors become reddish or gray, while the light colors take on a yellowish tinge.

When the rivers freeze over and the ground is covered with snow, the dogs are caught and tied to the posts on which the storehouse rests. At the end of summer the dogs that during the summer had undertaken long hunting-excursions return of their own accord to their master's dwelling. During the first days they are fed very little, that they may lose fat. If a long journey is contemplated, they are not fed at all for two or three days. While travelling, they receive only dry food, which makes them light of foot. They are fed in the evening when the camp is made. Each dog usually gets a dry skeleton of a dog-salmon. Further, in the day-time, during rests on the journey, pieces of dried fish are thrown to the dogs. When at home, soup is cooked for them after they have rested. The feeding with soup described before usually takes place in the afternoon, towards evening. On the journey, when dry food only is given them, the dogs often eat snow to quench their thirst. A short time after the beginning of winter the dogs that are quiet and not given to pilfering are left at liberty. Only on the eve of a journey are they tied up, in order to economize their strength, so that they may be swift and enduring on the next day; but the dogs that eat straps, spoil leather wallets and clothes (which, however, all dogs do during times of starvation), and steal provisions, are kept tied up throughout the winter. To prevent the dogs from chewing the straps with which they are tied up, sticks about half a metre long, with holes at both ends, are used. Through these holes short straps are passed, whereby one end of the stick is tied to the dog-collar, while the other and longer strap is attached to the post or to a taut line running from post to post at a height twice or three times that of the dog. The dog can with its teeth get at the stick only, which does not interfere very much with its motions, and does not prevent it from lying down. These sticks are going out of use, and are replaced by imported iron chains.

It is believed that a strong occipital protuberance of a dog indicates strength and zeal. Besides this, draught-dogs of slow gait, and dogs for fast driving, are distinguished by their appearance. The former are said to
have a broad chest, short and thick paws, and a large, comparatively short head.

Male dogs are gelded in order to make them quiet, and that they may retain fat notwithstanding the hard work they have to do. Ungelled males grow thin very quickly. Usually they are gelded when one year old. As they begin to mature at the age of six or seven months, the litter is obtained mainly from males that have not yet reached their full maturity and entered into possession of their full powers. This must have an unfavorable influence on the breed. Some owners leave particularly strong dogs ungelled until they are two or three years old, and use them for breeding-purposes.

The operation of gelding is at present performed with an ordinary knife. Two men hold the dog, which is laid on its back, firmly, while a third one cuts open the scrotum and removes the testicles by severing them from the spermatic ducts. To stop the bleeding, the scrotum is filled with snow. Usually the operation is performed on a cold day in winter, which is believed to be favorable to success. Ordinarily the dogs bear the operation well, and the wound soon heals. Rarely does a dog die from loss of blood. Once I saw a dog which remained almost motionless for a whole week after the operation, frequently licked the wound, and lay down on fresh snow to lessen the inflammation. The Russianized natives on the Kolyma told me that they would not allow the gelded dogs to lie down. The dogs are gelded during a short stop on a journey. Immediately after the operation the whole team is driven full speed, and the dog which has just been operated on must run along. In this way, say these cruel surgeons, the dogs get hardened, and bear the operation well. All the disagreeable traits in the character of the draught-dog noticed by travellers seem to me to apply mainly to gelded dogs. After the operation they lose all liveliness and sprightliness, become surly, indifferent to their companions, afraid of human beings, and attached exclusively to the trough from which they are fed.

Various Uses of the Dog. — Besides driving, the dog is also used for sacrifices,¹ as a helpmate in hunting,² and its skin furnishes material for clothing.³ The Koryak deny ever having used dogs for food, except in times of famine. Their myths, too, refer with contempt to the custom of eating dogmeat. The heroes of some myths mock the Raven-Man because he eats dog-meat and excrement,⁴ both being considered equally despicable. On the other hand, it should be remarked that the people who sacrifice dogs to divinities usually also eat them, as the Gilyak, Ainu,⁵ and Indians; for the

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² See Chapter VII.
³ See Chapter IX.
⁴ Compare Part I, p. 199.
idea of a sacrifice\(^1\) includes the conception that the deity or spirit will make the same use of the offering or of its soul as does the person offering the sacrifice. Even the many colored rags or other trifles which the Siberians and also other tribes offer to the deities or spirits are given to them either as ornaments or as other utilities or as substitutes for costlier things. The Chukchee kill dogs for food, but they do not eat sacrificial dogs, says Bogoras.\(^2\) This last statement is not in accord with the fact that in general the Chukchee do eat dog-meat, for the flesh of those sacrificial animals which are commonly used for food is usually eaten. Among the Koryak I saw the carcasses of sacrificed dogs skinned and cast out on the tundra.\(^3\) In this case it must be assumed that the dog is sacrificed as a draught-animal or for the sake of its fur, as the Siberian natives hang on trees the skins of fur-bearing animals, which serve as offerings to evil spirits, while the carcasses are thrown away. Among the Yakut, the favorite offering to those divinities and spirits to whom no bloody sacrifices are offered, is hair from the horse's tail or mane. In this case the hair cannot be a substitute for the horse, but must have the significance of an object which is valuable in itself in Yakut domestic economy, nets, cords, and rugs being knitted of horsehair.

**Character and Number of Dogs.** — The Koryak dog is useless as a watch-dog. In the first place, it is afraid of man, and runs away even at the motion of a hand. It hardly barks at all,\(^4\) and thus does not warn its master of danger. Three times I took Arctic dogs, that I had reared myself, to civilized regions. One of them I took as far as Yakutsk, the other two I carried to European Russia. Despite certain changes in their character owing to my method of rearing, they showed no hostility to strangers.\(^5\)

It is curious that when in harness the dog's character seems to change completely. In nearly all books of Arctic travels are found descriptions of the passionate excitement to which this tamed beast of prey is roused at the moment of starting on a journey. While travelling, the dogs not only attack other dogs, but even men whom they encounter. To meet a team of dogs rushing along is fraught with great danger for a person travelling on foot, who is obliged to turn off the trail. On meeting another team, the dogs engage in a fierce fight if one of the drivers does not turn aside. Should harnessed

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\(^1\) The sacrifice of the totem animal or the divinity itself — made, according to the views held by some recent writers, in order to renew nature — must be excepted from this statement.


\(^3\) See Part I, p. 92.

\(^4\) Some dogs do not bark at all, and are as silent as if they were dumb. Those that bark do so rarely.

\(^5\) Living far away from Yakutsk, I kept a horse of my own for travelling. My dog grew so attached to it that it would always lie down near it. One night when two Tatars from the Kazan Government who had been banished to the Yakutsk district for highway robbery, and who were my neighbors, stole the horse, the dog followed it in silence. The Tatars took the horse into the woods and there tied it up, intending to kill it for its meat the same evening; but, following the tracks of dog and horse, I found them and took them back home.
reindeer meet with a dog-team unawares, they are inevitably torn to pieces. The dogs pay no attention to their master's shouts and club. The only way of stopping the carnage is to knock the dogs on the head and stun or kill them. While in camp in the wilderness, the dogs which lie tied up near the sledge do not allow strangers to go near it, perhaps because they know that their food is on the sledge, for at home they do not attack or molest strangers. Noticeable changes of character took place in my dogs which I had brought up myself, partly due to the different treatment, partly owing to their new surroundings. It cost a great deal of trouble to train them to discriminate between domestic animals, which they had never seen, and game which they were permitted to hunt. They used to catch chickens, ducks, geese, sheep, calves, foals, and cats all in the same fashion, by the throat. More than once I had to pay for the harm they had done. Even after they had finally become accustomed to domestic animals, atavistic enmities persisted. Their feuds with cats had no end, and they would always attack hogs; but from the very start the latter would drive them off, and the dogs came to be afraid of them.

In imitation of our dogs, they learned to bark, but they never barked at a person. On the contrary, they lost all fear of human beings, and took kindly to everybody. On the other hand, their attachment to their master and his friends was sufficiently firm. The dogs recognized me after an absence of several weeks, and boisterously expressed their delight. The Koryak dogs, on passing into new hands, become indifferent to their former master in a few days, as soon as they become familiar with their new comrades and their feeding-trough. At first, when in unwonted places, my dogs would sometimes fall to howling, which casts a feeling of melancholy and despondency over a traveller whom fate brings into a hamlet where a chorus of a hundred dogs begins its interminable evening concerts. After a few months' sojourn in civilized surroundings, however, they gave up their habit of howling.

An idea of the number of dogs kept by the Koryak may be formed on the bases of a census taken by me in 79 households of maritime Koryak of Penshina Bay (see table on p. 522).

The average per household is 10 dogs. The figures quoted are more or less constant. Although the dogs are very prolific, the number of dogs-sacrifices equals or even surpasses the increase. If in spring, as frequently happens, an epidemic of hydrophobia or another contagious disease a symptom of which is an affection of the nerve-centres, rages among the dogs, many households lose all their animals. Then the people, when moving from their winter abode to their summer dwelling, have to drag their belongings along, or assist their dogs in drawing the sledges. A travelling family of this kind is represented on Plate xxvi, Fig. 2. One dog is harnessed to each sledge, and the women draw with them, while the men carry huge bundles on their shoulders.
Families that have poor or young workers, and who cannot lay by sufficient stores of dog's food for the winter, usually own few dogs. The members of such families are deprived of the chance of making trips to the Russian hamlets to buy imported wares, or to the nomad camps of the Reindeer Koryak to trade for reindeer-meat.

<table>
<thead>
<tr>
<th>Number of Households</th>
<th>Number of Dogs in each Household</th>
<th>Total Number of Dogs</th>
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<tr>
<td>1</td>
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<tr>
<td>1</td>
<td>3</td>
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<td>1</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>8</td>
<td>20</td>
<td>160</td>
</tr>
<tr>
<td><strong>Total 79</strong></td>
<td><strong>781</strong></td>
<td></td>
</tr>
</tbody>
</table>

Nearly all the men who own as many as twenty dogs, — enough for two teams at the rate of ten dogs per sledge — either conduct an independent trade or are employed as clerks by the Russian merchants. Almost all through the winter the senior member of such a family is journeying from one reindeer-camp to another; while at home only a few dogs remain for work around the house, for trips to get wood, for hauling supplies of food from the summer camp, and for other exigencies. The smiths of Paren and Kuel, too, own not less than ten dogs each, which enable them to carry their iron-work among the Reindeer Koryak for barter. I found the best dogs among the Itkana people.\(^1\) Their settlements lie off the main trail, running

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\(^1\) Around Bering Sea the best dogs are to be found on the Poqê (see Bogoras, The Chukchee, Vol. VII of this series, p. 102).
from Gishiga to Anadyr and Kamchatka, and the dogs are not exhausted by
the frequent trips required for carrying cossacks, officials and mail. Besides,
the Koryak dwelling along the main route have to share their dogs' food
with the teams of the merchants passing by, and with the sedentary Koryak
of the other villages. For this reason their own dogs often suffer from lack
of food, grow very thin, and are very slow.

Efficiency of the Dog. — Concerning the efficiency and swiftness of
dogs, — mainly Koryak dogs, — I will give here only data from my own
experience. The efficiency of a team depends less upon the number of dogs
than upon their quality. A good team must consist of well-fed, adult dogs,
that get along well with one another and know their master. Under such
circumstances, even ten dogs (five pairs) are considered a complete team.
The teams of the Russians or of Russianized natives are in better condition
than those of the natives. Once I saw a Russian team of twelve dogs which
carried about 1000 pounds, besides the dogs' food and the driver, in two days
over a distance of 100 miles, from Nishne Kolymsk to the mouth of the Omolon.
It must be added that the trail was good and smooth. Such feats are very
rare, however. Ordinarily the Russian driver, both on the Kolyma and the
Gishiga, would carry from 350 to 400 pounds a team, approximately 35
pounds per dog, for a distance of 200 miles or over. The Koryak drivers
would take less, from 250 to 350 pounds; and some Koryak drivers, with
teams of eight or nine dogs, would take only 200 pounds. Freight-sledges
would make from 27 to 50 miles a day; while travelling alone, without
freight, I made from 50 to 65 miles. Only once I covered a distance of
100 miles, from the village Paren to Gishiginsk despite a heavy snow-storm,
without stopping over night. I left Paren at 8 A.M., and reached Gishiginsk
at 5 A.M. on the following day. While travelling, we rested twice and drank
tea by the side of a campfire. These rests consumed about three hours, and
we lost nearly two hours on an elevated tundra because the snow-storm had
obliterated the trail. Amid such unfavorable conditions we went at the rate
of over six miles an hour, thanks to the fine quality of the dogs. The
average trotting-speed of good dogs is generally from four and a half to six
and a half miles an hour. Over short distances I have made between six
and a half and ten miles an hour. In general, dogs are inferior in speed
not only to horses, but even to reindeer; but they occupy the first place,
reindeer the second, and horses the last, when capacity of running long
distances with only brief rests is considered. They make long journeys without
long rests provided the food is good. With a team of fresh reindeer, I once
made 65 miles in six hours, almost without a stop; but before going on, I
had to rest over night.

These figures, giving the speed of dogs, apply only to a well-trodden
and level trail. When the journey lies over untrodden soft snow, deep snow,
or hummocky ice, driving, even with good dogs, is considerably slower, because the sledge sinks into the snow, or on account of the necessity of clearing obstacles.

The value of an ordinary Koryak dog ranges from 8 to 12 rubles. A "leader" costs 15 rubles. A particularly bright "leader" costs from 20 to 25 rubles.

The fee for carrying freight is usually 1 ruble per pud (36 pounds) for 100 versts (66 miles); but merchants pay less, particularly to Koryak drivers, — 2.50 rubles or 2 rubles for a whole sledge-load of 5 pud.

A passenger-sledge (counting, of course, a single passenger only) costs 3 kopeks per verst, or 3 rubles per 100 versts, at the mail-carrier's rate, which has been established by the government. I usually paid 10 rubles per driving-sledge for such distances as Paren-Gishiga or Paren-Kamenskoye, approximately 150 and 200 versts (100 and 132 miles); but for long distances, without relay of dogs, the fee is lower. Thus from Gishiginsk to Anadyr (a distance of some 800 versts, or 530 miles) a sledge for a trip one way costs 25 rubles.
VII. — FISHING, HUNTING, AND WAR.

FISHING. — As fish is the principal food of the Maritime Koryak, I shall begin with a description of the fishing-industry. It is necessary to remark that my own observations apply in the main to the bays and rivers of the Sea of Okhotsk; but through inquiry I have also gathered some information concerning the fishing-pursuits of the people who live on Bering Sea.

Species of Fish. — While the fishermen of arctic Siberia subsist mainly on Coregonus, a genus of the family Salmonida, which ascend the rivers from the Polar coast of the Pacific Ocean consists of Oncorhynchus, another genus of the same family.1 The leading position as a means of sustenance belongs to the dog-salmon (Oncorhynchus lagocephalus, or O. keta). For this reason the dog-salmon, whose proper name is qeta' or qetaqet, is often called iigi'ani'n ("genuine fish") or simply e'nem ("fish"). Next in importance is the humpback salmon (Oncorhynchus proteus Pall. or O. horbusha; Koryak, kala'lin). The red salmon (O. lycodon or O. niarka; Koryak, wiyu'wi) is less important, for only few of these enter the Koryak rivers; greater numbers of them are caught by the Kamchadal. The chawicha (Salmo orientalis; Koryak, a'vač or e'vič), too, belongs to the rare visitors of the Koryak rivers; but it enters the rivers of southern Kamchatka in great numbers. The kundscha (Salmo leucomenis Pall.) is quite as rare, but it is met with near the village of Yamsk.

Salmon of the genus Oncorhynchus enter the rivers in summer to spawn. They do not return to the sea, but continue to ascend the rivers until completely exhausted. Then they die. Not infrequently the river carries back to the sea the half-dead fish, which are not able to withstand the current, and they die before reaching the sea. In early spring, the fry hatched in the rivers drift down to the sea, grow up there, and, having reached full maturity after several years, again ascend the river to spawn, and perish there. The migration of the salmon has been termed by Middendorf "migration of death" (Totwandern).

Among the other Salmonidae the most important in the household economy of the Koryak is the small uyo'k (yūka) of the Russians (Salmo socialis);

1 Some species of Coregonus — such as Coregonus leucichys, Coregonus muksun, and Coregonus clupeoides — enter the largest and longest river of Bering Sea on the Siberian side (the Anadyr), and the largest river of the Okhotsk Sea (the Penshina), in great quantities. The inhabitants of the village Markova (about 530 miles from the mouth of the river Anadyr) catch these fish every summer. I was also told of these fish by the inhabitants of the Russian settlement Penshinsk, about 330 miles from the mouth of the Penshina. Coregonus leucichys appears as early as the middle of June; Coregonus clupeoides in September only.
Koryak, utgi'tit), which belongs to the genus of smelts (Osmerus). Other species of Osmerus, too, occur, but in small numbers as compared with the uyo'k. The uyo'k goes with the tide to the river-mouts and bays to spawn, in such dense masses that at low tide the shore is covered with a solid layer of roe. After spawning, the uyo'k returns to the sea.

The salveline (Salvelinus malma Walb), which belongs to the genus Salmo, also plays a rôle of some importance. The Koryak distinguish two kinds of salveline, — the large (ui't'wit) and the small (qai't'wit), — but these are clearly of the same species, at different ages. This may be gathered also from the meaning of the Koryak word qai ("young"). The salveline spends a rather long time in fresh water. Together with other fish migrating in shoals, it reaches the rivers in summer, ascends their mountain-tributaries in autumn, and goes down to the sea towards spring.

In the rivers is found also the grayling, of the genus Thymallus. The catch of tom-cod (Eleginus Navaga; Koryak we'gen), of the family Gadida, is also used, but not so much as the various species of salmon. Herring (Clupea harengus; Koryak, uki) enter the mouths of some rivers, but not every year, as is the case on the east coast of Kamchatka. In the river-mouths flounders (Pleuronectidae; Koryak, a'lip) are also procured.

Finally we must mention the eel-pout (wala'hin) and the pike (tutk'itut), which at times are caught in river-nets, but are not specially sought by the Koryak.

Fishing-Seasons. — The dog-salmon, the principal object of the Koryak fisheries, does not enter all the rivers at the same time, but its migration begins approximately in the early or middle part of July. The main run lasts three or four weeks, but continues, with diminished numbers of fish, until the end of August. The fish enters the rivers at high tide: therefore the fishermen, before high tide, assemble off the mouth of the river; and after high tide, higher up the river. The dog-salmon does not go far up the river. Even in the river Gishiga — next to the Penshina, the largest of the Koryak rivers — it does not ascend farther than sixty-five miles from the mouth. On my route from Gishiga to the Kolyma, however, I met with dog-salmon in the Gishiga River up to eighty or eighty-five miles from its mouth. There fish that had perished were still met with in the shallows and on the dried-up river-banks, while in the swift arms of the river dying dog-salmon were making their last struggles against the current. The last fishermen I saw engaged in catching dog-salmon were approximately sixty-five miles from the mouth of the river. They were Reindeer Tungus, who were preparing their winter supplies of fish. A little below them were Reindeer Koryak and other Tungus. Russian fishermen do not ascend the river above thirty miles from its mouth. The farther up the river the dog-salmon is caught, the drier and less savory it is.
The principal Russian fishing-stations for the capture of dog-salmon are situated between the town of Gishiginsk and the settlement Kushka (at the mouth of the river), not more than thirteen miles apart. In all the other rivers the Koryak catch the dog-salmon in the estuary or a few miles above it.

The humpback salmon enters the rivers nearly at the same time as the dog-salmon. As compared with the dog-salmon, the humpback salmon visits the Koryak rivers in very insignificant numbers only, but in some years it happens that the main run of fish consists of humpback salmon. In those years the dog-salmon is seldom seen.

At the end of May or in the beginning of June, Salmo socolis comes to the river-mouths or to the shallow bays to spawn. It does not ascend the rivers any considerable distance. The run lasts from seven to ten days, after which the fish return to the sea.

The salveline enters the rivers somewhat later than the dog-salmon, and goes rather far up the chief rivers and their tributaries. Not infrequently it spends the winter in these tributaries, and in spring descends to the sea. It is fished in the rivers in summer and until late in the autumn.

Tom-cod is caught in the river-mouths and bays chiefly in the fall; but it is sought both in summer and in winter, in the latter season in ice-holes in the rivers. Tom-cod is found all the year round in Itkana Bay, but even there the principal catch takes place in autumn. In spring, before the beginning of the salmon-run, the Koryak have such a craving for fresh fish that the inhabitants of the villages on the Paren and Kamenskoye side, and even those of the opposite side of Penshina Bay (from Ma'meč), go to Itkana to fish tom-cod.

Fishing-Implements. — To judge from the primitive form of fishing-implents and of the material of which they are made, the Russians have exerted little influence upon the methods of Koryak fishing. Although the salmon-run in the Koryak rivers is not so abundant and varied as in those of Kamchatka, the dog-salmon run alone is so heavy, that, with good seine-nets, the Koryak would be able to take in their whole annual supply of fish within a few days; but they are as yet unfamiliar with seine-nets. For making nets, they use nettle-fibre, which they spin in a primitive and imperfect manner.

On the Gishiga River the Russian settlers employ seines and other nets, which they make of imported Russian or oftener American twine. They are organized in artels.1 From three to five families join forces, each procuring one net or part of the seine, about sixteen or eighteen metres in length, and from four to five metres in width. Such a net is from fifty-five to seventy meshes in width, and every side of a mesh measures from three and a half to five centimetres. To make a seine-net these separate nets are sewed together. The net, when in position, is about eighty metres long. For

1 Artel (артель) means in Russian a company of workers, also a gang of seiners.

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sinkers, stones are employed, while the floats are made of wood or birch-bark. A long seal-skin thong, the use of which has been borrowed by the Russian settlers from the Koryak, serves to set the net. At each end of the seine this thong extends about fifteen metres. One end is left in the hands of the “shoremen,” — that is, of the fishermen who remain on the bank of the river, — while the other end is kept in the boat in which the whole seine is placed. As the boat glides gradually away from the bank to the middle of the river, the seine is cast. Then the boat describes a semicircle against the current; then it turns slowly about towards the bank, the net having first been pursed. During this process the “shoremen”, following the current, which carries along both the net and the boat, must move along the bank down the river. When the seine has been pursed, the oarsmen haul the boat ashore, and, with the help of the shoremen, gradually pull it in by both ends, and throw the fish into the boat after having stunned them with a club. The boats used by the Russians on the Gishiga River are of the Yukaghir type, and are made of poplar-wood.

The Maritime Koryak have not adopted the seine-fishery of the Russian settlers. They use nets, — the same kind as they evidently employed before the arrival of the Russians, — tackle, hooks, harpoons, and traps.

Nets are made of nettle-fibre or sinew-thread. They are of the types of casting-nets, hand-nets, or dip-nets. Casting-nets for dog-salmon and humpback salmon (Fig. 70) are made of nettle-thread. They are from twelve to fourteen metres in length; in width, from twenty-nine to thirty meshes, the sides of the meshes measuring from three to five centimetres. Disk-shaped sinkers are made of whale-vertebrae, and flat floats of drifted larch-wood are used. The thong to which the net is fastened is made of thong of the ringed-seal. The net is pushed into the water by means of a pole from twenty metres or more in length, (Plate xxvii, Fig. 2), made up of several pieces scarfed together, the joints being held by a winding of thong. To push the net out, the end of the pole is placed in a loop in the thong, by
means of which a heavy stone anchor is attached to the lower corner of the net. After the net has been pushed into the water, the pole is pulled back and the shore end of the long top line from which the net is suspended is tied to it. Some fishermen tie this end to a stake driven into the bank of the river. The stone anchor is called čaqa'gin ("ground stone"); and the net, əlai'pañin, which means "into the eyes enters [the fish]." This name points to the casting of the net, because the fish becomes entangled in its meshes.

The əlai'pañin nets are set up along the seacoast as well as in rivers, in the latter case in quiet spots.

Measures for making this kind of net, — one of bone of whale, the other of the leg-bone of the wild reindeer, — and a wooden netting-needle, are shown in Fig. 71.

For catching the salveline and grayling, nets of the same type, made of nettle-thread, but with meshes of smaller size, with sinkers made of whale-vertebra and with wooden floats, are set in the rivers. The Reindeer Koryak, who fish the salveline and grayling in summer in the tributaries of the larger mountain-streams, make their nets of sinew-thread, or buy nets made of nettle-thread from the Maritime Koryak, whose women are experts in nettle-working.

The Palpal Reindeer Koryak, who fish dog-salmon, humpback salmon, salveline, and rarely chawicha, in the Opuka, Po'qač, and Qayilin Rivers every summer, make nets principally of sinew-thread. The club for stunning the fish (Fig. 72) is usually made of heavy stone-pine wood.

Fig. 73 represents a fyke for salveline, with hoops. It is netted of nettle-thread. It is placed in shallow and swift places in the river. For this
purpose three stakes are driven into the bed of the river, to two of which
the front sticks of the net are tied, so that the mouth of the double net is
kept wide open, while the point of the net is tied to the third stake.
Through the first funnel-shaped bag the fish is carried by the swift current
into the second, closed bag, from which it cannot escape. The
fish is taken out by untieing the bottom of
the net, and then shaking it out.

Fig. 74 represents
a hand-net on a frame.
As shown in the illustration, the net is
strung on a stout thong which is attached to the frame,
being held in place
by being tied to it
through a number of
perforations. The free
farther left-hand end
of the thong passes
through a perforation
in a cross-bar of the
frame, and it seems
the net is pursed by
letting go of this string.
In the illustration the
specimen is shown tied
to strings to the crossbar.
These, however,
are probably taken off

when the net is in use. Plate xxvii, Fig. 2 shows how the Koryak, standing
in the water, hold the hand-net. The photograph from which it was
made was taken on the sea-shore, near the mouth of the Ovekova River.
Just before the tide begins to come in, the dog-salmon gather near the mouth
of the river, ready to enter with the tide, and in such numbers that large
quantities are caught even with hand-nets. During low tide the mouth of
the river dries up. Only shallow rivulets remain, through which the river-
water flows into the sea. A number of families of the Taigonos Reindeer
Koryak and nomadic Tungus fish at the mouth of the Ovekova River every summer. The hand-net is netted of nettle-thread, and is called krivda (крында) by the Russians, and өлпіна by the Koryak.

The Russianized Koryak at the mouth of the Nayakhan River employ a bag-shaped hand-net, one half of the opening of which is tied at its ends to a pole. The fisherman, standing up to his knees in water, drops the net into the river, while holding the free end of the pole with his hands. The Koryak make a hand-net of reindeer-sinew for the purpose of catching tom-cod in small rivers. When it is in use, one fisherman stands in the water and holds the net, while another drives the fish into it.

Fig. 75 represents a scoop-net for Salmo socialis and herring. The fish are simply scooped up with it. *Salmo socialis* comes in such dense
masses, that every time the net is dipped into the water and hauled out again, it is full of fish. As stated before, however, the run of *Salmo socialis* does not last more than about seven days. In the years when herring enter the mouths of Koryak rivers, that fish is also quite numerous, but it does not come in such masses as *Salmo socialis*.

In Fig. 76, a and b represent fishing-tackle for catching tom-cod in winter through ice-holes in the mouths of rivers and in bays: a was obtained in the village Kuel; b, in the village Itkana. The fishing-tackle consists of a wooden rod, a wooden or bone handle, a curved tip prettily carved out of reindeer-antler, and a fish-line twisted of thread made of the sinew of the white whale. The fish-line with hook and sinker is passed through a hole made in the upper bone end of the rod (Fig. 76, c and d). The other end of the line is wound around the projection on the handle, and is paid out as needed; and in this way the angler, without rising from his place or moving the fishing-rod, can pull his line out from the ice-hole, with the fish
Fig. 1. Woman Fishing.

Fig. 2. Hunters bringing in White Whale.

The Koryak.
I somewhat similar contrivance is found in the fishing-tackle of the Alaskan Eskimo (cf. Nelson p. 175).

The sinker is now made of lead, and the hook of iron; but in olden times the sinker was of stone, and the hook of bone. Plate xxviii, Fig. 1, represents a Koryak girl, muffled up in a winter overcoat, sitting with fishing-tackle on a bag spread out by the ice-hole. Near by lie a pile of tom-cod, a club for stunning the fish, and a ladle or shovel for clearing the ice-hole from ice.

In Fig. 77 a, is illustrated such a shovel made of deer-antler, and fastened to a stick by means of thongs. The length of the handle enables the angler to clear the ice-hole without leaving his position. Fig. 77 b, represents a ladle made of the horn of a mountain-sheep, which is sometimes used instead of a shovel. The catch of tom-cod from under ice is particularly abundant in the mouths of rivers in the beginning of winter. Women, girls, and boys engage in angling. Thickly studded with ice-holes, and muffled figures sitting near them, the river presents an odd appearance. At Itkana, in the fall, men too engage in fishing tom-cod, which is then particularly abundant in Itkana Bay.

Fig. 78 shows a tackle used for the salveline and grayling. The line is twisted of sinew-thread. Another hook used for flounder, cod, and sculpin, has a stone sinker and a bone barb.

Fig. 79 shows an iron hook (kty'ki) for dog-salmon. Its lower end is tied with a strip of skin to a long pole. When the sharp end of the hook has caught the fish, the hook slips off from the pole after the manner of a harpoon, and remains hanging on a long line, the end of which is shown in the illustration. Such hooks are widely used by the Tungus, from whom I believe the Koryak have borrowed them. On Plate xxvii, Fig. 2, is shown a boy with such a hook, on the seashore. A similar hook of smaller size is used by the Koryak for salveline. In olden times the Koryak employed bone hooks and barbed harpoons to catch fish. In excavating ancient underground houses I found fragments of such implements.

The Maritime Koryak build hardly any weirs (ai'pai), nor do they set

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1 A somewhat similar contrivance is found in the fishing-tackle of the Alaskan Eskimo (cf. Nelson, p. 175).
traps made of willow. In the sea and in the lower parts of rivers this method of fishing is impracticable, but in mountain-rivers traps and weirs are employed by the Reindeer Koryak.

Boats. — Before entering upon a description of the method of hunting sea-mammals, it will be well to describe the boats employed by the Koryak, as they are indispensable in sea-hunting.

Skin Boats. — The skin boat of the Koryak (Russian, baydara; Koryak, gä'twaat or ne'lige ga'twaat; literally, "of hide a boat") is constructed after the type of the Aleut, Eskimo, and Chukchee skin boat. A wooden frame, lashed together with thong and therefore possessing great elasticity, is covered with seal or walrus skin. The Koryak skin boat is distinguished from the others by several peculiarities of form and construction of the frame. In proportion to its length, it is very wide; and at both ends of the frame, bows are tied to the rails of the boat, giving both prow and stern a semi-circular shape (Fig. 80), while in the Chukchee and Eskimo skin boats the ends of the rails, converging at the prow and stern, are joined by cross-bars only.¹

¹ Compare Bogorsk, The Chukchee, Vol. VII of this series, p. 128; Nelson, Plate LXXIII, Fig. 38.
The keel or central timber (či̍lkoq, "backbone"), shown in a, is made of a single long timber bent upward in the direction of the prow, after the fashion of a sledge-runner. The fore-end of the prow terminates in a fork, through which the harpoon-line is passed when the harpoon is hurled at a sea-mammal. Sometimes this fork, on which a human face is carved to serve as a protector for the boat, is made of a separate piece of wood, and is tied with thongs to the upturned fore-end of the keel. At the stern the central timber is turned up at an angle (a'). Generally the stern post is made separately, of the lower part of a tree and its root, which join at a right or obtuse angle, according to the kind of tree selected. The bent stern post is then fastened to the central timber by means of thongs, which pass through drilled holes. The bottom of the skin boat is formed by the flat part of the central timber and the lateral curved double beams on either side (b), the ends of which are fastened to the central timber aft at the angle of the stern, and forward at the place where the keel begins to curve upwards. To the flat bottom of the frame belong also the cross-bars (c), which are fastened by thongs passing through holes in the central timber (a) and the two side-beams (d).

The sides of the boat are formed, in the first place, by the ribs (d). The mid-ribs passing from the curved side-beam (b) are shorter than the ribs which issue immediately from the central timber (a) near the prow. These also form a more obtuse angle with the bottom than do the mid-ribs. The ribs are fastened with thongs to the curved lateral bottom beams (b) of the boat on its inner side, and to the central timber and to the gunwales (e) on the outside. The wooden frame is further strengthened by the rails (f), which run along under the gunwales, and are fastened to the inside of the ribs, and the double longitudinal cleats (g), which are fastened to the ribs both on the inside and on the outside. The outer cleat is of one piece; while the inner one consists of separate pieces, and is not continuous. They serve both to strengthen the frame and as steps to avoid treading on the skin covering while boarding the boat, and to prevent the cargo from pressing against it. Both forward and aft a bow is attached to the rails (f), which rests on the inner side of the frame, against the upturned central timber. Thwarts for the oarsmen (h) rest on the rails (f), and are tied with thongs to the gunwales (e). At the prow and stern semicircular boards also rest on the rails (f). They are tied to the bows of the gunwale. At the stern this board serves as a seat for the steersman, while that at the prow (i) is the seat of the harpooneer.

The model represented in Fig. 80 has the following measurements: —

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greatest width of front board (i)</td>
<td>22.0 cm</td>
</tr>
<tr>
<td>Greatest width (19 cm. aft from the stem)</td>
<td>26.5 cm</td>
</tr>
<tr>
<td>Width at 1st thwart</td>
<td>26.3 cm</td>
</tr>
<tr>
<td>Width at 2nd thwart</td>
<td>25.0 cm</td>
</tr>
</tbody>
</table>

68—JESUP NORTH PACIFIC EXPED., VOL. VI. PART 2.
A boat in the village of Kuel that was considered large, which I measured, had a length of nine metres, and a maximum width between the gunwales of two metres and a half. The maximum width was not in the middle, but nearer to the stern. The Koryak boats of Penshina Bay are considerably wider in proportion to their length than the Chukchee and Eskimo boats. The boat mentioned by me had thirty ribs on each side, approximately twenty-five centimetres apart. The usual number of thwarts is four or five for eight or ten oarsmen,—two oarsmen to each bench. Men as well as women row. The thwarts are mostly situated aft, leaving the forward part free. The freight is placed in the middle of the boat, for which purpose the thwarts are far apart at that place. The prow, where the ribs are fastened to the central timber, is somewhat narrower than the stern part, and the prow is a little higher than the stern. In Kamenskoye the prow projects upward more (see Part I, Plate vii, opp. p. 80) than in the boats on the Paren, where the model was made from which Fig. 80 was drawn.

On the coast of Bering Sea, boats are covered with walrus-hide; on the coast of Okhotsk Sea, owing to the absence of the walrus there, the boats are covered with skins of the thong-seal. The skin of the walrus is first split, as it is too thick. At present, even in Bering Sea, the practice of covering boats with the skins of thong-seals is spreading, largely owing to the disappearance of the walrus. The skins of the thong-seal are dressed and the hair is removed. The cover is sewed together with very close stitches. Before being drawn over the frame, it is soaked in the river or in the sea. Then it is pulled over the frame so that the edges extend upward over the gunwale. Then the edges are folded over the gunwale. Not far from the edge a number of slits are made, through which stout thongs are passed by means of which the cover is tied to the rails (f) (see Figs. 81 and 82). After the cover has been put on, the boat is turned upside down and dried, so that the contracting cover presses the wooden frame tightly together. Then the seams are filled with fat, and the whole cover is greased with seal-oil, so that it may not get wet in the water, and the skin boat is launched into the sea. Fig. 81, drawn from a model, represents the side-view of a skin boat with cover on. The oars have long rounded blades. Instead of the rowlock,

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1 The exact measurements of the length and maximum width of the large Chukchee skin boat brought by Mr. Bogoras are 11.5 metres and 1.5 metres respectively (cf. Bogoras, The Chukchee, Vol. VII of this series, p. 127).
2 Compare the same process in Boas, Central Eskimo, Fig. 480, p. 528.
3 On the festival of the launching of the skin boat, see Part I, p. 79.
they have an ingenious device, which is also found among the Central Eskimo.\(^1\)

The oar is placed in two crossing thong loops, which are attached to the rails. To prevent the oar from slipping in the loops, it has two wooden projections with notches, into which the loops are laid. One loop lies in the upper, the other in the lower notch. The loops are fastened to wooden guards, which cover the gunwale and protect the skin from the friction of the oars (Fig. 82). Among the Eskimo the guards are made of bone.\(^2\)

The Koryak have not as yet adopted the rudder, but steer with an oar. The blade of the stern oar is shorter but wider than the blades of the ordinary oars. Usually one half of the blade of the stern oar is made of bone of whale, which is sewed to the wooden half by means of small thongs.

The Koryak are better sailors than the Kamchadal, but still they cannot be called real seamen. They do not undertake long voyages, and rarely sail far away from the shores. In summer they often cross Penshina Bay (the inhabitants of Kamenskoye sometimes sail on to the Itkana), but such trips are made in calm weather only. With all their elasticity, the skin boats cannot withstand stormy seas. In times of stormy or foggy weather the men do not venture out, because the danger of tearing the skin cover on rocks is too great. When a rent of considerable size is torn in the skin cover, the boat sinks instantly. Small holes or openings that are caused during the voyage, near the water-line, are caulked with grease, and the travellers try to reach the shore as quickly as possible. Wooden scoops are employed for bailing out the water.

The Koryak have a rectangular sail made of dressed reindeer-skins sewed

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\(^1\) Compare Boas, Central Eskimo, Fig. 481, p. 528.  
\(^2\) Compare Boas, Central Eskimo, p. 529.
together. Instead of a mast, they employ a more primitive contrivance. Three long poles are tied together at one end with a thong which passes through drill-holes, and are set up in the manner of a tripod. On one side the whole length of the sail is sewed to a yard the middle of which is slung from the top of the tripod by means of a stout thong. The tripod is set up in the middle of the boat by tying both ends of two of the poles to the ribs on one side of the boat, while the third pole is fastened on the other side of the boat. The sail can revolve around the top of the tripod, and is set in the direction required by the wind by means of braces and sheets made of thong, which are fastened to the rails (Fig. 80, f).

The care of the skin boats is the same everywhere. On returning to shore from a trip, the boat is pulled ashore and turned bottom up to let the skin dry. After a few days, when it is dry, it is oiled anew. About the middle of October, when the hunting-season is over, the boat is taken out of the water, the skin cover is taken off, and, when completely dry, is put away for the winter in a storehouse,¹ that the dogs may not get access to it. I have been told that the people of Karaga and Kičhin, on Bering Sea, do not remove the walrus-skin cover from the frame for the winter, but turn the boat keel upwards and hang it on posts, that the dogs may not get at it.

The Koryak skin boat can carry fairly heavy loads. In the autumn of 1900 we crossed in two boats from the settlement of Paren to Kuel. As the former place is about seven miles from the mouth of the Paren River, the boats entered the river at high tide, and with the ebb-tide we sailed out into the open sea. We carried about two thousand pounds of cargo, and our party consisted of twenty-five members, — myself with four companions, and ten Koryak to each boat. In each boat there were eight oarsmen, among whom were women and lads. In addition, each boat carried eight dogs in harness, which lay in the stern. Notwithstanding this heavy load, the boats were not more than half in the water. We went on fairly fast, and covered a distance of twenty miles in three hours and a half. When we had turned the islets and the rocky shore at the mouth of the river, and had reached a low strip of coast covered with sticky clay, which had run dry with the receding tide, the skin boats approached the shore. The dogs were taken ashore and harnessed to the sides of the boats. They were driven by two lads, who ran behind them on shore. The oars were laid along the sides of the boat inside. The steersmen alone directed the boats so as to keep them within from six to nine metres from shore. Whenever a stone or a drift-log would catch the traces, the drivers would clear them.

Not all families possess boats, as this involves a great outlay of seal-skins, which are needed for clothing, barter, sale, and fur-tribute (yasa'k). Only

¹ See Plate xxi, Fig. 1. The skin cover is hung up near the storehouse, to be put away when dry.
good hunters, or families to which several hunters belong, can keep boats. Every year the cover of the skin boat requires mending, and must be replaced in parts. A large boat requires from fifteen to twenty seal-skins, each of which has a market-value of from five to six rubles. The ratio of the number of families possessing a skin boat to the number of those without one is not the same everywhere. For instance, on the Itkana, out of seventeen families, eight had no boats; while in Kamenskoye out of thirty, nine had none. The hunters of families without boats go hunting with the owners of boats, and then share the game with them.\(^1\)

*Kayaks.* — Small skin boats for one man are made by the Koryak of Penshina Bay. They are of the kayak type, like those of the Aleuts and of the Eskimo from Greenland to Alaska. Mr. Bogoras says that kayaks are unknown among the Chukchee on the coast of the Pacific Ocean.\(^2\) The Koryak kayak (ma’to) differs from that of the western Eskimo in some respects. It is shorter; the round manhole is not covered, and occupies the entire width; and prow and stern are of the same shape (Fig. 83). The skeleton of the kayak is made as follows: A strip of wood curved upward somewhat both fore and aft serves as the “keel.” To both ends of the keel the ends of curved poles, which serve as rails, are tied with thongs. As the keel is curved in a vertical plane, with its convex side downward, while both rails are in a horizontal plane, the rails lie on a level with the keel only at their points of junction, while at all other points the rails lie higher than the keel. For

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\(^1\) See Chapter xiii. \(^2\) See Bogoras, The Chukchee, Vol. vii of this series, p. 126.
this reason the ribs which join keel and rails slant upward. Thus the cross-
section of the bottom of the kayak has the form of an obtuse angle. Thin
boards fastened with thongs to the inner sides of the ribs, and running the
full length of the kayak, between the rails and the keel, give additional
strength. The deck is formed by cross-bars running from one rail to the
other. The manhole is near the middle of the deck, which is also strength-
ened by longitudinal strips. The manhole is formed by an oval hoop. A
broad board lying at the bottom of the boat under the rear end of the
manhole serves as a seat, which is usually covered with a piece of sealskin.
Like the skin boat, the kayak is covered with thong-seal skins. Ordinarily
two skins, the hair of which is not always removed, are sufficient. After the
kayak has been covered with skin, the manhole is placed in position. The
cover is so cut at the manhole as to leave enough material to turn in the
edges, which are sewed around the hoop by means of thongs.

The kayak is very light, so that it can easily be lifted with one hand.
The weight of one is 32 pounds. Its length is 269 cm. and its maximum
width (i. e., the diameter of the manhole) is 75 cm. Its height is 28 cm.

Near the prow and the stern of the kayak, skin handles are sewed for
pulling it out of the water, either upon shore or upon floating ice, or for
carrying it across promontories. In certain settlements only a double-bladed
oar, like that of the Eskimo, is used with these kayaks. It is held with both
hands, in the middle, and the two terminal blades are used alternately. In
Itkana and Paren two paddles with short handles are used, the blades of
which have on one side pieces of bone of whale sewed on, which look like
fins. These small oars are 41 cm. in length. They are tied to the rim of
the manhole with a thong one metre in length, so that they can be dropped
into the water or placed within the kayak while casting the harpoon or while
shooting. With these short paddles they row alternately with right and left
hand, bringing their hands down almost to the level of the water.

Sitting in the manhole, the hunter can stretch his feet under the deck
of the kayak. In the kayak he places the harpoon-heads, the throwing-board,
the bag with the harpoon-line, and his arrows. In the hold of the kayak are
kept the harpoon-shaft, spears, and gun. When making ready for an attack
on sea-animals, the hunter places the harpoon on deck, first thrusting the end
of the shaft into a skin loop which is sewed to the deck of the kayak near
the prow.

The progress of the kayak in calm weather is extremely fast; but its
use is not without danger, as it is easily upset by wind or waves, and it is
necessary to balance it carefully while paddling. In stormy weather the
Koryak do not venture upon the sea in kayaks.

Dug-Outs. — In the settlement of Kamenskoye and in northern Kam-
chatka dug-out canoes are also used, like those employed by the Yukaghir
and Kamchadal, who have no skin boats. These canoes are called struzhok (стружок) by the Russians, and yañč’a’atwat or yañya’atwat by the Koryak. They are hollowed out of poplar or aspen trunks by means of an adze, and are so well made that they are not heavier than skin canoes.¹ The dug-out is propelled with a double-bladed paddle, while in shallow and rapid rivers it is punted with two short poles. The dug-out is rather a river-boat; but the inhabitants of Kamenskoye, and the maritime Koryak of northern Kamchatka, go out in them on the bays to hunt seals, like the Kamchadal.

Another kind of dug-out, but for river use exclusively, is that called bat (бат) by the Russians, or ежут by the Koryak. It is about twelve metres long, or longer, narrow, and heavy, roughly hewn, and hollowed like a trough. It is in use also among the Kamchadal, but is not met with among the Yukaghir. This boat is used mainly for crossing rivers and for trips up and down rivers. It is built for two persons on the prow and one at the stern, who use long poles for punting. When fish are caught on the bank opposite a village, they are taken across in such boats. For ferrying cargoes and men across the river or floating them down the river, a catamaran is made of two such boats, which are joined by means of a bridge (Fig. 84). A double boat of this kind is very convenient for freighting, and is quite safe. Whenever the Koryak fish in the river, above their village, they descend with their families and their catch in such crafts when the fishing is over.

Hunting of Sea-Mammals. — Among the palæasiatic tribes, the sedentary Yukaghir alone live by fishing exclusively. The Kamchadal engage in fishing principally, and hunt very little for sea-mammals. Among the Maritime Koryak, as among the Gilyak, the hunting of sea-mammals is of great importance, although at present in most of the Koryak settlements fish is a more important staple food than sea-mammals. In former times the hunt for sea-mammals was more important among the Koryak than it is at present. Like the Eskimo, the Maritime Chukchee continue to hunt principally sea-mammals, and fishing plays a secondary rôle in their household economy.

Seal-Hunting. — Seal is the mammal most extensively hunted, especially

¹ Further details concerning dug-out canoes will be found in the monograph on the Yukaghir.
in Penshina Bay. The following species are found in Koryak waters: (1) ground-seal, or bearded seal (*Ereignatus barbatus*; Koryak, mémen; Russian, nerpa or lakhtak), the largest of seals, measuring from 2 metres to 2.6 metres in length; (2) spotted seal or Okhotsk seal (*Phoca Ochotensis*; Koryak, keli’lin; Russian, larga); (3) ringed-seal (*Phoca hispida*; Koryak, wi’il’; Russian, akipa), the smallest of seals; and (4) ribbon-seal (*Histriophoca fasciata*; Koryak, esgr’es; Russian, krylata). The last-named seal inhabits only Bering Sea; but an old man from the settlement Kuel told me that once he had caught a ribbon-seal which had incidentally entered Penshina Bay.

Ground-seal and ringed-seal are hunted the greater part of the year, except during the winter months. When the coast-ice breaks up, early in June, and the rivers carry masses of ice into the sea, thong-seals and ringed-seals are fond of lying on ice-floes, on which they are killed from skin boats and kayaks. When the river-banks are clear of ice, the thong-seals like to go ashore in bays and river-mouths and bask in the sunshine, or they lie on the banks after high tide. But the principal hunting-season for thong and ringed seals is in autumn, — in September and in the beginning of October. Then the seals enter the river-estuaries, evidently in the wake of the fish which ascend the rivers to winter there. In autumn, when the coast-ice begins to form in the gulfs, thong and ringed seals again enjoy floating on ice torn away from the coast by the tide or the wind.

The spotted seal appears early in June, soon after the rivers are clear of ice, near the shores, and enters the estuaries, ascending in small numbers with the flood-tide, and returning with the ebb-tide; but with the beginning of the dog-salmon run, after the 14th of July, the spotted seal, at flood-tide, follows the salmon into the rivers in shoals, in pursuit of the fish, which, in their endeavors to escape them, jump out of the water. Here and there the seals are seen thrusting their heads out of the water, quite often holding a fish in the mouth. In the month of June, when the run of the dog-salmon begins, I made a boat journey from the Gishiga River to the Nayakhan River, and saw all the rocks in this part of Gishiga Bay covered with spotted seals basking in the sun. We approached in our boat quite close to these little islands. Though the sea was perfectly calm, the incessant deafening cries of seabirds, particularly of the numerous varieties of gulls, drowned the noise of the oars, and the seals noticed us only when we were at a distance of some thirty metres from them. As soon as they saw us, however, in an instant they rolled, grunting, off the rocks into the sea. In autumn the spotted seal leaves the coast. The main hunting-season thus coincides with the run of the dog-salmon.

In winter, beginning with the middle of October, the hunting of seals ceases. The Maritime Koryak of Penshina Bay and Bering Sea do not resort to the method practised by the Eskimo, Chukchee, and also by those Gilyak
who live between the mouth of the Amur and Saghalin, of watching for seals on the ice near the breathing-holes, or of placing nets near these holes. The sea does not freeze over in winter to any extent, and the narrow strip of coast ice is often torn away by the wind. The violent winds of winter and the floating ice make trips in boats in winter dangerous or impossible. For this reason there is no seal-hunting in winter either in the open sea or on the ice. It is only by chance that every now and then a thong or ringed seal is killed that goes astray on the coast ice or crosses over an isthmus between two bays. In Gishiga Bay, where many coves freeze over to a much greater extent than the open coasts of Pishina Bay, seal-hunting in winter at breathing-holes would probably be possible. In excavating old underground houses of the Maritime Koryak south of Gishiga I found, among other fragments of bone implements, a round piece of antler of a fawn. According to my Russianized Koryak companions, it might have served as an ice-scratcher, such as are employed by the Chukchee and Eskimo in seal-hunting in winter. At the present time, with the exception of the Russianized Koryak of the settlement Nayakhan, there are no Koryak villages on the coast of Gishiga Bay; while the Russians and the Russianized Koryak hunt for sea-mammals only incidentally, even in summer.

At present, guns, nets, and harpoons are employed in hunting thong-seal. Though guns, as will be seen later, are nowadays common enough among the Koryak, they are used but little in seal-hunting. In deep water a seal, if it is not very fat, sinks immediately when killed by a bullet; if only wounded, it escapes. In shallow water, when hunted with the gun, it must be killed on the spot, else the wounded seal will succeed in getting away to the sea. Not infrequently even a seal killed outright is carried out to sea by the current of the river or by the tide, and cannot be found after the water has receded.

When detained by a gale in Atykino Bay for five days, we hit spotted seals many a time with our Winchester and Berdan rifles, but only two of them were found at low water. The gun is of service only when the seal is ashore and far away from water.

In summer and autumn, when seals enter the river-mouths and bays, they are hunted with nets. In autumn, seal-nets are set up mainly to catch thong-seals. The net is netted of thongs made of the hide of thong-seals. Fig. 85, c shows three meshes of such a net and the method of making the knots. The length of the side of a mesh is 23 cm.; the length of the whole net, 19 metres; its height, 14 meshes. These nets are placed in riverestuaries or on the beach. They are set at low tide by driving into the ground a row of stakes (Fig. 85, d), to which the nets are tied. The floats (Fig. 85, a,
are made of wood. Thong-seals become entangled in the nets when returning to the sea at ebb-tide. The hunters go to the nets before low water, and with bone mallets or clubs hit head and nose of the seals that are entangled in the meshes.

Fig. 86 represents a mallet used for stunning seals. It is made of bone of whale, and the handle is of wood. Its length is 52 cm. This mallet is also used for killing seals that have fallen asleep on the shore.

Up to the present the harpoon has remained the principal weapon for hunting seals. Before learning the use of iron, the Koryak used to make harpoon-heads (Koryak, yiyi') for seals of bone or ivory. Fig. 32, a–c, given by Mr. Bogoras, represents types of harpoons similar to those of the Eskimo. Closely related to these is the type of Koryak harpoon shown in Fig. 87, c, and in Fig. 92. The principle of both of these specimens is the same as that of the Eskimo harpoon-head with blade parallel to the barbs. The back of the large harpoon-head is slightly keeled, and the barb is strongly curved and provided with a notch. An ornamented specimen of this kind is shown in Fig. 191, c. It is a characteristic trait of these specimens that the loop by which the harpoon-
point is attached to the line is tied firmly to the foreshaft. In all specimens the barb of the harpoon-point is held to the foreshaft by a loop which passes over the harpoon-head and over the thong loop by means of which the harpoon-head is attached to the harpoon-line. The latter loop is also attached to the foreshaft, which has a perforation for this purpose near its lower end. When the harpoon strikes the animal, the small loop which holds the barb to the foreshaft slips off and the toggle-head comes off; without, however, being disengaged from the foreshaft, to which it is held by the small loop which passes through the perforation near the base. Two of the small harpoons here described have a screw cut into the base, evidently to give to the point a better hold in the end of the harpoon. The occurrence of the screw in this position is interesting when compared to the screw devices used by the Eskimo in similar positions.¹

The bone harpoon shown in Fig. 87, a, is evidently related to this type, from which it differs in not having a separate harpoon-head and foreshaft. It is evident, however, that the perforation at the base, through which the line loop passes, corresponds to the small perforation in the type of harpoon described before. The modern iron harpoon shown in Fig. 88, c, is closely related to the bone harpoon just described, from which it differs only in the arrangement of its barbs. To the same type belong the iron harpoons figured by Bogoras.²

² Bogoras, The Chukchee, Vol. VII of this series, Fig. 32, f, g, p. 116.
Related to this type are also the round barbed points shown in Fig. 87, $\delta$, and the one shown by Bogoras, the attachment of which is the same as that of the preceding specimens, while the barbs are arranged symmetrically all around the round point. The model shown in Fig. 88, $\alpha$, is an imitation of a harpoon that has been in use for some time among American whalers, and which is characterized by its movable hinged joint.

![Fig. 88. Harpoon-Heads. $\alpha$ (\text{\textsuperscript{\ Addison}}), Imitation of whaler's harpoon-head, of sheet-iron (length, 9.5 cm.); $\delta$ (\text{\textsuperscript{\ Addison}}), Point of bone, with iron blade (length, 15 cm.); $\epsilon$ (\text{\textsuperscript{\ Addison}}), Harpoon-point of iron (length, 9 cm.).]

The use of the remaining specimens shown in Figs. 88 and 89 is not quite certain. Fig. 88, $\delta$, represents a head that has probably been used with an arrow or a lance. The base of the bone part is hollow for a distance of a little over one centimetre, and would fit the end of a wooden shaft. The four barbs on the bone end have their sharp points turned forward, and therefore do not hold the head in the wound, but would only tend to tear the sides of the wound. The two specimens shown in Fig. 89 also seem to be heads of arrows or lances.

![Fig. 89. $\alpha$ (\text{\textsuperscript{\ Addison}}), Double-Pointed Arrow-Head made of Iron (length, 11 cm.); $\delta$ (\text{\textsuperscript{\ Addison}}), Lance-Head of Bone and Iron (length, 17 cm.).]

At present bone harpoon-heads are not infrequently made use of, but most heads are of iron or consist of two pieces, — an iron blade inserted into a bone point.

The harpoon-line, which is about 18 metres long, is made of the hide of a thong-seal. It is coiled up and kept in a small round basket woven of grass or nettle-thread. The free end of the line terminates in a loop. Before hurling the harpoon, the line is taken out of the basket, and the loop is put on the hunter's left hand; or it is tied to the stern of the skin boat, if the harpoon is cast from the boat.

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1 The Chukchee, Vol VII of this series, Fig. 32, 1, p. 116.
There are two kinds of harpoon-shafts, — the simple shaft (Fig. 90, a); and a longer one, used with a throwing-board (Fig. 90, b, c). It is curious that the Chukchee employ a throwing-board only for casting the bird-dart.¹ On the other hand, the Eskimo of Baffin Land and of Alaska make use of the throwing-board both for the seal-harpoon² and for the bird-dart.

The method of attaching the foreshaft and the harpoon-head to the harpoon-shaft is shown in Fig. 90, a. It will be noticed that the line passes through a loop which is inserted in the shaft near its point. The loop consists of a small strap, and is closed by a button. It will thus be seen that

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ging the line along, but the necessity of breathing compels it to emerge. Then the hunters endeavor to harpoon it again; but if the seal has been killed outright or severely wounded, it is dragged to the boat and lifted into it by means of hooks.

Whenever a hunter has caught a seal on shore, and has not succeeded in cutting off its retreat, he sends a harpoon after it without using a throwing-board. When hunting in kayaks, and in the pursuit of seals basking on ice-floes, both kinds of harpoons are employed, without the throwing-board, or with it; but the former method is in much more frequent use.

On floating ice, seals are hunted both at the beginning of summer and in autumn, when the ice, freezing near the shores, is torn off and carried out to sea. The hunters go out in a skin boat. On noticing one or more seals on a floe, one or more hunters are lowered into kayaks, and endeavor to approach the seal from under the wind, until within range of the harpoon. During this operation the hunters have bags made of the white skins of fawns over their heads and shoulders. If the seals notice the kayak, the hunter stops paddling and lets his white hood still farther down, so as to look like an ice-floe. As soon as the seals have become quiet, the hunter continues his approach. Grasping the harpoon with his right hand, ready for action, he tries at the same time to take hold of the floe, and to pull himself toward it with his left hand by means of a bone hook attached to a long pole (Fig. 91). In case the seal is asleep, the hunter may go up to the ice-floe in his skin boat, and even climb up from the kayak. In the same manner rocks and islands on which seals lie are approached in kayaks.

Hunters in kayaks cut off the retreat to the sea, of seals which have remained in shallow bays and river-estuaries during ebb-tide.

Winter supplies are principally obtained from the hunt in autumn. The seals caught from early until late in summer, and principally the spotted seals killed during the dog-salmon run, serve for immediate use only. It is impossible to lay by supplies at this season, because the meat decomposes rapidly. Besides, the seals are not very fat in summer.

During the fishing-season the hunters pay little attention to seal-hunting. They are too intent upon catching fish and preparing it for the winter supply. Besides, there is plenty of food in summer. It may happen that
from a lean seal only the skin is taken, while the carcass is cast into the sea. In many cases the spotted seal is hunted in summer for its skin only. The whole winter supply of seals is obtained in autumn by means of net and harpoon. At this season the temperature is so low that in the night, or even by day, the dead seals freeze and can be left in their skins. In autumn the seals are very fat, and when shot with a gun do not sink so easily. The hunters usually make two autumn expeditions out to sea for hunting seal (mainly thong-seal, in part ringed-seal, and very few spotted seals), each expedition lasting several days. Each boat is accompanied by several kayaks, which are either taken aboard or follow on independently.

In Kamenskoye and Itkana I collected some information concerning the numbers of seals killed for winter supply by the hunters in the autumn of 1900. The hunters keep no account of the number of seals killed and eaten in summer. In Kamenskoye the inventory made by me, of the autumn hunt of nineteen families, gave a total of 272 thong-seals, or an average of 14.3 to a family; the minimum catch of a family being 3, the maximum, 27. They had hunted ringed-seals as well, but kept no account of them. They were few in number, and part of them were eaten during the hunt. In general, during the autumn hunt attention is paid to the large seals only.

In Itkana I recorded the results of the autumn hunt of seals for the winter supply of seventeen families. There were, in all, 292 thong-seals and 89 ringed-seals, with an average of 17.2 thong-seals and 5.2 ringed-seals to a family. I also learned that 112 thong-seals were caught by means of nets, and 180 were killed with harpoons. It is clear from this that the inhabitants of Itkana were more successful than those of Kamenskoye. This is explained in part by the fact that very little salmon is caught at Itkana, which is situated on a bay with a small river in which the dog-salmon does not run, and therefore they have to content themselves mainly with catching such small fish as the salveline, tom-cod, smelt, and uyo'k (*Salmo salar*).

The inhabitants of Kuel and Paren, who obtain large supplies of dog-salmon on the Paren River, are much less occupied with sealhunting than those of Itkana, and also less than those of Kamenskoye, who obtain dog-salmon in great quantities. The inhabitants of these settlements live principally on fish.

*Whale and Walrus Hunting.* — In former times whaling played a very important part both in Bering Sea and in the Sea of Okhotsk. To judge from the stories told by the Koryak, Penshina Bay used to be rich in whales, which were hunted frequently. This is sufficiently proved by the pre-eminence of the whale festival over other festivals. It is known from ancient records that American whalers visited Penshina Bay as early as the beginning of the last century. Old Koryak still relate how they themselves used to go whaling, but this industry came to an end many years ago. The
Koryak say that until lately three American whalers used to go to Penshina Bay every summer, but in the last two or three years only one went. Evidently the whales have left for the open sea to escape being hunted in the bays. While entering Nayakhan Bay in a boat, we saw a great number of whales blowing far away in the mouth of Gishiga Bay. The Koryak do not venture to go whaling in their skin boats in the open sea. During their expeditions they do not go far from shore. In calm weather they cross Penshina Bay only at its narrow part, from Ma’meč to Itkana or from Ma’meč to Kamenskoye. If the Koryak have obtained any whales during the last few years, they have either been dead ones drifted ashore — whales wounded by whalers, but not caught by them, or those that perished from the attacks of the killer-whales — or whales killed by the American whalers and left to them. In the latter case, the whalers take off the skin, blubber, and whalebone, and, after informing the Koryak, throw the rest of the body ashore, or even tow it to the nearest settlement. The Koryak speak with gratitude of these acts of the American whalers or at-ayim (i.e., “chiefs of the boats”); but probably the rapacious pursuit of whales by whalers is the principal cause of their disappearance from the Koryak bays. In the summer of 1900 the Koryak of Penshina Bay had two dead whales. One was cast out by the sea near the settlement Ma’meč, and the other was taken to the village Itkana by an American whaler, — the only one that year in Penshina Bay. It goes without saying that whaling by foreign whalers in Koryak waters is considered illegitimate by the Russians, and is possible only because of the absence of a Russian cruiser.

Exactly what species of whale the Koryak hunted is difficult to say. The whale which they honored with a festival is called by them yu’niin. According to their description, this is the largest of all whales, with a skin of dark color and with black whalebone. When killed, the whale does not sink, owing to its blubber. This is evidently the Greenland whale (Balaena mysticetus L.). Another whale is called “diarrhoea-whale” (poqla’-yu’niin). It is small, and has white whalebone. The Koryak never hunted it, but ate it when washed ashore by the sea. A third kind of whale is called lu’kula’ni, and is met with in the ocean, but never enters the bays. Finally the Koryak are also familiar with the killer-whale (Orca gladiator Gill), which they call “wedge-whale” (wu’li-yu’niin); but I did not observe that it is an object of cult, as among the Gilyak, who consider it a beneficent spirit, that kills large whales for them. Krasheninnikoff says that the Kamchadal dread the killer-whale so much, that they not only do not kill it, but do not even approach it, for fear that it will upset the boat of the hunter. Whenever they saw a killer-whale approaching their boats, they sacrificed to it, praying that it might do them no harm.1

1 Compare p. 403.  2 See Krasheninnikoff, I, p. 426.
Several skin boats joined in hunting the whale. The greatest chance for success was during the spawning-season of small fish, like the uyo'k (Salmo socialis) and other species of smelt, which were pursued by the whales into bays and rivers. Whales were hunted exclusively with a harpoon with stone head. Heads made of bone were not in use. According to the Koryak, the painful wounds inflicted by bone heads did not cause any particular harm to the whale. The rifle-bullets which the Koryak tried to use in whale-hunting, after they had become familiar with fire-arms, would stick in the layer of blubber without causing the whale any injury. Only stone heads, with their numerous irregular facets and saw-like edges, cause deadly, lacerated wounds. It is plain that the perfected methods of hunting resorted to by civilized whalers were unknown to and beyond the reach of the Koryak.

Fig. 92 represents a stone harpoon-head for whaling (yiył'). It consists of a flint blade (a), the lower part of which is inserted in the head (b), made of the antler of a wild reindeer. The blade is fastened to the head by means of gum of the larch-tree. Attached to the head is a thong (c) of walrus-hide, forming a loop below for tying on the harpoon-line. As in the harpoons for seal-hunting, the loop passes through a hole of the harpoon-head. The wooden foreshaft of the harpoon (d) is inserted in the hole at the bottom of the head, while its butt-end is inserted in the point of the harpoon-shaft, which is made of bone of whale. Into this the wooden end of the harpoon-head is inserted. These parts are joined by a lashing of whalebone, as shown in e. The length of the whole harpoon-head here figured is 113 cm.

When going out on a hunting-expedition, each skin boat carries one or two harpoon-shafts, one or two harpoon-lines coiled up in grass bags, about half a dozen harpoon-heads placed point upwards in a tall wooden pail, from four to six stone spears, seal-skin wallets containing a change of clothes for the hunter, and a tripod with a sail.

The most skilful hunter is stationed in the bow of the boat. When near to the whale, he hurls the harpoon with all his might. Immediately the whale dives, carrying with it the harpoon-line and the boat to which the end of the line is fastened. When the whale comes up again to blow, — sometimes after a long time, — the hunters in the boats that happen to be nearest endeavor to drive another harpoon into it. When it is tired and worn out from the wounds received in this way, the boats advance nearer and despatch the whale with stone spears (ʔ'uta-ʔaʔ'mun) such as represented in Fig. 93. A separate stone
head of such a spear (a'ut) is shown in Fig. 136, a. It is 15 cm. in length. The lower narrow part of the a'ut is fitted into a hollow at the thicker end of the wooden spear-shaft, which is wound with a thong. When the whale is dead, its carcass, which is studded with harpoons and spears, is taken in tow by all the boats that have participated in the hunt, as shown in Fig. 247, and is hauled to the village.

Fig. 93 (418). Whaling-Spear. Length, 204 cm.

Krasheninnikoff relates¹ that in his time the people of Alutor caught whales in the bays in enormous nets made of smoke-dried walrus-hide thongs as stout as a man's arm.²

White whales (Delphinapterus leucas) are hunted in the same way as thong-seals. The white whale (Russian belukha [6layxa]; Koryak, yiyi'ın), too, comes into the bays and river-estuaries with the flood-tide in pursuit of fish, and goes back to the open sea with the ebb-tide. The full-grown white whale measures four metres and upward in length. Not infrequently it runs into the nets set for catching thong-seals. Both sealing-harpoons with iron heads and whaling-harpoons with stone heads are used in hunting white whales. When the white whale is worn out from wounds, it is despatched with a stone spear in the manner described above. If the white whale does not hurry to return to sea with the ebb-tide, while the water is still high, the hunters block the river-mouth in their kayaks, and drive them back into the river by means of shouts and by striking the water with their oars until the estuary becomes shallow and the white whale remains almost high and dry. It is then easily killed with rifles and spears. In this way the Koryak sometimes shut whole shoals of white whales within the river-mouths, as was the case in the summer of 1899, when the Koryak hemmed in sixteen white whales in the estuary of the river Ovekova. Still the number of these animals caught is insignificant in comparison with the enormous quantities found in the Koryak waters. Thus during the summer of 1900 the inhabitants of Kamenskoye caught nine white whales; those of Itkana, six; and those of Kuel, only two. Plate xxviii, Fig. 2, shows how the inhabitants of Kuel haul a white whale caught in seal-nets on dog-sleds over the coast-ice to the settlement. This photograph was taken in the beginning of October.³

¹ See Krasheninnikoff, I, p. 421.
² In looking over the annual reports of the commander of the district, in the Gishiga archives I found some data as to the number of whales killed by the Koryak in certain years. Judging by other statistical data contained in these reports, these numbers are doubtless also below the actual. A catch of two whales is recorded for 1848 in Paren, and of two whales in Kamenskoye; for 1856, three whales in Kamenskoye; for 1886, six whales in the whole of Penshina Bay.
³ See description of festival, Part I, pp. 69—77.
I will remark here that seals are hauled from the shore to the village over the ground or ice by means of a thong, which is usually passed through a slit running from under the lower jaw through the mouth. I did not see among the Maritime Koryak of Penshina Bay any small sleds such as are used by the Chukchee and Eskimo for conveying home seals.\(^1\)

In the Bays of the Sea of Okhotsk there are no walruses and sea-lions, nor any ribbon-seals (*Histriophoca fasciata*). Old people in the village of Ikanatold me that they knew of one case of a walrus being caught in Penshina Bay. How reliable this information is I do not know. The walrus in Bering Sea has decreased very much in numbers owing to its incessant unlawful pursuit. They are hunted by the Koryak in the same way as seals, — mainly with harpoons. In former times the Karaga estuary and the bays of Karagha Island were favorite localities for walrusing.

**Hunting of Land-Game.** — The wild reindeer and the mountain-sheep or Kamchatka big-horn (*Ovis nivicola* Eschholtz) are the only wild land-animals killed by the Koryak for food. The elk and the musk-deer, which are met with on the southern coasts of the Sea of Okhotsk and west of the Stanovoy Mountains, are unknown in the Koryak territory, at least nowadays.

The hunt of wild reindeer is unimportant; and there are few hunters who make a specialty of this pursuit, as is the case among the Yukaghiri and Tungus. Besides, the wild reindeer in the Koryak territory are not numerous. The domestic reindeer, for which the best pastures are selected, has pushed the wild herds to the north or to the less favorable pastures of the mountain-chains. They are found in small herds only, on mountain-tops in summer, and in the tundras and river-valleys in winter. On the Palpall Ridge a wild reindeer is found which crosses the Anadyr River and lives in summer on the coast of the Arctic Ocean. Small herds of the migratory wild reindeer reach the most southerly parts of the Koryak territory. The Maritime Koryak rarely hunt the wild reindeer. It is pursued principally by the inhabitants of northern Kamchatka and of the Parapol Valley, and particularly by the Koryak on the Palpal.\(^2\) Still the hunt is not carried on regularly. In domestic life, as well as in trade, the wild reindeer is of slight importance only. Skins of wild reindeer are not exported from Gishiga; while among the number of reindeer-skins exported from the Anadyr and the Kolyma Rivers the skins of wild reindeer occupy an important place,\(^3\) since on these rivers many are killed during their migrations to the north and back.

Like the wild goat, the mountain-sheep is fond of rocky mountain-tops, where it feeds on alpine marshes. It is especially numerous in the Kam-


\(^3\) See Jochelson, Sketch of the Hunting Pursuits and Peltry Trade in the Kolyma Country, p. 38.
chatka Mountains. It is hunted in the mountains of northern Kamchatka, the Ma’meč Ridge, the ranges of the Alutorsk region, farther to the north, and in the mountains of the western coast of Penshina Bay and the Taigonos Peninsula. The meat and fat of the mountain-sheep are considered a very toothsome dish. The hunt for the animal takes place principally in autumn, when the sheep take on a thick layer of fat, and their skin is covered with new and strong wool. The fur of the mountain-sheep is considered warmer than that of the reindeer. Occasionally the animal is killed in other seasons also. Among the Maritime Koryak of northern Kamchatka there are special hunters who go out into the mountains in autumn and in the beginning of winter to hunt sheep. Some of the Taigonos Reindeer Koryak hunt it successfully in winter. During my stay on the Topolovka River, in the latter part of April, 1901, two Koryak of the camp in which I lived killed four mountain-sheep. In Kamenskoye I saw a Maritime Koryak from the village Ma’meč who had killed twenty sheep during the winter of 1900–01. The skin of the sheep, like that of the wild reindeer, is not exported. In olden times the sheep was hunted with the bow, but now it is pursued almost exclusively with the gun. Besides its meat and skin, the sheep yields splendid horns (from half to three-quarters of a metre long, following the curvature), which are used for the manufacture of various articles, like spoons, ladles, and cups, and also for carvings.

Hunting of Fur-Bearing Animals. — I will begin my description with the hunt of the bear, for, like the wild reindeer and the sheep, not only its skin is used, but its meat is eaten as well, especially in autumn, when the bear is fat. The brown bear (Ursus beringianus Middendorf; Koryak, koi’nim) is abundant in Kamchatka, where the rivers are rich in fish. In the Koryak territory bears are also quite numerous. In 1899, 380 bear-skins were exported to Vladivostok from Gishiga and Alutorsk.1 In summer, bears are killed when they come down from the mountains to the river-valleys and the seacoast to hunt fish; in autumn, when feeding on berries or when visiting the storehouses of the Koryak to steal the fish stored there for winter use; and in winter they are killed in their lairs. In the spring, when the bear leaves its lair, it is killed only in self-defence. The bear is then lean, and its skin useless; but an encounter with it at this season is not safe for man. In summer and autumn the bear rarely attacks man, usually taking flight on meeting him. It is said that in autumn, when a bear happens to surprise women while picking berries, it merely takes the berries away from them, letting them go unharmed. In summer and autumn the Koryak kill bears mainly with the gun; in olden days they used the bow for this purpose. Not infrequently they attack the bear with the spear. In both cases,

1 See Chapter XIII, Trade.
hunting-dogs are used, which attack the bear from the rear, make it turn around for self-defence, and prevent it from rushing at the hunter, who is thus enabled to take good aim or to choose an opportune moment for his attack. There are hunters among the Maritime Koryak who train dogs especially for hunting. These are not used in harness. Many of the dogs used for hauling sledges are not only of no help in bear-hunting, but are even a hindrance, owing to their cowardice, since they will hide behind their master. In winter the bear is attacked in its den in the manner common throughout Siberia. The opening of the den is blocked with logs, so that the animal, when awakened, cannot get out. The roof of the den is broken through, and the bear is stabbed to death with a spear or killed with a gun. Snares made of stout thongs are placed near the storehouses. I did not hear of other bear-traps, such as are employed in other parts of Siberia. I have described before the festival in honor of the bear.¹

Foxes, particularly red foxes, are caught in great numbers, and their skins constitute the greatest part of the furs exported.² Fox-hunting is carried on in various ways, — with dogs, which the hunter sets on the track; by the Reindeer Koryak with reindeer-sledges. It is overtaken, and killed with clubs. Still another method is to drive the fox into its own den or into a hole, from which it is either pulled out by means of a cleft stick, or smoked out. Traps are also employed. These are the self-acting bow, the dead-fall, and the edge-trap with a spring of twisted sinew.³ Shooting foxes with guns is seldom successful. Quite recently foxes have been poisoned by means of strychnine pills, which are scattered about. This method is in use near Russian settlements.

Krasheninnikoff asserts that all traps of the Kamchadal were introduced by the Russians. He states that previous to the arrival of the Russians the Kamchadal did not care for fox-skins, but preferred dog-skins, and that when they wanted to kill foxes, they did so by means of clubs. Foxes were so common that they would come to the troughs when the dogs were fed.⁴ I believe that the same conditions prevailed among the Koryak. Even at present they set fewer traps by far than the Yukaghir and the Russianized tribes of Siberia. The Eskimo and Indians, too, employ various traps for the capture of animals;⁵ but the traps with sinew spring,⁶ found in Alaska, are probably of Siberian origin. The Koryak have evidently adopted the self-acting bow either from the Russians or from the Yakut and Tungus, who use it widely.

In the fur trade the red foxes of the Koryak territory, on account of their gorgeous and soft fur and its fiery-red color, are considered among the

¹ See Part I, p. 88. ² See Chapter XIII, The Kamchadal. ³ See Krasheninnikoff, Sketch of the Hunting-Pursuits, etc., Figs. 1, 2, 3, 5, 6, 7, 7, pp. 6, 7, 11; Bogoras, The Chukchee, Vol. VII of this series, Figs. 48—50, pp. 138—140. ⁴ See Krasheninnikoff, I, p. 340. ⁵ Ibid., Fig. 5, p. 474; Nelson, Fig. 37, p. 122.
very best. They are equal in value to those of Kamchatka and the Anadyr. Since the arrival of the Russians in this region, the number of foxes has considerably fallen off, and they are now nearly extinct. In the neighborhood of the Russian villages they are not seen at all. Their number varies considerably from year to year. Their migration northward or southward depends on the presence of mice or hares, which foxes follow.

The Arctic fox (*Vulpes lagopus*) occurs in much smaller numbers than the red fox. It is a tundra animal *par excellence*, and is found more often in the treeless eastern part of the Koryak country than in the western district. Blue foxes are very rare: their number constitutes about one per cent of that of the white foxes. The methods of hunting the polar fox are identical with those used for the red fox.

The squirrel (*Sciurus vulgaris*) is hardly hunted at all. It is found in small numbers on the upper course of the Gishiga and Penshina and of their tributaries, but is absent in the treeless and maritime region. In Kamchatka the squirrel does not occur at all, even in the wooded localities of the central ridge. A small number of squirrels are obtained in the Gishiga district by the Tungus, but by far the greater part of squirrel-skins which are exported by way of Gishiga is obtained from nomadic Tungus in the Kolyma district and partly in the Okhotsk district. In former times the Tungus killed squirrels by means of the bow. They used blunt arrows made of bone, so as not to spoil the skin. The hunters would aim at the head of the animal when it was sitting in a tree. The blunt arrow would only daze it, and it would fall to the ground, where it was picked up by the hunter. If still capable of running, the squirrel was caught by the hunting-dog. Nowadays the place of the bow has been taken by the flint-lock gun with thin bore for bullets of the size of a pea, which do not injure the skin.

The sable (*Mustela sibellina*, Linn.), the most valuable fur-animal of Siberia, was undoubtedly at one time more widespread than it is now. At present only a few dozen sable-skins are exported annually from Gishiga. These are caught in the river-valleys of Penshina and Opuka, and partly in northern Kamchatka. In southern Kamchatka the Kamchadal even now kill nearly two thousand sables annually. The highest value is placed on those from the valleys of the Olekma and the Vitim, tributaries of the Lena, and from Nerchinsk in Transbaikalia. They possess a down which is entirely dark and of bluish tinge, and long, soft, glossy black hair. The finest sables have silver-tipped hair. The sable of Kamchatka is not inferior to that of Olekma in thickness of down and softness of hair; but, since it has a russet color, the fur is of inferior quality, resembling marten-fur. The Koryak sable is somewhat darker than that of Kamchatka. The sable is hunted with the gun, in the same way as the squirrel. It is a good climber, and in time of danger takes to treetops for safety. The flintlock gun used for hunting
sables is of larger caliber than the one used for squirrels. Oftentimes the Kamchadal shoot sables with shot. If the animal runs into a hole, the hunter sets a nettle-thread net near the entrance, and drives it out either with the help of a dog, which digs the hole open, or by means of smoke. In our Koryak collection there is a sable-trap with sinew spring from the Opuka River. It is one-third the size of similar traps used for catching wolves. In Kamchatka a dead-fall is set for sables. Sable-hunting is a most difficult pursuit, because the animal is very quick and cleverly escapes its pursuers. It vanishes in the snow, and makes passages under it; it conceals itself under stones, dry boughs, and roots of trees, and leaps from tree to tree, making it difficult to take good aim at it.

The gray wolf (*Canis lupus* Linn.) inhabits the tundra. It is hunted mainly by the Reindeer Koryak, who have to protect their herds against its ravages. Besides, wolf’s fur is considered handsome, and is used for manufacturing caps, mittens, collars, and trimmings of clothing and foot-ware. Part of the wolf-skins are exported. In 1899 one hundred and twenty were taken out of the Gishiga district. The Koryak hunt for wolves in the same manner as do the Chukchee.1

Only a few skins of ermine (*Putorius ermineus* Linn.) are exported, and it seems probable that the Koryak do not hunt it much. It would also seem that this animal is not common in the Koryak territory.2 Ermine is hunted by the Russians and by the Maritime Koryak, who set near their store-houses traps based on the principle of the self-acting bow, in which the animals are strangled.3 The Koryak have undoubtedly borrowed this device from the Russians. In Siberia it is specially favored by the Yakut, who employ it for all small animals, and I think it is a Yakut invention.

The otter (*Lutra vulgaris*) and wolverene (*Gulo borealis*) are rarely met with, and are therefore merely casually hunted. Formerly the skins of both of these animals were used for trimming festive garments. That of the wolverene served for adorning the finest clothes among the Koryak as well as among the Kamchadal and Chukchee. Even now wolverene-skins obtained by local hunters are not exported from the extreme northeast of Siberia, but they are imported by merchants as one of the most attractive articles of barter. At present the Chukchee are the principal consumers of wolverene-skins, and the wolverenes killed by the Kamchadal are also exported by merchants to the Chukchee.

*Bird-Hunting.* — Birds of passage, like ducks, geese, and swans, were formerly shot with bow and arrows, but are now shot with rifles. However,

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2 In 1899, 124 skins were exported via Gishiga, while from the Kolyma district 6000 ermine-skins were exported via Yakutsk.
3 See Jochelson, Sketch of the Hunting, etc., Fig. 8, a, b, p. 17; Bogoras, The Chukchee, Vol. VII of this series, Fig. 58, p. 143.
the Koryak are rather poor shots, and do not care to hunt birds. In spite of the abundance of birds in spring and autumn, during the season of their migrations north and south, they kill very few, and do not lay by any stores of bird-meat. The birds are eaten fresh only.

Sea-fowl are caught by means of snares made of whalebone or sinew-thread. Winter birds, like the ptarmigan, are caught with nooses made of sinew-thread, which are tied to a board that has been placed in the snow. They are also driven into nets made of nettle-thread and killed with sling-stones that are hurled with slings of seal-skin (Fig. 94).

If there happens to be a nesting-place of ducks or geese, or other birds of passage, not far from the village, the Koryak drive them ashore and kill them with clubs during the moulting-season, which is late in July or early in August. In the village Talovka, bird-darts (Fig. 95) were used for killing moulting birds. Within a few miles, up the Talovka River, lies the favorite breeding-place of the geese. In August the villagers go there in kayaks to hunt them while moulting. They use bird-darts exactly like those employed by the Russianized tribes on the Anadyr and the Kolyma. The Koryak, however, do not employ the throwing-board, but hurl the dart with the hand.

WAR. — At the present time the Koryak wage no war. The weapons which were used in days of old for war and hunting alike, as bow, arrows, and spear, have been preserved to a certain degree as hunting-weapons; while the weapons that were used in war only, have now either entirely disappeared or are retained as keepsakes.

Weapons. — Previous to the introduction of iron, stone and bone, and partly also wood, were used as material for arrow-heads. We have seen before that stone harpoon-heads are still in use; but stone arrow-heads (auta'-ma'xem) are now hard to find. I never saw a complete arrow with stone head. They were evidently superseded more quickly by iron-pointed arrows than were those made of bone. Stone arrow-heads may be found in excavating ancient dwellings, but they are also preserved by some of the people as keepsakes or as amulets. Three stone arrow-heads are represented in
Fig. 135. They were inserted in the arrow-shaft, to which they were tied with sinew-thread. Bone arrows made of bone of the whale, reindeer, and walrus and mammoth ivory have been preserved by many Koryak, but they are not often used in hunting. Bone of whale was employed principally for bird-arrows. The bone arrow-head was inserted in a split in the shaft, or it was fitted on like a head, or fitted into a groove in the shaft.

Wooden arrows were made of one piece. Iron arrow-points were either fastened directly to the wooden shaft, or were inserted into a bone foreshaft. I have collected about thirty different types of arrows. The shape of most of them is the same as that of the Chukchee arrows described by Mr. Bogoras.1 Five arrows of somewhat different shape are illustrated here (Fig. 96).

marked e represents a long arrow with a three-edged head of mammoth-tusk. Like the lancet-shaped bone arrows, it was employed both in war and in hunting big land-game, such as reindeer and elk. These arrows are distinguished by their long head thin and long shaft, and by the feathering and were used at long range. At d is shown a bird-arrow of bone of whale. The one marked b represents an arrow for a self-acting bow for killing otters, with a barbed detachable iron point. Like all arrows for self-acting bows, which strike at short range, this harpoon-arrow (uke’lwe-ma’xem) possesses a short, thick and unfeathered shaft. Its cross-section is oval. At c is represented an arrow with a head of antler; and at a, an arrow with an iron head resembling the head of a bird-dart. Both are used for shooting birds. They are interesting on account of the imitation of feathering in wood.2

1 See Bogoras, The Chukchee. Vol. VII of this series, Fig. 74, p. 156.
2 Such arrows have been found also among the Ainu and Gold (See Adler, Plate II, Figs. 1—4). I have collected several iron arrows with pseudo-feathering of the type Fig. 96, a, made entirely of one piece of iron. They are too heavy for shooting and were probably used as offerings. (See Part I, pp. 45, 89).
At present the bow is used in hunting only when a rifle is not available, which is seldom the case. In certain families old bows and arrows are preserved with great care, and pass on as heirlooms. The bow is still common in children’s games. Boys practise shooting, and have contests in which they use as a target a mitten suspended from a stick driven into the snow. Bow and arrows are burned on the funeral pyres of men; but in the majority of cases the funeral bow and arrows are not genuine weapons, but only imitations. The funeral bow consists of a somewhat bent stave, with a grip in the middle. At the ends a thong is attached, which represents the bowstring. The arrows,¹ too, are imitations, with pseudo-feathering at the butt-end.

The Maritime Koryak were considered master bowyers. Simple and compound bows were manufactured by them. The stave of the simple bow was made of larch or alder; and its concave side was lined with a broad dorsal sinew of a reindeer, which gave it additional elasticity. The stave of the compound bow was made of two strips glued together, — one of larch and one of birch, — which gave the bow special strength. The concave side of this bow, too, was usually lined with sinew, and the convex back with birch-bark. The grip of a good bow was bent in (Plate xxix, Fig. 1) so that the general form recalled to a certain extent the ancient Greek bow with its two curves joined by a straight short grip. The two horns of the bow, to which the bowstring was fastened, consisted usually of separate pieces, and were glued to the ends of the bow-tree, to which they were also tied by means of sinew.

Bowstrings were made chiefly of thongs of thong-seal hide. One of the bows in our collection has a bowstring of sinew of the white whale. Krashe-ninnikoff says that the Kamchadal used to make bowstrings of whale-sinew.

The bow was held vertically, with the belly towards the archer; it was spanned with the index-finger of the right hand, the three other fingers being bent in; and the nock of the arrow was held from above with the thumb. The left hand held the grip of the bow, index-finger and thumb lightly supporting the arrow-shaft, while the other fingers clasped the bow. Great strength and skill were required for spanning the bow, and constant practice was necessary. The bow of strong men was so stiff that a weak man could not span it.

I have mentioned before that long and thin arrows were intended for long range shooting. These arrows were always feathered to steady their flight. On the other hand, the feathering suggests the idea of an analogy between the flight of the arrow and that of birds. The arrow-shafts were planed and smoothed with great care. To remove all crookedness a bone instrument of

¹ Compare Part I, Fig. 49, a, A, p. 107.
Fig. 1. Koryak Warriors.

Fig. 2. Atykino Bay with Remains of Fortifications.

The Koryak.
semicircular cross-section (Fig. 97) was employed, which served as a plane, knives being inserted into the blade-holes.

Previous to the introduction of iron, spears were made of bone and stone. The stone spear is still in use, but only for hunting whales (see Fig. 93, p. 552). Traditions are still handed down concerning the bone spears which were used both in war and in hunting. Krasheninnikoff mentions the three-pronged spears of the Koryak.\(^1\) Presumably the iron spear superseded the old bone spear, at an early time. The spear played an important rôle in hand-to-hand fights. Tradition relates how the heroes, wielding only a spear, overcame their enemies. In olden times there were also contests with spears. Iron spears\(^2\) are nowadays employed only in bear-hunting and in killing reindeer and dogs for sacrifice.\(^3\) Every herdsman owns an iron spear, which is tied to the right side of the riding-sleigh, which is usually provided with bone rings for suspending it.

Another weapon used in hand-to-hand fights was the big knife (mainowal). It was about 50–60 cm. long, with a short handle of bone. It was carried in a sheath on the left side, like a short-sword, suspended from a shoulder-strap. It is not known what kind of weapon was supplanted by the iron knife. The Yukaghir, according to tradition, used long battle-knives made of elk-ribs. The big knife is used at present chiefly by the Reindeer Koryak, who carry it on journeys and use it for chopping wood for the fire and for cutting frozen meat; but even in quite recent times this knife served as a weapon.

Judging from accounts of the customs of former times, the slung-shot must have been used in war. In consisted of a long thong of thong-seal hide, with a stone at its end. In one tradition which I recorded in Nayakhan, in which a battle between two heroes is described, it is related that the warrior from Nayakhan — who was known under the name of “Woman-Snatcher,” because he took by violence all the women who pleased him — was once surprised by a hostile hero when he had no bow and spear, but only a slung-shot, which he wore like a belt. While dodging his adversary’s arrows, he hurled his slung-shot at the latter with such force that the line encircled his body several times and cut him in twain.

The Russians early introduced a wide-bore flintlock gun for hunting sea-mammals.\(^4\) Powder and lead are supplied by the government and are sold at cost price. The lead bullets are made by the hunters themselves.

Some Koryak own Winchester rifles, which are obtained either directly

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\(^1\) Krasheninnikoff, I, p. 51.
\(^2\) See Fig. 143.
\(^3\) See Part I, Plate VII, Fig. 2, opposite p. 80; and Part I, Plate X, opposite p. 96.
from American whalers or through barter from the Chukchee. During the last few years many Koryak have acquired Berdan rifles, with which the Russian Army was equipped until 1895. When the army was equipped with magazine-rifles, the government sold the old rifles at low prices. Thus the Berdan rifle reached the Koryak. I took fifteen of these rifles along from Vladivostok, and exchanged them for articles for our collection, or gave them away in return for services.

Armor. — The Chukchee and Koryak coats of mail collected by us have been described by Mr. Bogoras.\footnote{See Bogoras, The Chukchee, Vol. VII of the series, pp. 161—168.} I merely wish to add that in my opinion the upper part of the armor had two wings. The absence of one wing from our specimens proves only that they are not complete. This is confirmed not only by the presence of thongs-holes on that side of the head-protector on which the wing is missing, and by the fact that in some pieces of armor the right wing is missing, in others the left, but also by the information gathered from men acquainted with the old customs of the tribe. At first some Koryak explained the absence of the left wing on suits of armor by the fact that they had belonged to lefthanded warriors, and that the wing was left off that the left hand might be free. This statement is mentioned by Mr. Bogoras;\footnote{Ibid., p. 165.} but subsequently, on further inquiry, some old men, who knew how armor had been worn, denied this, and asserted that the complete armor had two wings, protecting the two arms. I was told, further, that the Reindeer Koryak in the northern part of Palpal, where I could not go owing to lack of time, still preserved several complete coats of mail which at present are worn at sacrifices on the occasion of the festival of reindeer-races.\footnote{See Part I, p. 88.} A Reindeer Koryak of Palpal, whom I saw in the village of Kamenskoye, promised to bring me a complete suit of armor, but he did not keep his promise. Even the incomplete ones were obtained with great difficulty. For a long time the owners would not agree to sell them. The arms, which were passed through the loops inside the wings on the side of the head-protector, held the armor in place on the shoulders; while the fingers or hands were thrust through the small loops at the edge of the wings when it was desired to cover the arm entirely. Fig. 98 shows a Koryak clad in armor, with his left arm free,
which, however, may be protected by the left wing, like his right arm, by putting a wing-loop on his hand. How much strength, agility, and exercise must have been required to fight in so heavy and uncomfortable a costume! In one myth,\(^1\) when Big-Raven offered his son Ememqut an armor for a battle with the Chukchee, the son declined the offer and went to battle armed only with his spear.

Fig. 98 also shows how the helmet and arm-guards made of small iron plates were worn.\(^2\) The warriors wore a fur band under the helmet to protect the forehead against the hard iron. The lower part of the armor, which consists of small iron plates tied together with thong, resembles a skirt. It was closed at the side by means of short straps.

Plate XXIX, Fig. 1, represents two Koryak in armor, with bent bows. The plate is the reproduction of a photograph taken by me, except that the artist, Mr. Rudolf Cronau, sketched in under my direction the missing wing of the armor.

Prior to their acquaintance with iron mail-coats, — which I suppose were introduced by the Tungus,\(^3\) — the Koryak wore mail-coats of walrus-skin or of small plates of bone joined by means of straps. Krasheninnikoff says that "the Koryak armor consisted of oblong bone pieces sewed together with thongs".\(^4\)

*Fortifications.* — The maritime Koryak fortified their villages in order to prevent sudden attacks by the enemy and to withstand a siege. Whenever possible, they built their villages on islands near the coast, to which they resorted to fish and hunt sea-mammals. They had temporary dwellings at the mouths of rivers. At the approach of a foe, they would take to their boats and disappear in the natural forts formed by the rocky islands. At present these islets are uninhabited, but it is said that on many of them traces of ancient dwellings may still be seen. To my regret, during the first half of the summer of 1901, which I spent in the Russian settlement Kushka, at the mouth of the Gishiga River, it was impossible to venture out in the wooden boats of the Russian settlers to the islands of which the Koryak spoke to me.\(^5\)

Where no islands were near the coast, the maritime Koryak fortified their villages. The islanders, too, fortified their temporary coast settlements. All the coast villages were built on hills with a steep descent to the sea. On the land side the settlement was surrounded by an embankment, a stone wall, or a stockade. When an attack was expected, sentinels were stationed on

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2. See Chapter X.
3. During that summer I succeeded in making two trips in wooden boats from the mouth of the Gishiga River, — one to the Koryak at the mouth of the Ovekova River, a distance of about fourteen miles; and the other to the Koryak at the mouth of the Nayakan River, a distance of a hundred miles. The latter trip was considered so dangerous that the Russian settlers advised me not to undertake it. But luck favored us; the weather was fine, and I covered the distance in two days, but on the return trip we were detained in the uninhabited Bay of Atikino (See Plate XXIX, Fig. 2) for several days by stormy weather.
the roofs of houses or storehouses; for, in case of a sudden attack by the enemy on the hamlets of the sedentary Koryak, the inhabitants of underground houses found themselves, as it were, in a trap. For this reason, at least one guard was always kept in the settlements of warriors. In case of an attack, the women and old people would launch the skin boats, if the sea was open, so as to be ready to flee, in case of defeat, with the surviving warriors. I was told that the inhabitants of the old settlement near the mouth of the river Gishiga, having lost a battle with the Cossacks, took to their skin boats, and succeeded in escaping to the Yamsk Koryak. At the mouth of the river Nayakhan I saw traces of a fortified settlement. It was situated on a rooky promontory, with cliffs on three sides rising abruptly from the sea. On the fourth side there is a steep descent to the river-valley. This slope had been protected with a stone rampart. Piles of stones which once formed the wall are still visible. Tradition relates that the Russians were led there by Tungus who were hostile to the Koryak. The latter stubbornly defended the approach to the village. It was winter, and they poured water on the slope to make it slippery. During one night the Russians forged sharp iron ice-creepers, tied them under the soles of their fur boots, and stormed the fort. Many of them perished from the arrows of the Koryak and from stones which they rolled down; but as they were many, their firearms gave them the victory in the end. Thereupon the Koryak warriors slew all the women and children in their houses. Many of them committed suicide, and only a few found safety in flight by sliding down the cliffs to the sea, and reaching Paren over the ice. I found traces of a fortified settlement also in the Bay of Atykino (Plate xxx, Fig. 2).

At sight of an enemy, the Reindeer Koryak drove their herds up the mountains and defended the approach. In the open tundra they would surround the camp with a wall of sleighs placed upright and tied together with thongs, having first driven the reindeer into the corral. From this fortified corral the warriors would make sallies or go out to accept a challenge to single-handed fights with the champions of the invaders.
VIII. — HOUSEHOLD UTENSILS AND FOOD.

HOUSEHOLD UTENSILS. — The ancient method of making fire, by means of a drill, is at present employed only in religious ceremonies. Since the fire-drill is esteemed as the most important protector of the family,¹ it may be concluded that the Koryak looked upon fire as a beneficent agent. There are sacrifices in honor of the fire; fire is also a mediator between man and the deities, since offerings are burned in it.² At the present time the use of sulphur or Swedish matches is quite widespread. Even when obtaining the sacred fire, some Koryak turn the drill for a short time as a formality only, and the fire is really kindled with a match; but they cannot always obtain matches, so that the most common means of obtaining fire is the strike-a-light. Although not much used, the strike-a-light seems to have been known to the Koryak prior to their encounter with the Russians, having been introduced by the Tungus, who had received it from the Amur tribes. Even now, merchants often import from Vladivostok steel and flint of Chinese origin. Tinder is prepared from a fungus which grows on the stumps of birch-trees. The fungus is stripped of its hard outer layer, and the inner spongy mass is boiled in water. Then it is dried; and a light, brittle, and highly inflammable punk is thus obtained.

Fire-making tools are more often needed by the nomadic Reindeer Koryak than by the sedentary Maritime people. A new fire need rarely be made in the underground houses of the Maritime Koryak. The women are very skilful in keeping up the fire of the hearth. They cover the embers with ashes; and when reviving the fire, they rake it up, put small chips of wood on the glowing embers, and fan them until they burst into flame. The Maritime Koryak need fire-tools only on journeys. However, when in possession of matches, they are very fond of striking them to light their lamps or pipes, even when the fire is burning on the hearth. On the other hand, if the fire goes out entirely, and neither match nor tinder is on hand, the ancient method of obtaining fire by means of the drill-bow is resorted to. This, however, happens very rarely.

For purposes of lighting, a stone lamp (ɛ'ek) is used. It is made of sandstone, in the shape of a shallow basin. The lamp is placed on a wooden block or stand from 50 cm. to 60 cm. in height. Fig. 99 represents two of these lamps and stands, which I obtained from the Maritime Koryak.

¹ See Part I, pp. 33–36; Figs. 2, 3; Plate VI, opp. p. 79.
² Ibid., p. 98.
Among the Reindeer Koryak the stand is somewhat lower. On the upper side of the stand an excavation is made in which the bottom of the lamp rests, to give it stability. The lamp is so placed that the wick-edge is a little lower than the opposite edge, to allow the oil which is tried out of the tallow or blubber by the heat of the flame to run down to the wick. The wick consists of sphagnum or rotten-wood in the form of a coarse thread, which is laid in the groove made along the wick-edge of the lamp. Nowadays wicks made of thread are frequently met with. The Maritime Koryak use seal-oil for lighting-purposes, while the Reindeer Koryak use the hard white tallow which is obtained by thoroughly boiling crushed reindeer-bones, and which contains a high percentage of stearine. As the tallow is melted by the flame, new pieces are put in. Seal-oil yields a poor yellow flame, produces much soot, and gives off an offensive stench. Reindeer-tallow burns with a white flame, without soot or offensive odor. The wick is kept trimmed, and is snuffed with a stick or splinter of wood. The lamp-stand of the Maritime Koryak is covered with a layer of grease and dirt caused by the oil trickling down from the lamp, and by pieces of wick and soot, dust, hair and dirt, which drop down and stick to it. Usually the lamp stands on the dirt floor near the threshold leading to the sleeping-rooms (see Plate xxxvii); and by its dim light the women work, sitting on the threshold or behind it on reindeer-skins.

The Reindeer Koryak have the lamp in the inner sleeping-tent. To prevent drops of oil and pieces of wick from falling on the skins spread out for beds and seats, the lamp is placed on broad wooden troughs, just as is done by the Chukchee. The Reindeer Koryak often have no special stand, and the lamp with the trough is placed on the box in which the teacups and saucers are packed while the people are travelling with the herd. Among the Reindeer Koryak, stone lamps have gone out of use, just as among the

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Chukchee. They are replaced by round iron frying-pans without handles, which are imported by Russian merchants. The Maritime Koryak relate that in olden times they also made clay lamps (sa'yek, "earthen or clay lamp," from sā, "earth or clay;" and ε'ek, "lamp") such as are still used by the Chukchee and Eskimo; but among the finds made in excavating ancient underground houses, I did not come across a single clay lamp. In one house I found a lamp made of a whale-vertebra (yu'utmε'ek, i.e., "of bone of whale lamp"). It is represented in Fig. 100.

The lamp of the Maritime Koryak serves for lighting exclusively. Wood is used for heating and cooking. The hearth has been described before.\(^1\) Driftwood is cut in summer and autumn for use as fuel. The wood is split into thin billets 50 cm. or 75 cm. long, which catch fire quickly and do not smoke much. It is stored away on the roof of the house.\(^2\) The fire is started twice every day, — in the morning, on rising; and in the evening, before going to bed, — at the time of the two principal meals. The morning fire also warms the house for the day, the evening fire for the night. In the middle of the day the fire is rarely started. In general, the sedentary Koryak are saving of their fuel, even in settlements where there is no lack of wood. If guests arrive during the day, a fire is made to make tea and to warm the house.

To a certain degree, the lamp of the Reindeer Koryak heats the sleeping-tent in which it burns; but food and tea are prepared on the hearth, in the outer tent.\(^3\) I have never seen food heated over the lamp in the sleeping-tent. Tea and boiled food are served by the women in the sleeping-tent. This, more than the lamp, aids in heating the sleeping-room. Over the lamp, however, wet footwear and mittens are hung to dry; but generally the drying of wet clothes is done in front of the hearth in the outer tent, or by freezing them out of doors, beating off the ice, and then warming them by the fire.

Properly speaking, the Koryak have no furniture whatever. The favorite position is sitting on the ground or on skins, with legs either crossed Turkish fashion or stretched out, or crouching. In the houses of the Maritime Koryak, the low thresholds which divide the sleeping-places from the middle part of the house are always used as seats; and in the outer tents of the Reindeer Koryak the sledges, which are brought in, and on which lie the bags of provisions, are utilized for this purpose.

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\(^1\) See p. 458.  
\(^2\) See p. 459.  
\(^3\) See p. 450.
Fig. 101 shows a stool of the Reindeer Koryak. It is made of reindeer-antlers still attached to the frontal bone. The beams and two tines of the antlers serve as legs, and two boards are tied to them to make the seat. This chair seems to be an imitation of a Russian bench. Nowadays, however, it is often found with the Reindeer Koryak. The Maritime Koryak also use, instead of chairs, the boxes in which they keep the tea-dishes. On Plate xx a girl is shown sitting by the fireside on such a box, and the other one is sitting in a crouching position. The use of tables is unknown to the Koryak.

With the exception of the Russianized natives, they place a board or a trough-shaped dish on the skins on which they sit, and put the carved meat or fish, with seal-oil, on it. The people sit around and eat, taking up the pieces with their hands. Often the box in which the tea-dishes are kept serves as a table. Others have a table-board made of two or three planks, which is put on the box when they are eating, or drinking tea. However, in some houses of the Maritime Koryak, very small low tables, 30 cm. or 40 cm. high, may be found, at which the guests eat; but the Russianized Koryak of North Kamchatka and of the villages of the Okhotsk Sea south of the Gishiga River, who live in log-cabins, also use benches, chairs, tables, and beds, like their Russian neighbors.

With the introduction of metal cooking-vessels, these entirely superseded clay pots, and the method of cooking food by means of red-hot stones went out of use. Nowadays cooking is done only in iron and copper kettles imported by merchants. The Koryak prize copper kettles particularly, as they are durable; but they are not easily obtained, owing to their high price, and only the wealthy reindeer-breeders or Koryak engaged in trade or barter can afford to buy them. Such kettles last a very long time. Of course, the tin lining wears off very soon, but the Koryak continue to cook in them. The Koryak smiths of the villages Paren and Kuel have learned to make kettles from imported sheet-iron. In imitation of our metal waterpails, they give them the shape of a truncated cone, with a wire handle by which to suspend them over the fire. These kettles do not last long. The thin sheet-iron soon burns through, or is eaten through by rust in the damp summer.

At present the teapot is another metal appurtenance of the household. The dealers import chiefly copper pots, but some are found of enamelled white iron.
A stone bone-breaking set is one of the indispensable belongings of every household. It consists of a large stone slab or anvil, called idno'inn ("board-stone") and a stone pestle (cip6'ifiin) or hammer. Both are selected from among the water-worn pebbles on the banks of rivers. The Koryak themselves do not work them into shape. The board-stone must have one smooth, even surface; and the hammer, an oblong shape, round at the ends. Two hammers are shown in Fig. 102. On the board-stone, bones are crushed with the hammer to extract the marrow or to boil out the tallow for lighting; hard dried fish is softened on it or pounded with berries; roots are pounded for cooking gruel and for making puddings; and meat with fat is pounded for cutlets.¹

Edible herbs, chiefly willow-herb (Epilobium angustifolium), are chopped on the stone anvil by means of stone hatchets. Two of these are shown in Fig. 103. The cutting-edge is sharpened by chipping, just like the edges of stone arrows and knives.² The handle of the hatchet a is made of a willow rod split in two and bent double, the hatchet being set between the two bent halves, the free ends of which are tied together with thongs. Another method of hafting is shown in b. The wooden handle is placed on one side of the hatchet, while on the other a short stick is applied, the ends of which are tied firmly to the handle. The grooved stone axe is held firmly between the two sticks.

The Koryak drink much water. They often get up in the night to take a drink of cold water, of which they always have a supply in wooden or

¹ See p. 578.
² See Chapter X.
skin pails. The Maritime Koryak carry a supply of fresh water when hunting in their skin boats. In order to avoid the necessity of melting snow and ice, in winter, water is generally taken from ice-holes. All the settlements of the Maritime Koryak are situated on the banks or at the mouths of rivers. The Reindeer Koryak, too, place their tents in river valleys. Plate xxx, Fig. 1, represents an evening scene by an ice-hole in the village Big Itkana, where girls and boys come with buckets to fetch water for the night. The water is poured into the bucket with a wooden scoop. Water-buckets are made of strong thong-seal skin or of aspen or poplar wood. Fig. 104 shows a skin bucket. Among the Eskimo are found buckets of the same type, made of seal-skin and sewed together with sinew-thread. They are carried in a different manner however. The Eskimo bucket has a handle made of a strip of leather, like a regular bucket-handle, while the Koryak bucket has two loops sewed on near the mouth. To these loops are tied the ends of a broad seal-skin carrying-strap, which is passed over the forehead, the bucket resting on the back, — a method of carrying burdens employed by many Indian tribes.

The thick wooden bucket is also cylindrical. The material is supplied by a part of a straight and solid trunk of an aspen or poplar tree, which is hollowed out by means of an adze, and finished with a simple knife. The wooden bottom is inserted from above. Wooden buckets are carried by women in the same way as seal-skin buckets (see Plate xxxv, Fig. 2).

The wooden bucket is used for many purposes: when hunting sea-mammals, it serves as a receptacle for the harpoon-heads; in the house, seal-oil is kept in it; berries are also kept in both wooden and skin buckets; soup for feeding dogs is carried out of the house in wooden buckets.

The material for spoons and ladles is furnished by the antlers of the reindeer and the horns of the mountain-sheep. Some are made of wood. Broth is sipped from deep ladles; thick porridge or gruel is eaten with spoons: therefore spoons are shallow (Fig. 105, a). Bone teaspoons (Fig. 105, b) are made in imitation of imported metal spoons. Wealthy Reindeer Koryak purchase metal table-spoons; some of them even have silver spoons.

Wooden plates, dishes, elongated platters and trays, and wooden and bone dippers, are of the same type as those of the Chukchee, and I shall not...
Fig. 1. Women drawing water.

Fig. 2. Women cutting salmon.

The Koryak.
dwell on their description. Among the wealthy Koryak, imported earthenware or enamelled iron plates may be found.

Fig. 106 represents a small wooden bucket with a lid, for picking berries. It is hollowed out in the same way as the large water-buckets, but it is furnished with two alder hoops, a lid, and a carrying-strap.

The chamber-vessel (Fig. 107) is an indispensable part of the household goods. The Koryak do not go out of doors at night to void urine, while children even go to stool indoors. The chamber-vessel is hollowed out of an aspen or poplar tree. It is usually made with the brim bent inward to prevent the contents from spilling when the vessel is carried up the ladder of the underground house. The Reindeer Koryak keep it in the corner of the inner sleeping-tent, and its shape prevents its being upset by sleepers. If the vessel is full, the mistress raises the edge of the front side of the tent and pours the contents out into the outer tent. In the morning the women carry it out of doors and pour the urine on the snow, which then attracts the reindeer.\(^1\) Instead of

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\(^1\) See p. 483.
a wooden chamber-vessel, rich reindeer-breeder use imported brass wash-basins. Once when I had to remain over night at the tent of a wealthy reindeer-breeder, I had to sleep in the same tent with the proprietors. As soon as I entered the inner tent, and before I had had time to warm up and drink my tea, the host, as a special mark of courtesy, brought in the brass basin and placed it in the corner of the tent.

Animal Food. — Animal food is the principal, if not the exclusive nourishment of the Koryak, particularly of the Reindeer Koryak, who use less vegetable food than do the Maritime people. Animal food consists of fish, sea-mammals, reindeer, mountain-sheep, bears, birds, and shell-fish.

Fish, fresh and sun-dried, is the main food of the Maritime Koryak. During the summer and autumn, boiled fresh fish is eaten. The people are also fond of frying fresh fish on spits. Heads of fish are eaten raw, the cartilages being considered dainties. In winter, fish is eaten both cooked and raw. Raw fish is eaten frozen and sliced into thin chips. The eating of frozen fish is, however, much more widespread among the Arctic tribes west of the Stanovoi Ridge and among the Russians.

Dried fish (called by the Russian settlers "yukola") is prepared by the women on the river-bank or seashore during the summer fishing-season, and is preserved for winter use. Plate xxx, Fig. 2, shows how the women cut fresh dog-salmon for drying it in the sun. First the head is cut off, which is dried separately. Then the maw is ripped open with a knife, and the entrails are taken out. The roe is dried separately, and the flesh is cut in broad strips along both sides of the backbone. These strips remain joined at the tail, and are thus hung over the poles of the drying-frames. On sunny days the drying proceeds very fast. In three or four days the yukola is ready. In clear weather the preliminary drying is done on open drying-frames, as shown on Plate xxxi. When dry, the yukola is taken off from the drying-frames and hung under the platform of the storehouse. In autumn, when the nights are cold, and there is no danger of rot being caused by dampness, the dried fish are piled up and placed in the storehouse. The sun-dried fish is covered with a dry crust, beneath which the flesh remains soft, and the fat is preserved; but the process of air-drying rarely goes on without trouble. On hot days, in the absence of winds, numerous large flies settle on the fish, and lay their eggs. After two or three days, larvae come out, which devour the juicy part of the yukola, and leave only a thin, dry, and tasteless layer on the skin. The preparation of the yukola fares still worse if foggy and rainy days prevail during the period of the main catch. Though hung up under special platforms or under the platform of the storehouse, the sliced fish does not dry, but begins to decompose, and the decaying pieces become detached from the skin and fall to the ground; so that in a wet summer, even when the catch of fish has been excellent, the Koryak
Drying Salmon.

The Koryak.
may remain with a scanty supply for winter use, owing to their ignorance of other methods of preserving fish than by sun-drying. The weather most favorable for preparing the yukola is during clear cool days, with a strong wind that scatters the flies. In general, yukola made of dog-salmon seemed to me tasteless and dry; it cannot be compared with the fat juicy yukola made of the Coregonidae of the Arctic rivers. Hence the Koryak, when eating dog-salmon yukola, dip it in seal-oil.

After the strips of meat for yukola have been cut off, some flesh still remains on the skeleton of the fish. A portion of this is cut off in thin slices, and dried in the sun on the sand or gravel of the river-banks. The skeletons of the fish are hung up to dry on ordinary drying-frames, and in winter serve as food for the dogs.

It is interesting to note that in cutting up herring, the ancient bone knife only is used. Such a knife, made of the jaw-bone of a white whale, is represented in Fig. 108. All other fish is cut with modern iron knives. This may be due to the convenience of the bone knife, — which is similarly still used by the Koskimo of Vancouver Island for cutting herring, — or it may be a taboo pointing to the fact that in former times herring played a more important part in the food of the Koryak than it does now. With reference to other species of fish, a taboo is observed of not cutting them across the body, but lengthwise only.

I have already mentioned that in certain settlements, as in Itkana, where the catch of large salmon is small, the principal winter supply of fish consists of uyo'k (Salmo socialis). This small fish is dried on the sand or gravel of the shore, on which it is spread in a thick layer. Heaps of fish are frequently turned over with rakes (Fig. 109) the teeth of which are made of reindeer-antler. This fish, like the dried dog-salmon, is eaten in winter, dipped in seal-oil; or it is mixed with roots and boiled, and eaten as a gruel. If the summer is rainy, the heaps of Salmo socialis turn into one mal-odorous mass, which freezes with the advent of cold nights. In Itkana every house-owner stores up for winter two or three storehouses full of this small fish.
In settlements where dog-salmon is the main supply, this species of smelt is eaten by men only in the years when no dog-salmon has been caught. In years when there is plenty of dog-salmon, it is used only for making a soup for the dogs.

Sea-mammals, mainly seals, occupy a prominent place in the household of the Maritime Koryak; but since the supplies do not hold out long, meat of sea-mammals is not eaten often. Towards spring, hardly any storehouse contains meat of sea-mammals. In summer and autumn their meat, particularly that of young ones, is consumed in large quantities, and considered a more toothsome food than fish.

The meat of seals and other sea-mammals is principally eaten boiled. There is reason to think that in former times meat was cooked in clay pots. Late in autumn, when the killed seals freeze, the Koryak preserve them entire, if not wanted for immediate consumption. At other times they are cut up right after the hunt, lest they decay. The blubber is cut into pieces and tried out. Until cold weather sets in, the oil is kept in bags made of a seal's stomach or of bladders. For this purpose a wooden pipe is inserted in the opening of the bladder or bag. It serves as a neck to the soft bottle, and is closed with a wooden or bone stopper, the edges of the bladder or stomach being fastened tight to the pipe with a sinew thread. In winter, seal-oil is frozen and cut with a knife as needed. The meat of gutted seals is cut into small pieces and placed in the storehouse in troughs or buckets, where it is preserved until cooking time. Seal-meat is sometimes dried in the sun in summer. It is cut into thin slices and hung up on the poles of drying-frames, or it is spread out on the ground. On journeys, seal-meat is also eaten raw, cut with a knife into small slices.

The meat of the white whale, on account of its taste, is prized more highly than seal-meat, and its oil is particularly well liked. The white-whale oil is entirely free from the unpleasant smell of seal-oil. A single white whale yields between six hundred and twelve hundred pounds, or more, of a light-colored oil, which congeals at 4° or 5° C. The fried skin of the white whale, too, is considered a dainty.

In Bering-Sea the meat of walrus and sea-lions is highly valued; but both animals are becoming more and more scarce, owing to their pursuit by poaching schooners. Walrus used to be particularly numerous in Karagha Bay and in the coves of Karagha Island. Even now, Koryak hunters, not only from the villages of Qare'nn and Kîchîn, but also from Alut, undertake walrussing-expedition to Karagha Island in summer in their skin boats.

The reindeer is the source of the principal food-supply of the Reindeer Koryak. The marrow, kidney, liver, gristle, and tendons of the legs, which are torn off with the teeth, are eaten raw, after the reindeer is killed. The marrow is treated as a dainty. It is obtained by breaking the bone with a
stone hammer or with a blow of the back of a large knife. On journeys,
frozen raw meat, cut into thin slices is eaten; but reindeer-meat is generally
eaten cooked. At present meat is cooked in iron or copper kettles. In
winter, especially in the tents of wealthy reindeer-breeders, these kettles
always hang over the fire in the outer tent, full of hot broth, which is not
served on the table at the regular meals, but is used at all hours for quench-
ing the thirst. Whoever wants a drink takes a small ladle and dips out
some of the broth from the kettle. The herdsman, on coming home from
the pasture, straightway refreshes himself with broth. The kettle is not
cleaned. Meat, intestines, reindeer-tongues, and other parts of the animal,
left from the previous cooking, are thrown into the broth. The meat is
cooked for a short time, for the Koryak do not like it well done. The
kettle is full of dirt from the hands of the cooks, and of reindeer-hair, which
drops in with the unwashed meat; but that does not prevent the broth from
being a refreshing drink. When the liquid in the kettle runs too low, water
is added or snow is thrown in. Thus the kettle is kept full until the camp
is broken up to be moved to another place. The women serve cooked meat
in the inner tent. After it has been cut into pieces, it is placed on boards,
wooden platters, or troughs. The Koryak take hold of a chunk of meat
with the left hand, and, holding it with their teeth, cut off a mouthful with
a knife held in the right, cutting from below upward. All Siberian natives
eat meat in the same manner. For journeys, meat-cutlets are made of raw
meat by pounding meat and reindeer fat with a stone hammer. If edible
roots are at hand, they are added.

However, the food of the Reindeer Koryak does not consist of reindeer-
meat alone. To a considerable degree they resort to the fish and sea-food
of the Maritime Koryak; just as the latter, in winter, purchase reindeer from
the Reindeer Koryak. Wealthy reindeer-breeders who wander far from the
sea-coast, use almost no fish at all, and even less sea-mammals. They catch
fish only in summer in mountain-rivers in small nets or weirs, but do not
store it up for winter. Besides, the catch in mountain-rivers is insignificant.¹
They eat sea-food and dog-salmon only when people from the coast import
them, or when one of their own number visits the coast in winter.

Those who own small herds of reindeer and do not tend the herds of
wealthy herd-owners, but wander about alone, must procure supplies of fish
for winter, since they cannot afford to kill many reindeer. These poor rein-
deer-breeders go out in summer to the mouth of some river or to the sea-
coast, and there dry fish for winter use. On occasion they also kill sea-
mammals, but usually they own no skin boats, and do not go out to sea to
hunt. Some wealthy reindeer-breeders — for instance, those on the west

¹ See pp. 529, 534.

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side of the Taigonos Peninsula, who wander with their herds near the Russian villages or near the main trail, and are often visited by Russians on their dog-sledges — send out in summer several members of their families to prepare a supply of sun-dried fish for winter use, and for food for their guests and for their dogs, that they may not have to kill too many reindeer for this purpose. A whole small reindeer suffices for but a single feeding of a team of ten or twelve dogs.

Generally speaking, the Reindeer Koryak are very fond of eating dried dog-salmon and “sea-morsels,” (i. e., the meat and blubber of sea-mammals). They seek every opportunity to satisfy this craving, which is possibly a survival from a period when the present nomadic reindeer-breeders were still maritime hunters. As soon as the snow is in good condition for driving, the Reindeer Koryak begin to appear on sledges in the villages of the Maritime Koryak to obtain “sea-food,” and barter entire carcasses of frozen seal, oil, dog-salmon, and skin of the white whale. Each Reindeer Koryak has among the Maritime people a friend who supplies him with sea-food, and who, in his turn, later on visits the nomad camp of the Reindeer Koryak to get reindeer-meat.

With all the craving of the Reindeer Koryak for the “sea-morsels,” they dislike subsisting long on sea-food. Thus a wealthy Taigonos reindeer-breeder told me that his sons had lived too long on the coast; subsisting on fish and seal alone, and had become completely worn out. He then went to his herd and killed a reindeer for them, that they might regain their strength. On the other hand, the Maritime Koryak like to obtain reindeer meat and fat, even when they have plenty of fish; while in winter, when fishing is poor, they often visit the nomad camp of the Reindeer Koryak either to buy reindeer-meat or to obtain it by begging.

In describing bird-hunting, I mentioned that its economic importance is slight. The Koryak do not like sea-gulls, and consider them tasteless; but when food is scarce, they do not disdain them. Early in summer, previous to the fishing-season, the Maritime Koryak eat all kinds of sea-fowl; but when fishing and sealing begin, bird-hunting ceases. The Koryak are very fond of birds’ eggs. During the nesting-season they undertake expeditions to the islands in skin boats to gather eggs, which are collected by hundreds and eaten boiled right after they have been gathered, or on the following days. They do not discriminate between new-laid and rotten eggs. Once I was present when some Koryak were eating boiled eggs which were so decomposed that a strong odor was noticeable a long way off. In many eggs there were already hatched birds, but this did not in the least prevent the Koryak from relishing their food.

1 See p. 557.
Mollusks are gathered on the seashore and eaten by both the Maritime and the Reindeer Koryak, but are not considered a particularly delicate food. They are gathered mainly when there is not enough fish and other sea-food. Evidently mollusks were formerly eaten to a much greater extent. In excavating ancient underground houses of the Maritime Koryak at the mouth of the river Nayakhan, on a rocky coast rising about sixty metres above the sea, I found piles of shells of the following species: \(^1\) *Purpura saxicola*, *Mytilus edulis*, *Mya arenaria*, and *Littorina grandis*. The same species are in use at present. Fig. 110 shows a pick made of bone of whale, with which to pick mollusks out of the shell. It is called kilka'-kuna (from kil'kák, the Koryak name for *Littorina grandis*).

The Reindeer Koryak eat the larva of the reindeer-fly (*Œstrus tarandi* Nordenskiöld, or *Tabanus tarandinus* Slunin), which develops under the skin of the reindeer. In spring, when the larvæ creep out from beneath the skin and settle on the hair, the Koryak gather and eat them. Herdsmen gather larvæ in their caps and bring them home as a treat for the children.

**Vegetable Food.** — Vegetable food plays a lesser rôle among the Koryak than among the Kamchadal, but a greater one than among the Chukchee. We have already learned from the myths that the ancestor of the Koryak, Big-Raven, was fond of berries, edible roots and herbs, and pudding prepared from them.

Koryak women gather edible roots from the burrows of red-backed mice, of which two species (*Evotomys latastei* and *Ev. Woannesskii*) are found in the Gishiga region and in the northern part of Kamchatka. In autumn, when the mice have laid in their winter supplies of roots, their burrows are dug up by means of picks, specimens of which are represented in Fig. 111; \(a\) representing an ancient form of root-digger, with a bone point tied to a wooden bow-shaped handle; while \(\beta\) shows the recent type, with an iron point, but preserving its former shape and the manner of attaching the point to the handle.

In locating the burrows of mice, aid is given by dogs which the women take along. The mice are in the habit of cleaning the roots of adhering particles of soil, and of placing them in rows in underground passages. It is deemed a sin to take away all the stores of a mouse. A small part of the supplies should be left. Besides, the burrows are not dug up late in the fall, that the mice may have ample opportunity to replenish their ravaged storerooms. I also found a belief current among the Koryak, widespread among other tribes of northeastern Siberia, that, on finding their storerooms emptied,

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\(^1\) Identified by Dr. Louis F. Gratacap.
the mice resort to suicide by hanging themselves in the crotches of branches. The following roots are dug out of mice-holes: bulbs of martagon (*Fritillaria sarana*); *Claytonia acutifolia* Wild, called "sweet-root" by the Russians, *i'nat* by the Koryak; roots of wild sorrel (*Polygonum polymorphum*); the root called *me’t’cin* by the Koryak and "bitter-root" by the Russians; and the roots of sedge grass (called *pa’lxo* by the Koryak). All these roots are eaten both raw and cooked. When eaten raw, they are dipped in seal-oil or pounced with roe. They are cooked with fish and reindeer-meat, either in the form of a porridge made of roots ground together with fish, or by cooking roots in seal or reindeer blood.

Willow-herb (*Epilobium angustifolium*; Koryak, *me’nmet*) occupies the first place among edible herbs. The stems of willow-herb are dried in bunches in the sun or over the hearth, and are chopped with stone hatchets (see Fig. 103). Pieces of seal-blubber or reindeer-fat are dipped into the powder thus obtained, and are thus eaten. The flour is also made into a pudding by grinding the crushed herb with berries and melted seal-oil. In Kamchatka the pith is taken from the split stems, dried in the sun, and stored away for winter use. The fresh leaves of willow-herb are used instead of tea, when the latter is lacking. In northern Kamchatka the Koryak use for food the stem of the sweet *Heracleum spandium*.

Berries as well as roots are used fresh, raw, or cooked in porridge made of blood, or of cooked fish or meat. Berries also form an ingredient in puddings made of ground fish-roe, fat, and pounded fish. A favorite dish is furnished by the pounded flesh of sun-dried dog-salmon mixed with seal-oil and blueberries. This mixture is pounded in wooden trays or dishes with wooden or bone pestles. A bone pestle is represented in Fig. 112. The following is a list of the principal berries used: *Empetrum nigrum*, *Vaccinium uliginosum*,

![Fig. 111, a (242f), b (242f). Picks for gathering Roots. Greatest length, 56 cm., 37 cm.](image)
Prunus padus is eaten, and dried are considered the best. In Kamchatka the fruit of Prunus padus is crushed, and dried in the sun in the form of flat cakes.

Puddings made of crushed berries, roe, fish and seal oil, are frozen and then eaten, pieces being chopped off with a knife. These puddings are considered a treat for visitors, and excellent travelling-provisions.

Berries are picked in summer and autumn. The Reindeer Koryak have more opportunity than the Maritime Koryak to pick the cloudberry (Rubus chamaemorus), which grows in the tundra; but they do not store it, and they eat it right after picking.

Other food-plants are the fruit of the wild rose (Rosa alpina Pall.), the mountain ash, sea-colewort, cedarnuts, and willow-bark. Sea-colewort (Alaria esculenta; Koryak, me'égomei) is eaten not only by the Maritime Koryak, but also by the Reindeer Koryak when hunting on the seacoast in summer. It is cut with a knife, and cooked with seal or reindeer blood, or also with reindeer-meat. Cedar-nuts are gathered late in autumn, extracted from their cones, and preserved in small skin bags. It is interesting to note that the Koryak eat the nuts with their shells on. The inner portion of willow-bark is also consumed. It is stripped off the trees, crushed with a stone hammer, and cooked with fish. It is also chewed raw.

To the vegetable foods used by the Reindeer Koryak must also be added the contents of the reindeer's first stomach, which consists of reindeer-moss not completely digested. This greenish mass is cooked with reindeer-blood. This food, however, is now beginning to drop out of use. Wealthy reindeer-breeder usually throw away the contents of the reindeer stomach; but when other food is lacking, the herdsmen eat them.

The winter supplies of berries, roots, and other edible plants, are not large, and do not figure as an essential or constant ingredient of nourishment. Towards the middle of winter, hardly any supplies of vegetable food are left; and towards spring, when animal food is about to give out, all the vegetable food has been consumed.

Flour and rice are sold by Russian dealers. These products may also be found at the government depot in Gishiga, where they are sold to the natives at cost price.

The Koryak are very fond of these imported vegetable products, particularly of rice, of which gruel is cooked and eaten with seal-oil or reindeer-fat. They like wheat flour, but not rye flour. It is mixed with water or blood, and
boiled as a gruel. Most of the Koryak can rarely afford to have imported food, as they have no money with which to buy it. Biscuits and fresh bread also have the reputation of being good food; but these, too, very rarely come within their reach. In winter the cossaks and other Russian inhabitants take bread to the Koryak villages and camps, and exchange it for reindeer-meat and other products. Still the Koryak look upon biscuit and bread rather as a dainty, and not as a real food on which a human being can subsist. I have heard the Koryak say that when they eat too much bread, they suffer from stomach-ache.

Tea came to be known after the people had come into contact with the Russians. At present its use is wide-spread everywhere. Most of the Koryak, however, have no tea in summer, as they lack the means to buy large supplies. The kind of tea used is brick-tea. To make tea, the brick is heated by the hearth, as a result of which it becomes soft and can be minced with a knife. The minced tea is boiled in a tea-pot. The tea decoction is strong, and almost black in color. Brick-tea is inferior to leaf-tea as a stimulant. The Koryak drink much tea, ten and more cups in succession, and do so several times a day, provided they find any one willing to treat them. Usually the Koryak drink tea after meals; but when guests are feasted, a light side-dish, like sun-dried fish, marrow from reindeer-legs, or berry-pudding, is served first, then tea, and finally meat dishes. Tea is served in the same order by the other inhabitants of northeastern Siberia; for instance, by the Yakut, Tungus, and Yukaghir. A teapot and two or three cups of crockery or enamelled ware, with saucers, are found in nearly every house. They are preserved as treasures, in special boxes with holes chiselled out for the cups; or they are wrapped in soft rags. In the absence of a sufficient number of cups, they drink tea by turns, the women and children after the older people. Visitors usually bring their own cups with them. The Koryak also have home-made cups made of deer-antler and horn of the mountain-sheep. The small tin cans in which our condensed milk was put up were very cleverly turned into cups with tin handles. The Koryak drink the hottest tea from them without burning their lips.

**NARCOTICS AND STIMULANTS.** — The Koryak have also learned the use of tobacco from the Russians, and, like all other Siberian natives, they are passionately fond of it. But while others, the Chukchee among them, mainly smoke tobacco, very few smokers are found among the Koryak. Generally they chew it, more rarely they sniff it, or they use it in both ways. They use strong Russian leaf-tobacco, imported from the south of European Russia, in bunches of about two pounds each.

For both chewing and snuffing, the tobacco is ground with ashes. Fig. 113 shows a wooden mortar with a pestle for grinding tobacco. When grinding the tobacco, dried leaves of cudweed (*Gnaphalium uliginosum* L.)
are often added. Ground tobacco is kept in birch-bark tobacco-boxes, which are suspended from the belt in skin cases. These cases are often embroidered with glass beads (see Fig. 133). When chewing, the pinch of tobacco is placed between the cheek and the jaw-bone. When thus used, the tobacco causes an abundant flow of saliva, and therefore the Koryak constantly expectorate.

Tobacco-leaves are also used for chewing. In this form, tobacco does not irritate the mucous membrane of the mouth as much as when ground. The use of it rolled, however, is more economical. A rolled piece of a leaf will last for a long time. After having tobacco in the mouth for a time, the Koryak takes it out and puts it behind his ear, as we do with a pencil, and then continues to chew it afresh a few minutes later.

I saw very few Koryak smoking, at least among those of Penshina Bay: therefore very few pipes are found. They manufacture very few themselves. Thus the large pipe represented in Fig. 114, purchased in the village of Kamenskoye, had been bought from the Chukchee, and resembles the large Eskimo pipes of this type. The pipe shown in Fig. 185, c, had been obtained on the coast of Bering Sea. I saw a few small copper pipes that had been imported by merchants from Vladivostok: these are of Chinese origin. For smoking-purposes, tobacco is cut up fine with an ordinary knife on a board, and mixed with finely cut
aspen-bark. Though the Koryak are not such passionate tobacco-consumers as the Yakut, Tungus, Yukaghir, and other Siberian natives, hardly a man is to be found who does not use tobacco in one form or another. Many of the women, however, hardly use tobacco at all; while among the tribes mentioned above, not only every woman and adult girl, but even girls in their early teens, have their own pipes and tobacco-pouches; and the lack of tobacco is considered to be worse than hunger.

The Koryak are most passionate consumers of the poisonous crimson fly-agaric, even more so than the related Kamchadal and Chukchee, probably because the fungus is most common in their territory. Some travellers, as Krasheninnikoff and Dittmar, were of the opinion that the fly-agaric was bought by the Koryak from Kamchatka. Thus, Dittmar says that there is no fly-agaric on the Taigonos Peninsula, and that it is brought there from Kamchatka; while Krasheninnikoff asserts that in general the Koryak have no fly-agaric, and that they get it from the Kamchadal. My own observations, however, have convinced me that not only is fly-agaric abundant all over the Koryak territory, but that the Koryak supply the Chukchee with it. In the middle of the month of August I saw in the valley of the Varkhalam River, not far from its mouth, an extensive field dotted with the characteristic crimson caps of the fly-agaric, with their white spots. In the villages of the Maritime Koryak, along the whole western coast of Penshina Bay, I knew individuals who were engaged in gathering and drying fly-agaric, and who carried on a very profitable trade in it. One Koryak from Alutorsk, who dealt in fly-agaric, is mentioned by Slunin.

The Koryak do not eat the fly-agaric fresh. The poison is then more effective, and kills more speedily. The Koryak say that three fresh fungi suffice to kill a person. Accordingly, fly-agaric is dried in the sun or over the hearth after it has been gathered. It is eaten by men only; at least, I never saw a woman drugged by it. The method of using it varies. As far as I could see, in the villages of Penshina Bay, the men, before eating it, first let the women chew it, and then swallow it. Bogoras says that the Chukchee tear the fungus into pieces, chew it, and then drink water. Slunin describes in the same way the Koryak method of using fly-agaric. In describing the use of fly-agaric by the Chukchee and Koryak, Dittmar says that they chew it, and keep the quid in their mouths for a long time without swallowing it. Krasheninnikoff says that the Kamchadal roll the dried fungus up in the form of a tube, and swallow it unchewed, or soak it in a decoction of willow-herb and drink the tincture.


\[4\] Krasheninnikoff (II, p. 150) says that the Kamchadal women do not eat fly-agaric, but Dittmar (p. 106) cites the case of a Koryak woman (a shaman) who was intoxicated by it.

\[5\] Bogoras, The Chukchee, Vol. vii of this series, p. 205. 
\[6\] Slunin, I, p. 655. 
\[7\] Dittmar, p. 506. 
\[8\] Krasheninnikoff, II, p. 147.
Like certain other vegetable poisons, as opium and hasheesh, the alkaloid of fly-agaric produces intoxication, hallucinations, and delirium. Light forms of intoxication are accompanied by a certain degree of animation and some spontaneity of movements. Many shamans, previous to their seances, eat fly-agaric in order to get into ecstatic states. Once I asked a Reindeer Koryak, who was reputed to be an excellent singer, to sing into the phonograph. Several times he attempted, but without success. He evidently grew timid before the invisible recorder; but after eating two fungi, he began to sing in a loud voice, gesticulating with his hands. I had to support him, lest he fall on the machine; and when the cylinder came to an end, I had to tear him away from the horn, where he remained bending over it for a long time, keeping up his songs.

Under strong intoxication, the senses become deranged; surrounding objects appear either very large or very small, hallucinations set in, spontaneous movements, and convulsions. So far as I could observe, attacks of great animation alternate with moments of deep depression. The person intoxicated by fly-agaric sits quietly rocking from side to side, even taking part in the conversation with his family. Suddenly his eyes dilate, he begins to gesticulate convulsively, converses with persons whom he imagines he sees, sings, and dances. Then an interval of rest sets in again.

However, to keep up the intoxication, additional doses of fungi are necessary. Finally a deep slumber results, which is followed by headache, sensations of nausea, and an impulse to repeat the intoxication. If there is a further supply of fungi, they are eaten. At the beginning of winter, when the supply is still large, old men begin their carousals. In Kuel there are two elders of the Paren clans,¹ and during my sojourn in that village I was sometimes unable to hold conversation with either of them for days at a time. They were either intoxicated by the fungi or in a bad mood from the aftereffects. At the same season the Reindeer Koryak resort to the coast settlements to purchase and eat fly-agaric. To regale a guest with fly-agaric is a sign of special regard. Dr. Slunin says a small glass of brandy or diluted alcohol serves as a splendid antidote in cases of fly-agaric poisoning.²

There is reason to think that the effect of fly-agaric would be stronger were not its alkaloid quickly taken out of the organism with the urine. The Koryak know this by experience, and the urine of persons intoxicated with fly-agaric is not wasted. The drunkard himself drinks it to prolong his hallucinations, or he offers it to others as a treat. According to the Koryak, the urine of one intoxicated by fly-agaric has an intoxicating effect like the fungus, though not to so great a degree. I remember how, in the village of Paren, a company of fly-agaric eaters used a can in which California fruit had been put up, as a beaker, into which the urine was passed, to be drunk.

¹ See p. 437. ² Slunin, I, p. 654.
afterwards. I was told of two old men who also drank their own urine when intoxicated by brandy, and that the intoxication was thus kept up.

From three to ten dried fungi can be eaten without deadly effect. Some individuals are intoxicated after consuming three. Cases of death rarely occur. I was told of a case in which a Koryak swallowed ten mushrooms without feeling their effect. When he swallowed one more, vomiting set in, and he died. In the opinion of the Koryak, the spirits of the fly-agaric had choked him. They related that these spirits had come out with the matter vomited, in the shape of worms, and that they vanished underground.

The Koryak were made acquainted with brandy by the Russians and by American whalers. Despite the prohibition issued by the Russian Government against the importation of brandy, it often finds its way in winter into the Koryak villages and camps, being taken there on trading-trips by Russian merchants. Whalers take it to the coast settlements in summer. Like all other primitive tribes, the Koryak are passionate consumers of brandy, and dealers often obtain an arctic or red fox in exchange for one wineglassful of brandy. To my question as to which they preferred, brandy or fly-agaric, many Koryak answered, "Fly-agaric." Intoxication from the latter is considered more pleasurable, and the reaction is less painful, than that following brandy. Like fly-agaric, brandy is drunk chiefly by elderly men. Old people do not give it to the young, that they themselves may not be deprived of the pleasure; and if young people or women happen to obtain brandy, they frequently give it up to the older members of the family. Two herd-owners whom I met on the Palpal were entirely unacquainted with this drink. Some Koryak in the coast villages have learned from the Russian Cossacks how to make brandy of bleaberries. They subject the berries to fermentation, and by means of a pipe distil the liquid from one iron kettle into another, the latter serving as a refrigerator. The result is a rather strong liquor of such disgusting taste and odor that the mere attempt to taste it nauseated me. Krasheninnikoff says that the Cossacks in Kamchatka and, following their example, the Kamchadal, distilled brandy from "sweet grass" (*Heracleum sphondylium*).

Meals. — The Koryak are rather moderate in their use of food. Such gluttons as are seen among the Yakut are rarely found among them. They eat twice a day — in the morning, soon after rising; and at night, before going to bed. If the food-supply is abundant, they take a light third meal in the middle of the day. The Reindeer Koryak usually eat reindeer-meat both morning and evening; while the Maritime Koryak generally eat sun-dried fish in the morning, and seal-meat, if there be any on hand, in the evening. In general, the principal meal is taken in the evening. The habit of eating heartily before bedtime is widespread throughout northern Siberia.

1 On the religious attitude towards fly-agaric, see Part I, p. 120. 2 Krasheninnikoff, II, p. 406.
The Maritime Koryak consider one dried dog-salmon and a half per man, with some seal-oil, sufficient for one day when fish is consumed exclusively. This is equivalent to about three or four pounds of fish. A single thong-seal is sufficient for a week for a family of six or seven. With the Reindeer Koryak a single reindeer will do for three days for a family of the same size. In the village of Kamenskoye, where I collected data concerning the number of seals stored by the inhabitants for winter, I also obtained information concerning the winter supplies of sun-dried dog-salmon. For 18 families, numbering in all 100 souls, there were laid in for the winter 34,000 sun-dried dog-salmon; i.e., 340 fish per head. On the basis of the calculations made above, this would suffice for 226 days, or seven months and a half. In the preceding chapter I stated that in 1901 the inhabitants of Kamenskoye had for the winter an average supply of 14.3 thong-seals per family, which would furnish food for a little over two months and a half. Thus the inhabitants of Kamenskoye had an average food-supply for ten months. The time during which fishing and sea-hunting cannot be counted on at all, or very little, is nine months; consequently that year the inhabitants of Kamenskoye had a little more than they needed. The surplus must be accounted for as food for visitors. The meat of sea-mammals, and the fish which the Maritime Koryak give to the Reindeer Koryak, must not be taken into account, as the former receive reindeer-meat in exchange for the latter.

I have said before that for a family of six or seven a single reindeer is counted sufficient for three days, ten reindeer for a month, and ninety for nine months. I do not take into consideration the three summer months, as the reindeer-breeder rarely kill full-grown reindeer for food in summer. Many Reindeer Koryak in summer live principally on fish; the meat of perished calves or of full-grown deer fallen from disease; on berries, edible roots, and herbs. If the total number of Reindeer Koryak (3,748) is divided by 6, we obtain 624 families, for which about 56,000 reindeer would be required, if all the Reindeer Koryak were to live for nine months on meat of full-grown reindeer exclusively. This number is evidently somewhat above the actual number of reindeer killed. Thus, in 1899, 32,566 reindeer-skins were exported. Although over half of this number (about 18,000) were skins of calves one month old, a number at least equal to that of the exported skins must have been required for the clothes and tents of the Koryak themselves, and for those given in barter to the Maritime Koryak and Russian settlers. Furthermore, a small part of the skins exported through Gishiga come from the Anadyr district; but this amount is fully compensated, if not exceeded, by the skins of Koryak reindeer that are exported through the

1 The weight of a fresh dog-salmon, including head, bones, and viscera, is from five to fourteen Russian pounds; the average weight is eight Russian pounds, or a little over seven English pounds.
2 See p. 549
3 See Chapter XII, Trade.
Kamchadal ports Tigil and Petropavlovsk, and that are used for clothing by the Kamchadal and the Russians in Kamchatka.

MANAGEMENT OF FOOD-SUPPLIES. — I have had occasion to observe many cases of lack of foresight in northern Siberia. Thus the Yukaghir, in the early part of winter, squander their supplies of fish, and regale their Yakut visitors liberally, while towards spring they go hungry. The lack of restraint or foresight also hinders the growth of the Tungus herds. A poor Tungus will kill his riding-reindeer for meat more readily than will a wealthy Koryak kill one that has not been broken. On this abstinence is based the increase of the Koryak herds. A herd-owner, like the simple herdsman, while tending the herd far from home, will feed on carrion or will go hungry rather than kill a reindeer for himself. Some travellers have complained of the stinginess of the Reindeer Koryak and of their reluctance to kill reindeer for their guests, to whom they serve the meat of animals fallen from disease. Notwithstanding all his abstemiousness, the owner of a herd, as I have said above, may kill reindeer for actually starving people, and at times becomes recklessly extravagant in order to show off his wealth.

The Maritime Koryak consume the provisions laid up in their storehouses economically, and hide them from visitors, lest they might ask for some. In the village Kamenskoye, where the main supply of fish consists of dog-salmon, I was told that for years at a time full storehouses of dried uyo'k (*Salmo socialis*) are kept for the contingency of a poor catch of dog-salmon.

Thanks to such foresight, and to the relative abundance of fish and sea-mammals in Koryak waters, actual famines are very rare among the Maritime Koryak. However, a great famine occurred in the late seventies along the coasts of Penshina Bay. I did not succeed in learning the exact date. During that summer almost no fish entered the rivers. As a result of this, there were almost no sea-mammals, either, near the coast. Therefore there was not enough food for the winter; and in spring a genuine famine set in, especially when the snow began to melt, and communication with the Reindeer Koryak and the Russians became impossible. I was told that during that famine nearly half of the population of the Itkana villages and a part of the Paren people died. Since then no such disastrous summer has recurred, although toward spring food has been scanty every year.

Thanks to their herds, the Reindeer Koryak are secure against such famine. Poor people usually keep near the herd of a wealthy kinsman, or follow him and avail themselves of his gifts when in need. Murrain, which frequently appears among the reindeer, naturally undermines the prosperity of the herd-owners; but during the epidemic there can be no famine, as the Koryak eat the fallen reindeer.
The Koryak.
IX. — CLOTHING.

Winter Clothing of Men and Women. — The winter clothing of both branches of the Koryak is made of reindeer-skins. Skins of other animals are used only for trimming or adorning winter clothing. Only fur caps and mittens are not infrequently made entirely of dog, fox, or wolf skin, and the soles of boots are made of thong-seal or walrus hide. Skins of grown reindeer are not used for clothing, but only those of fawns, beginning with the newly born and up to seven months old. The warmest clothing is made of skins of fawns six or seven months old, which are killed late in autumn. Their fur consists of fine, soft, not long, but very thick hair. Clothing made of fawn-skins is not only warm, but is also remarkably light in weight. Owing to the lack of fawn-skins, the Yukaghir and Tungus often make their winter overcoats of heavy winter skins of old reindeer. These are so heavy that they impede the motion of the wearer. Clothing made of the skins of mountain-sheep is equally heavy.

Winter Coat. — The fundamental pattern of the coat is the same for men and women. It has the shape of a fur shirt which is pulled down over the head. The man's coat, especially that of the Reindeer Koryak who ride astride on their light sledges, is shorter than that of the woman (Fig. 115). It does not reach down to the knees; while that of the women falls lower, usually down to the calves of the legs. The winter travelling-coats of old men, especially of the Maritime Koryak (Plate xxxii, Fig. 1), reach sometimes below the knees. The cut of the coat is the same as that of the Chukchee. The sleeves are very full about the fore-arms to enable the wearer to draw his hands out and hide them within the shirt, and narrow about the wrists to prevent the easy access of cold air. The difference between the Koryak coat and that of the Chukchee is, that between the lower border and the fur
trimming there is inserted a strip of reindeer-skin about four or five inches wide, and of a color different from that of the whole coat. If the coat is made of dark skins, the inserted strip is of light or mottled color, and *vice versa*. The Chukchee woman's coat is generally shorter than that of the Koryak. Under the coat of the Chukchee woman the lower part of the trousers is visible, but rarely under that of the Koryak woman. Among the Chukchee, coats are seldom provided with hoods, while among the Koryak all the women's coats and many of the men's travelling-coats, are furnished with hoods. Funeral clothing is never made without hoods.¹ The women of the Maritime Koryak use almost no caps at all, contenting themselves with throwing their hoods over their heads. The women of the Reindeer Koryak go without caps,² not only about the house, but even to the herd.

The travelling-coat of men for winter (la'xlan-i' san) is double, consisting of two fur shirts so adjusted that one is inside the other, and they are put on and taken off together. The inner shirt has the hair toward the body; the outer, outward. The two shirts are not sewed together, so that they are easily taken apart and can be worn separately. The outer one is made of the skins of fawns, preferably of those of mottled color killed late in the fall. Black or dark brown spots on a white or grayish background are considered particularly pretty, but the skins most commonly used have white or grayish spots on a dark or a light-tawny background. White or light-gray skins are used for funeral clothing only.³ Russian settlers and Russianized natives prefer black or dark-tawny reindeer-skins. In certain localities this taste is developing also among the Koryak. Thus the Koryak who are engaged in trade, and rich reindeer-breeders, wear outer coats of dark skins. The inner coat is usually made of skins of younger fawns, from one to three months old, so that the double coat may not be too thick and hinder movement. Besides, the tender fur of young fawns is more pleasant to wear next to the body than the thicker hair of the older fawns. The Koryak wear fur clothing next to the body. Excepting those entirely Russianized, very few Koryak wear chintz or calico shirts under the fur clothing. These are worn without change until they fall to pieces.⁴

Women rarely wear a double winter coat, as they put the coat on over the double fur combination-suit which will be described later on. For the most part, women wear the single coat, fur inward. The skin side, well

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¹ See Part I, pp. 106, 108.
² It is interesting to note here Turner's statement that the Eskimo of Hudson Bay "do not wear caps, the hood of the frocks being the only head-covering" (see Turner, p. 200).
³ See Part I, p. 105. According to Marloch (p. 109), the Eskimo of Point Barrow value the skins of the white Siberian domestic reindeer highly "for full-dress jackets." But the Koryak do not wear clothing of white skins.
⁴ Like the Russian settlers, the Koryak of Russianized villages wear chintz shirts, flannel blouses, or knit jackets under their fur coats. I saw some Maritime Koryak wearing American knit sweaters or coats purchased from the American whalers. A very comical figure indeed was presented by a Koryak clad in trousers and boots of reindeer-skins and a cutaway coat of modern style, which he wore without shirt and vest.
dressed, is dyed a dark red or tawny hue, and adorned with pendants, stripes, and square patches of white skin, and with glass-bead embroideries.  

To the breast of the outer coat with attached hood, and near the collar, a fur flap made of the skin of reindeer-legs is sewed (see Fig. 116). This flap serves to protect the face from cold winds. In the funeral coat this flap is used for covering the face of the deceased.

At home, or when working near the house, the Koryak men, even in the cold of winter, ordinarily wear a single fur shirt with the fur side either in or out. A coat worn with the flesh side next the body has the advantage that the hairless skin does not afford nesting-place for insects; but, on the other hand, it is easily soaked by perspiration, and hardens when it dries again. The single coat is shorter than the double one, and has no hood. The neck is wide enough to allow the head to pass through freely. It has a hem of skin, through which a nettle cord or leather strap is passed for tightening the collar. The ends of the cord are tied in front. To the necks of most single shirts a collar of black dog-fur is sewed. These collars are of varying width. I saw particularly wide dog-fur collars among the Reindeer Koryak of the Taigones Peninsula (see Plate XL, Fig. 1). The fur of white dogs is used only for trimming funeral clothing.

**Woman’s Winter Combination-Suit.** —

It has been stated before that women do not wear fur shirts next to the skin. Under the shirt they wear a fur suit similar in cut to the modern combination underwear for women. Such fur suits are worn in Siberia by the women of the Chukchee, Asiatic Eskimo, and Koryak, and, according to a statement of Nelson, by the Eskimo women on Diomede and St. Lawrence Islands. In former times all the Kamchadal women also wore such suits. The Koryak call this suit nā’u-kei (“woman’s combination”) in contrast to the children’s combination-suit called kei-kei. The

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1 On the adornment of clothing, see Chapter XI.
2 See Bogorn, The Chukchee, Vol. VII of this series, p. 244.
4 See Steller, I, p. 37; Krasheninnikoff, II, p. 64.
women's suit consists of a broad bodice joined to wide Turkish trousers which are gathered below the knees (Figs. 117, 118; and Plate xxxii, Fig. 2). On the chest and back the bodice has a deep cut into which the woman steps when putting on the suit. The sleeves are very wide, both at the shoulders and wrists, so that the hand can be taken out without any difficulty, which must be done when the woman wants to let down or take off the garment. A double combination-suit for women, for use in winter, is made of fawn-skins similar to those used in the man's double winter coat. A single, outer combination-suit is shown in Fig. 118; and an inner combination-suit, with hair side in, is represented in Fig. 119. Below the knees, where the trousers of the combination-suit are drawn in, the edges are trimmed with a leather hem, through which a cord runs for tightening the trousers and for tying them over the legs of the boots. The combination-suit of the Koryak woman is more carefully made, and of lighter weight, than that of the Chukchee woman, and thus does not render movement quite so difficult. The suit of the Chukchee woman represents a huge skin sack with four appendages for the hands and feet. The ornamentation of the suit is also prettier than it is among the Chukchee. The lower portions of the sleeves and trouser-legs are often sewed together of alternate white and dark vertical stripes of fur from reindeer-legs. The lower parts of the sleeves often consist of black and white fur checks made of pieces of fur from reindeer-legs. Women's funeral combination-suits are trimmed with particular care, and are very handsome (see Part I, Fig. 52, p. 108). The Reindeer Koryak women, however, do not trim their clothing with equal care. Plate xxxii, Fig. 2, represents a wealthy Reindeer Koryak woman from the Taigonos Peninsula, dressed in a combination-suit. She wears this suit over a chintz shirt, and not next to her skin.
JOCHELSON, THE KORYAK.

The slit of the bodice, and the borders of the sleeves, are trimmed with strips of dog or wolf skin or with some other long-haired fur (see Fig. 117). Old women also cover the neck with a boa of squirrel-tails, which they acquire from the Tungus, or with a woollen scarf bought of the Russians.

While the Chuckchee women wear no upper garments when near the house, and when working near the fire or at the hearth bare the right arm or the entire bust to be free in their motions, the Koryak women are ashamed of being seen in the combination-suit alone in the presence of strangers. Not

![Fig 118 (44)](image1) Woman's Combination-Suit.  

![Fig 119 (45)](image2) Woman's Combination-Suit.

one woman of the Maritime Koryak consented to pose in front of the camera dressed in a combination-suit only. My wife succeeded in inducing a little orphan-girl of eleven or twelve in the village of Kamenskoye to have her photograph taken without her coat; but suddenly she refused because her uncle said that she ought not to do so. Among the Reindeer Koryak also the girls refused to be photographed without a coat, but the women did not present difficulties. Generally Reindeer Koryak women take their coats off in the inner tent only. On the Palpal, where the Koryak come in contact with the Chuckchee, the women of the Reindeer Koryak, like the Chuckchee women, wear nothing but the combination-suit near the house. Krasheninnikoff\(^1\) says that the Kamchadal women of his time at home wore the

\(^1\) See Krasheninnikoff, II, p 64. At present most of the Kamchadal dress just like the local Russian settlers.
combination-suit only. Hence the question arises, whether the modesty of the Koryak women in this regard is a result of the influence of the Russians, or whether it is due to the fact that the sexual relations of the Koryak differ from those prevailing among the Kamchadal and Chukchee,¹ and bring about different standards of modesty.

When feeling warm or while working, the Koryak women take the right hand out of the combination-dress and let the empty sleeve dangle down under the upper garment. At home the Koryak women always wear the combination-dress that way. The end of the sleeve is seen hanging down under the skirts of the coat. There are no other openings in the combination-suit save the one in the top of the bodice for getting into it, and those at the insteps for the feet. To satisfy the demands of nature the Koryak woman has to free her arms from the sleeves and drop the suit down to her feet. The Chukchee women do so openly, while the Koryak women perform this complex operation under the coat. First they take the arms out of the coat-sleeves, then they release the arms from the sleeves of the combination-suit and put them back into the coat-sleeves. Then, when

¹ See Chapter XII.
sitting down, they fold the sleeves over their knees. In the Koryak villages or camps, women may often be seen sitting down in this fashion and keeping up their conversation with their companions or with the men. The coat-skirts touch the ground, and give to the women who are thus sitting down an entirely careless and easy appearance. When rising, they re-adjust their suits almost unnoticeably to an observer.

While travelling, wealthy Koryak wear over the fur coat a wide shirt with a hood of plain curried or smoked reindeer-skin or of flannel or chintz. The outer shirt protects from the wind and preserves the fur clothing from snow, which, on melting, would soak into the hair and cause it to fall off. An overcoat of gaudy chintz, flannel, or other imported goods, has now become an article of smart dress. For overcoats the wealthy reindeer-breeders buy imported red broadcloth at high prices. Thus a yard of the coarsest red broadcloth frequently brings one cross-fox in exchange.

Fig. 120 represents a coat made of reindeer-skins, in the style of a jacket with an opening in front. It was purchased by me from the Reindeer Koryak on the Taigonos Peninsula. Coats of this pattern are found in other places as well, though very rarely, and seem to be an imitation of the Russian style. They differ from the Tungus coats in that the lapels come together, while in the Tungus coats they are cut like those of a cutaway coat.

Men's Winter Trousers. — The winter trousers are double, like the coat (Fig. 121). The outer ones are made of shaggy skins of older fawns. The trousers have no belt. Along the top edge a hem of skin is sewed on, through which a string passes for drawing them tight. In front they cover only the lower part of the abdomen, about the groins; in the back they are cut a little higher, and reach to the upper rim of the pelvis. The trousers have a tendency to slip down, and a Koryak may often be seen raising his trousers with a movement of the hand along the coat. There is no slit in front for voiding urine. There is no need of such a slit, because the border of the trousers comes very low down on the abdomen. In front, where the draw-string is pulled tight, a flap of skin is either pulled up underneath it, above the upper border of the trousers, or it is turned in over the draw-string to keep it from cutting the abdomen. Men's trousers are quite tight-fitting. Narrowing down, they reach a little below the calves, and are drawn together about the legs with draw-strings, just as they are around the waist. The legs of the fur boots are tied over the trousers. The Reindeer Koryak, especially on the Palpal, wear wide winter trousers cut like those of the Chukchee, which reach down to a little above the ankles, and are tied over the short-legged shoes.

Fig. 122 represents a man's winter trousers, with boots sewed on. Such trousers are rarely met with, and are either imitations of a foreign type or relics of an older fashion. Among the Yukaghir may be found boots with
long legs, reaching up to the thighs, where they are tied or buttoned on to short loin-breeches. Nelson says that the lower garments of the women of the Alaskan Eskimo are boots and trousers combined,¹ while Murdoch says of the Eskimo of Point Barrow that women's trousers are combined with boots, and that at times even men wear such trousers.²

*Winter Foot-Gear.* — Most of the winter foot gear consists of fur boots

(pla'kit) and stockings reaching up to the knees. The boots are usually made of the skin of the reindeer-leg. Its fur is short, glossy, and of greater durability than the fur of other parts of the reindeer. Men's boots are either short (Fig. 123, a), reaching a little above the ankle, or they have legs extending up to the knee (see Plate xxxv, Fig. 2). Both styles have

¹ Nelson, p. 30. ² Murdoch, p. 126.
above the heel, on both sides of the boot behind the ankle, two small leather straps sewed on, with which the boots are drawn tight around the foot near the ankle. The upper edges of low boots are tucked under the trousers, which are pulled over them (see above, p. 593); while the legs of high boots are put over the trousers and drawn tight around the leg, above the calf, either by means of two small leather straps sewed to both sides of the boot-leg near the edge, or by means of draw-strings passing through a hem of leather sewed to the border of the boot-leg. Boots with high tops are the more common style, as may be seen from the plates in this book which represent the Koryak and their clothing. It is curious that low boots are always used for men's funeral clothing (see Part I, Fig. 47, p. 106). This suggests that the low boots represent the older style.

The soles are made of thong-seal hide or of walrus-hide split in two. To the low winter boots (lu'u-pla'kit) are often attached shaggy soles, which are sewed together of pieces of the strong skin covering the feet of the reindeer, between the hoofs and the dew-claws, which part is covered with strong, thick, and long hair. A sole like this keeps the foot warm, is soft to walk on, and its hair is so strong that it does not wear off readily with walking. Besides, boots equipped with shaggy soles do not slip on the smooth ice. Sometimes the skin of bear-paws is employed for this purpose.

The winter foot-wear of the Koryak is made so large that the thick fur stocking lies in it easily without pinching the foot. For the same purpose the sole is turned up all round the foot; and the toe of both boot and stocking is made wide and semicircular, to give the toes freedom of movement. The sole is sewed on with sinew-thread, usually to a strip of skin inserted between vamp and sole. This strip is from a finger and a half to two fingers wide, of bright color, and serves partly as an ornament, and partly to reduce the slant of the sides (see Fig. 123). Other ornaments of fur boots consist of inserted stripes of white-colored fur or red broadcloth, and of tufts of the fur of new-born seals dyed red. Women's boots are adorned more often than those of men. Women's funeral boots are elaborately ornamented.1 Men's funeral boots2 (vi'a-pla'kit), like other parts of the funeral costume, are of white color, and made of the skin from the legs of white deer. In these white boots the ornaments are made of inserted stripes of dark-colored skin in the form of chevrons. Women's dancing-boots3 for the whale festival and for other festivals are ornamented with rows of triangles made of white leather, and with embroideries of colored silk.4

Women's winter boots are distinguished from men's high-topped boots, besides in their ornamentation, also in that their legs are wider, and made, not of the skins of reindeer-legs, but of the shaggy fur of autumn fawns, the

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1 See Part I, Fig. 53, p. 109.
2 Ibid., Fig. 47, p. 106.
3 Ibid., Fig. 47, p. 68.
4 See Chapter XI.
hair of which is cut short. Hence the legs of women appear very stout about their calves, between the lower and upper strings with which the boots are tied. A woman's winter boot, with fur stockings inside, the legs of the boot ornamented with inserted parallel lines of white fur, is shown in Fig. 123, b.

Stockings are made of the skins of large fawns, and are worn with the hair side in. With the boots, the stockings form a double foot-wear, just as two fur shirts compose a double coat, and are mostly put on and pulled off together. For the night, however, stockings which have been worn during the day are taken out of the boots, turned inside out, and hung over the hearth or out of doors to dry. The skin for stockings is dressed soft, and the flesh side is painted cinnamon-color. Stockings are made large, with a wide semicircular toe, like the boots, into which they fit snugly. The cut of a fur stocking differs from that of a fur boot in that there is no stripe inserted between the sole and the vamp. A small leather strap is sewed to the upper end of each stocking. These are tied together when the stockings are hung up to dry. Before the stocking is put into the boot, dry grass, of which a supply is always kept on hand, is put in. The grass lining adds to the softness of the fur foot-wear, and protects the foot against injuries. The grass lining must be changed often to keep it dry and soft.

When traveling in very cold weather, or sleeping over night under the open sky, short hare-skin socks are often worn inside the stockings. I also had occasion to see some of my Maritime Koryak drivers, when sleeping at night on the snow by the camp-fire, put on over their travelling-boots huge galoches made of the winter skins of reindeer. They would then put a long double fur shirt over the short one, draw hands and head within the shirt, and lie down on the snow, head to the fire. These large boots are evidently a Russian invention lately adopted by the Koryak. In general, the Koryak are not particularly careful to protect themselves against the cold when sleeping out of doors. Not infrequently herdsmen pass cold nights wearing only a single coat, with belt. The stockings for short boots of men are also short.

Winter Cap and Mittens. — The winter cap (la'xylan pe'ñken) is double, and made of the fur of reindeer-fawns. The inner lining is the fur of a new-born fawn or of one a month old. The outer cap is often made of dog or wolf paws. In front and at the back it is trimmed with a strip of shaggy dog or wolf fur. Costly caps are trimmed with wolverene-fur all round. The top of the cap is rounded. It has the shape of an old woman's sweeping-cap (Fig. 124). In front the fur trimming protects the fore-head; at the back the cap covers the occiput and neck. A rather long leather strap, the ends of which are sewed to the lower edges of the cap, is twisted once under the chin (Fig. 124, a; and Plate xxxii, Fig. 1), and the end loop is turned back

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1 See Chapter. X.
over the crown of the head to hold the cap down. When a Koryak feels too warm, he throws his cap back, and it dangles down from the loop which passes around his neck. A warm cap like the one here described is worn with a hoodless coat. A cap with light trimming is worn with the coat with a large fur hood. Herdsmen who have to run after the herd wear hoodless coats and light caps. They usually put on the outer coat only for the night.

Women very rarely wear caps. Maritime Koryak women, when going out of doors in winter, throw the hood of the coat over the head. Only the Reindeer Koryak women, while wandering from camp to camp, wear a cap under the hood. Its shape does not differ from that of the men's cap. Women's funeral costumes have no caps, — a fact which shows that in former times the Koryak women did not wear caps.

The Koryak fur cap is prettier and more neatly made than the Chukchee cap. Besides the pretty trimmings, it has inserted in the crown, and at the place which covers the occiput ornaments made of alternate stripes of black and white skin from the legs of reindeer-fawns, or lozenge patterns. Behind, long tassels of seal-pup skin, dyed red, are sewed on; and on the sides, circles are embroidered with glass beads of various colors. To the crown of the cap are often stitched two pieces of fur or leather, which project upwards like the ears of a fox. Some caps are not rounded in shape at the crown, but have angular projections at the sides (Fig. 124, a). The man's funeral cap has the shape of a round decorated skull-cap with ear-flaps stitched on, and an embroidered leather-strap\(^1\) with which to tie it under the chin.

\(^1\) See Part I, Fig. 48, p. 107.
Men who drive dog or reindeer teams, and who watch herds in winter, wear mittens made of the skin of reindeer-legs. The hair of the skin of the reindeer-leg is short, thick, and shiny. It does not readily wear out or fall off from dampness. Further, these mittens are light and exceedingly soft when well dressed, so that they are not in the way when holding the reins and the whips, or doing any other work on the journey. These mittens are not very warm, since they are not usually made of double skin, and have the hair side out. Sometimes they are lined inside with fur of a new-born reindeer-fawn; but young people go without the inner mitten, and do not suffer from cold. Light mittens are also made of the skin from dogs' legs. Women usually wear warmer double mittens, with shaggy trimming of dog, wolf, or fox fur, about the wrist. The outside mittens are made of the dressed skins of reindeer-fawns; the inside mittens, of the fur of new-born fawns. Mittens made of the fur of wolf-paws on the outside, and lined with the fur of young fawns, are regarded as warm and pretty.

Summer Clothing. — In general, summer clothing differs little from winter clothing. Real warm summer days are very few in number. In summer, as well as 'late in spring and early in autumn, the old worn-out winter clothing is put on, only in single suits. At this season much of the hair has fallen off. Therefore in summer the Koryak present a shabby and unattractive appearance. This is true particularly of the Reindeer Koryak, who do not use special summer clothing while roaming with their herds in the mountainous regions, where it is colder than in the valleys; but the Koryak who live in the valleys and near the mouths of rivers, particularly those of the coast, have special summer clothing for the warmer part of summer.

Summer coat. — The ordinary summer coat (ala'kin-išan) is a shirt of curried and smoked reindeer-skin, and shirts of this kind are worn by both sexes. Those of women are longer than those of men, and more frequently furnished with hoods. Sometimes a dog-skin collar is attached. The cover of the upper part of the tent which has been exposed to the smoke for a long time is often used as material for such shirts. The skin, after being smoked, is more waterproof than unsmoked skin, and does not harden after rain.

Shirts of unsmoked leather, such as are worn in winter over fur coats, sometimes ornamented by means of wooden stamps (see Fig. 218), are also worn in summer; they are not used in rainy weather, or for fishing and sea-hunting, as dampness hardens them.

During the sea-hunting season, especially in damp and cold weather, the Maritime Koryak wear dog-skin coats, with the hair side in (Fig. 125). A dog-skin shirt is considered a good waterproof garment. Such a shirt rarely has a hood. It is worn mostly by lads in their teens. At home, even in

1 See p. 593.
The Koryak.
winter, boys wear dog-skin coats (see the elder boy on Plate xxxiii, Fig. 1). Summer clothing of dog-skin is always saturated with fish and seal oil, and is dirty in the extreme.

I have never seen a Koryak wearing a seal-skin coat, which is used by the Eskimo as a waterproof garment. I think that the absence of seal-skin coats for summer wear is due to the insufficient quantity of seal-skins, which are required in great numbers both for the household and for exchange.1 Likewise I have never seen any clothing made of bird-skins and of seal-intestines, which they say was worn in olden times.

In summer and autumn, shirts made of winter reindeer-skins with shorn fur, and others of summer skins of grown reindeer with short new fur, killed just after the shedding of the hair, are also worn. Women wear coats made of such skins, the flesh side out. This side is well dressed, and dyed a cinnamon color, and adorned with strips of white leather, tufts of hair, circles embroidered in appliqué-work, and other embellishments. At home the Maritime Koryak women wear such coats even in winter. Dancing-coats (m'laul-isān) are made up in the same way, only they are more elaborately decorated than the ordinary garments.2 The dancing-coats of men have no hoods.3

Summer Trousers and Combination-Suit. — In midsummer, men wear trousers of curried leather (Fig. 126), the pattern of which does not differ from that of the winter trousers; while women wear a combination-suit of leather under their coats. The leather of which both men's and women's summer trousers are made is either ordinary, soft-dressed, or curried and smoked reindeer-skin. The latter is used for waterproof clothing worn during the fishing-season. Waterproof trousers for men, made of seal-skin,

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1 According to Tale 21 (Part I, p. 162), clothing made of seal-skins is regarded by the Koryak as that of poor people. From this it may be inferred that seal-skin clothing was used in olden times, when the reindeer was not domesticated.
2 See Part I, Fig. 27, p. 68.
3 Ibid., Plate I, Fig. 1.
are rarely found. While engaged in sea-hunting, the Maritime Koryak, especially lads, often wear dog-skin trousers. In autumn, and on cold days in midsummer, the Koryak wear old, worn-out, single winter trousers of reindeer-skin with the fur on.

**Summer Boots, Caps, Mittens, and Gloves.** — Summer foot-wear consists of boots or short shoes alone. In summer, stockings are not worn, and only grass linings are used in boots and shoes. Summer boots or shoes are made of the skin of the legs of reindeer-fawns or dog-pups, of dressed skin of the ringed-seal and of curried leather made of reindeer-skin. Summer and winter boots and shoes are the same in shape; but summer foot-wear is smaller than that for winter, because it is worn without the stocking. The soles of all summer foot-wear are made of thong-seal skin or of walrus-skin split in two. Short boots or shoes are worn by men only. The leather straps passing through the lower hems of the trouser-legs are drawn together tight around the upper end of the legs of these short boots. The legs of men's high boots, and generally also those of women, reach up to the knees, and are drawn together with leather straps over the trousers. Waterproof boots are made of ringed-seal skin treated with blubber. Boots made of smoked reindeer-skin do not get wet as quickly as those made of unshoked skin. Often only the vamps of the boots are made of seal-skin or of smoked leather; and the legs, of ordinary dressed reindeer-skin. Among the Maritime Koryak I found long-legged waterproof boots for men reaching up to the thighs (Fig. 127). The soles are made of thong-seal skin; the vamp and legs, of ringed-seal.
Women's summer boots, like men's dancing-boots with legs of curried leather, are decorated with pinked stripes of the thin soft white skin of the dog's neck, forming the so-called 'tooth-pattern.' Sometimes the toes up to the instep are made of the skin of ringed-seal dyed black, while the instep and legs are of reindeer-leather dyed a cinnamon color. The women of the Maritime Koryak wear such boots also in winter, when at home; or they put them on after finishing their out-door work, or while drying their winter boots on returning home from a trip. But such leather foot-wear, for change, is made larger than the summer leather boots, so that they can be put on over the fur stockings.

I have said before, that, even in winter, women rarely wear a cap, but cover their heads with the hood which is attached to the coat. In summer they also go bare-headed, or in stormy weather they throw the hood of the summer coat over the head. Nowadays many women tie a kerchief on their head in summer, as is customary among Russian women (see Plate xxx, Fig. 2).

Men's summer caps are made either of fawn-skins or of the dressed skin of ringed-seal, with the hair on (Fig. 128). The latter material is used chiefly by the Maritime Koryak.

Summer mittens are made of curried reindeer-skin, or of the dressed skin of ringed-seal, or of spotted seal. During the sea-hunting season the Maritime Koryak wear mittens of dog-skin.

The Koryak very rarely wear gloves, which, to judge by the pattern, have been adopted from the neighboring Tungus tribes. The back and the palm of each glove are cut from the same pattern. These parts are placed one upon the other, and the edges, and also the sides of the hand and fingers, stitched together with sinew-thread. The thumb is cut separately, and consists, like the rest of the glove, of two halves of the same shape. It is inserted in an opening left in the glove under the index-finger.

CHILDREN'S CLOTHING. — Clothing for children up to the age of five or six, and sometimes that of children even a little older, consists, like the women's underwear, of a combination-suit, called kei-kei or ma'ñi-kei ('bifurcated kei'). The children's combination-suit differs from that of women in several respects. It often has a hood sewed on. It has a long slit between the two halves of the trousers, and a fur flap (Koryak, mäka) stitched on at the back, over the slit. On the inner side of this flap dry moss and powdered rotten wood are placed. The flap is passed up in front between the legs, and the two straps attached to its ends are tied around the waist. The child's excretions are absorbed
by the moss and powder, and remain there until the mother unties the flap. The soiled moss is thrown out, the babe's body is wiped with clean moss, and the flap is tied up anew. In infants' suits, the sleeves and the legs are sewed up.\(^1\) Nurslings up to a year and over have two suits, — one for the daytime, made of soft fawn-skins; and one for the night, made of thin skins of new-born fawns, or of curried leather. Older children sleep naked at night, like adults, and hence have only suits for the day. Children's night-suits are made light to keep them from being too hot under the fur blanket. The night-suit is put on infants to prevent soiling the bedding. This preventive is the more necessary, as the Koryak have no cradles or cribs, and the children sleep with their mother under one blanket made of reindeer-skins.

Children able to walk run about the house or the camp with the flap untied, and dangling down like a tail. When it is time to break camp, these children, like nurslings, have their flaps tied up. When children begin to walk, slits are made at the wrist parts of their sleeves to enable them to stick their little hands out and take them in; and instead of closed trousers, boots with separate stockings are given them. In the camps of the Reindeer Koryak I had occasion to see children seven or eight years old in children's combination-suits with the flaps hanging down at the back. On Plate xxxiii, Fig. 1, are represented a boy and girl of seven or eight years, with their flaps tied up. As this was in April, at a temperature of not lower than \(-15^\circ\) C., they no longer wore their hoods; and the girl had even freed her right arm, and was playing in the cold with her breast bare. Plate xxxiii, Fig. 2, represents a boy without coat. At about the age of five, boys and girls begin to wear men's and women's clothing (Plate xxxiv).

**COATS WITH TAILS.** — It is interesting to note that the skirts of funeral coats, chiefly those of men, terminate at the back in a tail-like flap. This flap has a special name, noinim. It is evident that in former times even common coats were cut in that way. In some myths we find tails described and considered as ornaments of ordinary coats.\(^5\) In describing Kamchatka clothing, Steller\(^4\) says that only women's coats were furnished with tails; while Krasheninnikoff\(^5\) says that men, too, used to wear tailed coats, and that accordingly the round and tailed coats were distinguished. On the Kolyma tundra the cut-away coat of the Reindeer Yukaghir, who have adopted this style from the Tungus, has a tail behind. Something similar is found in the coat of the Yenisei Tungus, as described by Middendorf.\(^6\) As is well known, the peculiar coat of many Eskimo women is cut in deep at the sides, so that in

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\(^1\) See Bogoras, *The Chukchee*, Vol. VII of this series, Fig. 184, p. 252.
\(^2\) See Fig. 225; also Part I, Fig. 44, p. 106.
\(^3\) See, for instance, Tale 59, p. 217. The wife of Envious-One had an embroidered fur coat with a tail.
\(^4\) Steller, p. 307.
\(^5\) Krasheninnikoff, II, p. 61.
\(^6\) Middendorf, p. 702.
The Koryak.
front and behind the rounded ends of the coat dangle like an apron and a tail. The flap behind is longer than the one in front. Among most Eskimo, only the men wear short coats cut evenly all round. But Nelson states that "from the Yukon mouth northward to Point Barrow, the frocks of the men are cut a trifle longer behind than in front." This calls to mind the tail of the coat of the tribes of northeastern Siberia. In describing the dress of the Iglulimiut, Parry says that "the men have also a tail in the hind part of their jacket," but smaller than with women. According to Boas, coats with short tails behind are also worn by the Cumberland Sound Eskimo. The reindeer-skin coat of men of the Hudson Bay Eskimo has a tail behind. It is quite possible that this cut of the back of the coat of the tribes mentioned has a common origin. So far as is known to me, however, the Chukchee have no tails on their coats, and the illustrations given by Bogoras show no such tails.

Excepting the funeral coats, the Koryak nowadays cut all their coats evenly all round, even those used in dancing and those worn by shamans.

Ornaments, Hair-Dressing, and Tattooing. — I shall speak later on of the ornamentation of dress. Here I shall only say a few words on personal adornment. In Part I (pp. 45, 46) I have already spoken of charm bracelets, necklaces, pendants for the hair, and the tattooing of the face and other parts of the body, all of which play the part of "protectors." These charmed objects differ nearly always from ordinary ornaments, which have no connection with magic in their lack of beauty or symmetry. Thus straps made of skin and hair serve as amulets, which are worn on the arms, feet, and neck. The brass and beaded bracelets and earrings are much better executed than the corresponding charms. Hair-ornaments worn by women (Fig. 129) may be readily distinguished by their beauty, from the beads, straps, or tufts of reindeer, hare, or wolf hair, which are braided in with the hair of the head as charms against headache. Nearly all Koryak women wear the head-dress shown in Fig. 129 (see also Plate xxxvi), which consists of a beaded string with two large metal buttons at the ends, and a leather strap with pendants behind. Sometimes the back part of the string consists of a metal chain without leather foundation.

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1 Nelson, p. 34.  
2 Parry, II, p. 495.  
3 Boas, Baffin-Land Eskimo, p. 50.  
4 See Chapter XI.  
5 Boas, See Chapter X.
The Koryak women part the hair in the middle from the forehead down to the neck, and braid it behind in two braids, so that each braid begins quite close to the ear. The back of the head is thus left free for the ornamented leather strip, which extends nearly from one ear to the other. This style of dressing the hair is found also among the women of the Eskimo, Chukchee, and the tundra Yukaghir. Even nowadays stone pendants are often attached to the ends of the braids. At present the ends of the braids are usually tied with a thong or sinew-thread on which beads are strung. The braids tied in this way rest on the chest or back, oftener on the chest.

The men cut or shave the hair with a sharp knife in the middle of the head, forming a round tonsure like that of a Catholic priest, leaving all around a thick ring of short hair; so that the forehead is free, and the hair is removed from the nape of the neck and the region about and under the ears. The ring of hair is often supported by a small thong. The Koryak tie their hair with this thong when fighting, running races, tending the flock, or working.

Tattooing for the sake of ornament has nearly gone out of use. I have spoken before of tattooing as a protective device. Ornamental tattooing is practised by women only, but I have seen very few tattooed women; all were married. Two of them were childless, so that the tattooing may have been done as a cure for barrenness. That in former times tattooing among women was widespread, may be concluded from several myths. Thus it is related how River-Man, on turning into a woman, had his face tattooed to please Illa'. Neither Steller nor Krasheninnikoff mentions that the Kamchadal practised tattooing; both state that the Kamchadal painted their faces red and white. Ornamental tattooing is called by the Koryak lo-kele; i.e., “painting of the face.” Perhaps this appellation applies as well to painting the face with colors, a custom no longer met with. Allusions to this custom are found in mythology: for instance, it is told that Big-Raven’s elder son painted his own belly. Judging from Nordquist’s and Borgoras’s descriptions, Chukchee tattooing is more complex than that of the Koryak. The tattooing of Koryak women, which I had occasion to see, consisted of two or three horizontal lines over the nose, or of two or three equidistant curves on the chin and cheeks. The Koryak, and the other tribes of eastern Siberia that practise tattooing, do not apply the designs by pricking, but by passing under the skin a needle and thread which is coated with coal mixed with grease. Hence the Gishiga Russians call the Koryak tattooing “face-embroidery.”

I learned from one Koryak that in olden times the method of pricking and rubbing greasy black paint into the holes was also practised.

Snow-Goggles Snow-Shoes, Staffs, and Ice-Creepers. — Like all other Arctic tribes, the Koryak use snow-goggles to protect the eyes from the
dazzling light reflected in spring by the snow-fields. The snow-goggles are made of birch-bark or of wood, with a slit for the eyes. In spring, protection of the eyes is of particular importance to herders, who are constantly in the open air, and to drivers, who undertake to carry merchandise on dog-sledges.

Snow-shoes are of two kinds. One kind are short, and are called "crow-feet" (ve\r\n-yegIt). They consist of a willow frame plaited with a thong. Herdsmen and hunters wear these snow-shoes for walking over uneven ground and hard snow. The other kind are long, and are called ti-ye\'gt. They are made of a thinly planed aspen board, with pointed ends and tip turned upwards, and are lined underneath with the skin from reindeer-legs, the hair running backward. These snow-shoes are suitable for level regions, and give a good support on soft snow, thanks to their light weight and large surface. When "crow-feet" snow-shoes are used, the feet are frequently lifted as in walking, while on long snow-shoes gliding alone is resorted to. The Eskimo who, when hunting seal in winter, have to cross rough and hummocky ice, employ snow-shoes similar to the Koryak "crow-feet;" while the long snow-shoes are used more by hunters like the Tungus or Yukaghir, who hunt wild animals in the forests or river-valleys covered with deep and soft snow.

The Koryak, as a rule, do not make the long snow-shoes themselves, but purchase them from the Tungus. The flesh side of the skin is fastened with fish-glue under the wooden snow-shoes. The edges of the skin are turned over to the upper side.

For smooth and slippery ice, the Koryak tie iron creepers under the soles of their shoes (Fig. 130). In ancient times ice-creepers were made of hard wood or bone.

I rarely saw snow-staffs like those of the Chukchee and Eskimo, with attached ring. The Koryak use more often ordinary willow rods, such as are employed in their walks from village to village, from camp to camp, or in foot-races (see Plate xxxviii, Fig. 1).

Yokes and Carrying-Straps. — For carrying loads when going afoot, Koryak men use a wooden lek'tel. It is usually made of alder or of willow, and consists of a flat stick about 50 cm. long, planed, and somewhat bent so as to fit the chest (Fig. 131), with notches at both ends for attaching the

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1 See Bogoras, The Chukchee, Vol. VII of this series, Fig. 192, a, 4, p. 260.
2 Ibid., Fig. 193, a, 4, p. 261.
3 Ibid., Fig. 193, a, p. 261.
loops of straps that are tied to the bag or other burden (Plate xxxv, Fig. 1). In carrying burdens, the yoke or cross-bar is placed over the chest, the straps rest on the fore arms, while the load rests on the small of the back. This is a clumsy method of carrying burdens. The yoke presses against the chest, the straps hinder the motions of the arms, and the burden lies too low on the back. To prevent the yoke from slipping down in walking, it is fastened by means of a thong to the neck or coat-colla.

While the method used by the men, of carrying loads by means of chest-yokes, is found also among the Eskimo, the method employed by the Koryak women is met with among many Indian tribes. The carrying-strap is depicted on codices and monuments of ancient Mexico. It is in use among the Ainu. Among the ancient Kamchadal, only the women used the head-band, while the men used the breast-yoke like the Koryak. The Koryak women put burdens, and also their children, into grass, nettle, or skin bags, which they hold on the back, and carry them by means of a head-band passing across the forehead. Plate xxxvi shows how women carry children on their backs, in a bag or without one, by means of head-bands. The head-band or carrying-strap is made of stout thong-seal hide. Fig. 132 shows the strap stretched out. The small sticks in the middle are inserted to stretch the skin and make it thinner. The ends of the strap are cut out and provided with slits through which to pass the straps of bags and of wooden or skin buckets, for tying (see Plate xxxv, Fig. 2; and Plate xxxvi; also Fig. 160, a).

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1 See Nelson, p. 211; and Mason, The Human Beast of Burden, Fig. 2, p. 256.
3 See More, Was Middle America peopled from Asia? (Popular Science Monthly, November, 1898, p. 51).
4 See Krasheninnikoff, I, p. 24.
The Koryak.

Fig. 1. MAN CARRYING BAG.

Fig. 2. WOMAN CARRYING BUCKET.
The Koryak.

Women carrying children.
Bags for Keeping Clothing. — The Koryak keep their reserve clothing in bags made of the skins of ringed-seals, of spotted seals, or of ribbon-seals. The skins are dressed on the flesh side, and the hair is left on. The bags are made with the hair side out, and, like those of the Eskimo, are of two shapes, — wide bags with a top opening, which is tied with thongs; and elongated bags, resembling a seal in shape, or made of an entire seal-skin, the flippers of which are sewed up. The openings of bags of this kind are slit across the chest and laced up.\(^1\) The Maritime Koryak keep articles not in use, and spare clothing, in such bags, in the houses or in storehouses. In the houses these bags, with their contents, serve as pillows. In winter, bags containing summer clothing are kept in the storehouses; and in summer the winter clothing is kept in the same way. Funeral clothing not fully finished is also kept in storehouses.

Belts. — Women very rarely wear a belt. Embroidered carrying-strap\(^2\)s belong to the funeral clothing of women. The belt, however, forms, part of the funeral dress of men.\(^3\) This points to the fact that the belt has been used by male Koryak for a long time. The Koryak gird up their house-coats and their short travelling-coats with their belts. The long fur travelling-coats, or the overcoats of leather or imported cloth, are worn without belts (see Plate xxxii, Fig. 1). The belt consists of a dressed strap of thong-seal skin, two or three fingers wide, with a large iron buckle.\(^4\) In ancient times, buckles were made of ivory, and these may be seen even now. On the belt hangs a small belt-knife in a sheath, a case embroidered with glass beads containing a birch-bark tobacco-box, and often iron tweezers for pulling out hair (Fig. 133). These tweezers seem to me to have been adopted from the Tungus. Among the Maritime Koryak, belts are frequently embroidered with glass beads (see Fig. 202).

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\(^1\) See illustrations in Bogoras, The Chukchee, Vol. VII of this series, p. 192; and Nelson, p. 44.
\(^2\) See Part 1, Fig. 54, p. 109.
\(^3\) Ibid., Fig. 46, p. 106.
\(^4\) See Fig. 205.

JESUP NORTH PACIFIC Exped., Vol. VI, Part 2.
X. — MANUFACTURES.

Work in Stone. — To judge from the stone implements preserved, it would seem that the Koryak, prior to their acquaintance with metals, had not fully acquired the art of making polished stone implements. At the present time, — which is ‘still a period of transition from the use of stone to that of metal,’ — the stone tools still in use among them are mainly made by chipping.

With the exception of the stone tables and hammers, which are used without any artificial finish, just as they are found in the beds and on the banks of rivers, all the stone implements mentioned before (see Figs. 135–137) are fashioned by means of chipping. Stone hatchets, spear-heads, harpoon-points, and scrapers for dressing skin, which are still in use, are roughly chipped out with small bone hammers (Fig. 134). The stone to be chipped is held in the left hand, the hammer in the right, and with its broad end the blows are delivered from above downwards on the edges of the stone. The thumb of the left hand is protected against accidental blows of the bone hammer by a bone thimble, and the fore-finger by a ring (Fig. 134, b, c).

In the numerous irregular scratches on the broad end of the hammer may be discerned the traces from blows on the uneven stone edges. Bone rings are at present also used for protecting the fingers in carving wood with iron knives.

Formerly stone arrow-heads were also made with the bone flaker here described. Fig. 135 shows three flint arrow-points. Such points have now gone out of use. Those in my collection were either obtained from people who preserved them as amulets or as keepsakes, or they were found by me in excavating ancient underground dwellings.

1 See p. 560.
2 It is interesting to compare with the small bone hammer of the Koryak a similar flaker for making arrow-points, of the Eskimo of Baffin Land, and their method of protecting the left hand against blows when chipping (see Boas, Baffin-Land Eskimo, Fig. 83, p. 65).
Fig. 136 represents a spear-head (a), a harpoon-point (b), and an unfinished harpoon-point (c) of flint. The arrows and harpoon-heads are mostly made of flint, but partly of obsidian, which was formerly imported from Kamchatka. Spear-heads are made of flint as well as of quartz. Hatchets (see Fig. 103) and stone skin-scrapers are made mostly of quartz pebbles. The hatchets are chipped very little. The Koryak use for this purpose flat stones with somewhat sharp edges, found in the river-valleys.

Fig. 137 represents ancient slate knives for skin-cutting and other household work. The knives shown in a and b were found by me in excavating the ancient dwellings mentioned above; while c was found in the possession of a Koryak woman in the village of Kamenskoye, who treasured it as a keepsake. In the village of Kuel I found a fragment of such a knife used as a scraper. These relics exhibit traces of grinding and polishing. According to the Koryak, the edges of the knives were whetted with a flint or bone tool. The more or less even surfaces of the sides of the knives may be explained as due to the nature of the material, which readily splits into thin plates.

Sandstone ear-ornaments (Fig. 138, a) and pendants of braids (b) have also been finished by grinding. Stone ornaments of this kind are still worn by women in the villages of the Maritime Koryak. Nowadays they are finished with iron knives, and the perforations are bored with iron drills. Stone ear-rings are suspended from the ears by sinew-thread, or brass rings are passed through them, which are then put into the ears.

1 A stone spear with shaft is shown in Fig. 93, p. 552.
Nowhere among the Koryak did I find polished axes for wood-chopping. The chipped hatchets mentioned above could not have served this purpose. I found a polished stone axe among the Yukaghir on the Kolyma tundra. Steller\textsuperscript{1} says that the Kamchadal used to polish stone implements by grinding them on stones. Dittmar\textsuperscript{2} speaks of Kamchadal stone axes with polished blades. It is hard to believe that the Koryak never had any polished stone axes. However, for wood-working, they made more use of bone wedges and of the bone adze.

Among the stone objects for household use should also be mentioned the stone lamps spoken of before\textsuperscript{3} and the head-piece of the fire-drill.\textsuperscript{4} Stone lamps are made; for the most part, of sandstone bowlders, in the upper side of which a cavity for the oil is made by means of an adze or chisel. For

\begin{itemize}
  \item \textsuperscript{1} Steller, p. 319.
  \item \textsuperscript{2} Dittmar, p. 214.
  \item \textsuperscript{3} See Fig. 99, p. 566.
  \item \textsuperscript{4} See Part I, Fig. 2, a, p. 33.
\end{itemize}
the head-piece of the fire-drill a small rounded quartz pebble is chosen; and on one side of this a socket for the upper end of the shaft of the drill is made by means of a drill (at present an iron drill).\footnote{See Part I, Plate vi.}

I have spoken before of the large flat stones which are used, without any artificial finish, for tables,\footnote{See pp. 569, 668.} — one measuring 77 cm. in length and 48 cm. in width; another (\(\frac{2}{3}\) cm.), 38 cm. in length and 28 cm. in width. It is interesting to compare these stone tables with the unworked sandstones found by Dr. H. Grimm in the excavations of ancient underground dwellings, evidently of the Ainu, on the island of Yezo.\footnote{See H. Grimm, Beitrag zur Kenntniss der Koropokuru auf Yezo und Bemerkungen über die Shikotan Aino (Mitteilungen der Deutschen Gesellschaft für Natur- und Völkerkunde Ostasiens in Tokio, Band V, pp. 369 - 373).} Grimm does not suggest the use to which these stones may have been put by the former inhabitants of the underground dwellings.

The similarity of these dwellings, and the remains found in them, to the underground Koryak dwellings and the ancient utensils of the tribe found in excavations and preserved among them as keepsakes, suggests that the Maritime Koryak participate in a type of material culture formerly widespread over a considerable portion of the coasts and islands of the northern part of the Pacific Ocean. The flat sandstones described by Grimm seem to me to have done the same service among the former inhabitants of the underground houses on Yezo as the analogous stones still do among many Koryak, chiefly the Maritime Koryak of Penshina Bay.

\textbf{Work in Iron.} — At present Paren and Kuel, villages of the Maritime Koryak of Penshina Bay, are renowned for their manufacture of iron tools. The knives, axes, and spears of the Paren and Kuel blacksmiths, not only find a market among the Koryak and Chukchee, but even find their way to Kamchatka and to the neighboring Tungus.

Here two questions arise, — when did the Koryak become acquainted with iron implements, and from whom did they learn the art of the blacksmith?

In Kamchatka, Krasheninnikoff\footnote{See Krasheninnikoff, II, p. 49.} heard stories to the effect that the Kamchadal were familiar with iron implements before they ever met the Russians. According to these stories, the Kamchadal used to get Japanese iron objects by barter from the Kurilians. Of course, this is possible; but there cannot have been any great amount of barter and no regular exchange between these tribes at that period. In this manner iron tools could have come into the hands of the Kamchadal in but very limited quantities, and would have become the property of a few fortunate families only. It seems important to note that while the tribes of northeastern Asia were still in the stone age, not only were nations as highly civilized as the Japanese and Chinese acquainted with iron, but even certain tribes of the Amur region,
and the Yakut, had been working it for a long time. Thus we may readily conceive that long before the Koryak and other northern natives met with the Russians, iron tools had come into the hands of those tribes through a long series of exchanges. Thus, for instance, on the Kolyma tundra I heard members of a northern Yukaghir clan tell, that, previous to the arrival of the Russians, they had had an iron axe, the property of the whole clan, which was in the keeping of "the Old Man," and was carried over the whole tundra whenever there happened to be need anywhere of Knocking down or cutting in two a thick stout tree, which it was very hard to do with stone axes. An acquaintance of this kind, or even of a somewhat higher degree, may have existed also among the Koryak. They may have obtained iron objects, on the one hand from a Japanese source,\(^1\) through the Kurilians and Kamchadal;\(^2\) on the other hand, from a Manchurian-Chinese source, through the Tungus. According to historical data, based on reports of the Cossacks who had reached the mouth of the Okhotsk River in 1652, the Tungus living there were armed with iron and bone weapons, and clad in iron armor.\(^3\) There is still a third source from which, during the pre-Russian period, iron objects may have been derived. I refer to the Yakut who represent the Mongol-Turkish people, who not only knew the metal and the art of forging it, but also the art of smelting iron from iron ores.\(^4\)

Iron armor,\(^5\) which supplanted the older leather or bone armor, or was still in use alongside of them, has, in my opinion, been known to the Koryak prior to their meeting with the Russians.

Let us now turn to the question of the beginning of blacksmithing among the Koryak. From which tribe did the Koryak learn to forge iron? To answer this question, too, is not easy. But since only in barter can there be intermediaries between producer and consumer, while in learning a trade

\(^1\) The Japanese armor found by Bogoras among the Chukchee in the northern tundra must evidently have reached there through pre-Russian commercial exchange (see Bogoras, The Chukchee, Vol. VII of this series, pp. 54, 164, and Fig. 85).

\(^2\) The Cossacks who were sent from Anadyr in 1696 to conquer Kamchatka found Japanese documents in the Koryak dwellings of North Kamchatka. A little later they discovered, near Tighil, a Japanese vessel that had been wrecked (see Slovatoff, Historical Survey of Siberia, p. 136). This points to the possibility of occasional but direct intercourse in the past between the Koryak and Japanese.

\(^3\) See Supplement to the Judicial Acts, III, pp. 333, 334.

\(^4\) For data concerning the rôle of the Turkish tribes (to which the Yakut belong) in spreading the knowledge of iron-work in Siberia, see R. Andres, Die Metalle bei den Naturvölkern mit Berücksichtigung prähistorischer Verhältnisse (Leipzig, 1884), pp. 126, 127. Popoff (Zeitschrift für Ethnologie, 1878, p. 401), in referring to the statement (mentioned by me in the text) concerning the iron weapons and armor of the Okhotsk Tungus at their first meeting with the Russians, expresses the opinion that the Okhotsk Tungus had become acquainted with iron objects through the Yakut; but considering the fact that the Yakut are comparatively recent arrivals in the extreme northeast of Siberia, and that the northern Tungus are supposed to have come north prior to the Yakut, from the district of the Amur River, it may be fully admitted that their acquaintance with iron, in one way or another, is more ancient, and derived ultimately from a Manchurian-Chinese source. Even in the most ancient European statements concerning the ancient Manchurians, who are kindred to the Tungus, mention is made of their helmets and cuirasses made of scale-like iron plates fastened to one another with nails, or arranged on a skin foundation (on this question see Schrenck, II, p. 259, and his references to Neuho and Witten).

\(^5\) See Fig. 98, p. 552; and Plate xxix, Fig. 1.
direct intercourse with the master artisan is required, the Koryak could have learned the blacksmith's trade only from the Russians or Tungus. Though we possess no direct information proving that the Koryak knew how to forge iron prior to their meeting with the Russians, certain devices, as we shall see later on, do not preclude the possibility of this art having been adopted by the Koryak from the Tungus previous to the advent of the Russians to the region.

Along with the statements that ready-made iron tools from the sources mentioned reached the Kamchadal, Koryak, Chukchee, and Yukaghir even previous to the Russian period, we also have some information which proves that the beginning of the art of iron-forging among these peoples must be assigned to a later period. From certain sources we learn that the fragments of metal and pieces of ore which reached the northern tribes by chance, while they were still in the stone age, were objects of special reverence, even of religious cult. Even at that time they knew that from these hard substances other peoples made knives, axes, and spears.

Wrangel’s companion, Matyushkin, states that according to a story related by a Yukaghir, the Omoki, the forefathers of the Yukaghir, were familiar with the use of iron before the advent of the Russians. In another place he tells of ancient Yukaghir graves erected on posts which seemed to him to have been made with stone axes. In these, pieces of iron, brass, and copper, like the ornaments on shamans' dresses, were found.

According to Steller, the Kamchadal paid homage to pieces of iron obtained from the Kurilian Ainu. The iron was set up on a pole in front of the dwelling, as a proof of the wealth and special importance of its owner. We also possess some information that the Kamchadal, as well as the Koryak and Chukchee, knew the art of hammering fragments of metal. “They do not temper iron,” says Krasheninnikoff, “but, placing it cold on the stone, they forge it with a stone instead of a hammer.” Thus they used to make spears and arrows from iron fragments, burned-out kettles, or even new iron kettles bought of the Russians for this special purpose. If the eye of a needle broke, they used to flatten the broken end and drill a new eye with another needle.

From whomsoever the Koryak may have learned to forge iron, — from the Tungus or Russians, — the development of blacksmithing into a steady industry among them was hampered by lack of material and of tools. Peoples that work iron, but who cannot smelt ore, or in whose territory there

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1 See Wrangel, Reise II, p. 6.
2 Ibid., II, p. 137.
3 Steller, p. 320. See also Krasheninnikoff’s statement (II, p. 47) that every Kamchadal possessing a fragment of iron was deemed rich and lucky.
4 See Krasheninnikoff, I, p. 48. All these devices of working iron are known even now among the Chukchee, and also among the Koryak in out-of-the-way places.
are no beds of ore, depend, in the development of blacksmithing, upon the tribes that know how to smelt iron from ore.\(^1\) Excepting the Yakut, who came to the north in comparatively recent times, the civilized nations nearest to the Koryak that have developed the art of metallurgy — the Japanese and Chinese — were separated from them by tribes which, even if they did adopt from the former the art of blacksmithing, did not learn the art of mining. Thus, leaving out the Kamchadal, — from a technical point of view, evidently a tribe less gifted than the Koryak, — the Koryak were separated from the Japanese by the Ainu and Gilyak, who, as Schrenck has proved,\(^2\) had acquired the blacksmith’s art from the Japanese. From the Chinese and from the Yakut the Koryak were separated by Tungus tribes.

According to historical data, the first Russian conquerors of Siberia not infrequently had blacksmiths in their parties; but when compelled to work ores, they often had recourse to natives expert in this line of work, such as the Tartar and Yakut.\(^3\) In the seventeenth century the higher authorities of Siberia more than once addressed to the Moscow Government requests to send “experts on ores” to Siberia.

During the early times of the conquest of Siberia, the Russian Government forbade the selling of arms, powder, and lead to those natives who were as yet unpacified. Krasheninnikoff says of the Kamchadal\(^4\) that it was forbidden to sell them iron tools and copper dishes, lest they might make side-arms for use against the Russians. Such conditions could not advance the development of the art of metal-working among those natives of Siberia who previous to that period had not been familiar with it.

Of course, the blacksmith’s art could develop among the Koryak only after the Russians began to sell tools freely and to import iron as material for manufacturing tools. At present the Russian Government, among other things, keeps bar and block iron and tools in the depot established in the village of Kushka (the residence of the chief of the district), at the mouth of the Gishiga River, to be sold to the natives of the Gishiga district at a price equal to the cost price in Vladivostok plus transport expenses by steamer to Gishiga.

It is difficult to say exactly when blacksmithing developed as a regular home industry among the Koryak. We find the first printed data concerning the Koryak as blacksmiths in Dittmar’s\(^5\) descriptions. These refer to the middle of the nineteenth century.

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\(^1\) On the location of iron-beds in the Kamchadal and Koryak territories, see Krasheninnikoff, I, p. 304; Pallas, Neue nordische Beiträge, 1790, V, p. 271; Dittmar, pp. 281, 363.
\(^3\) See, for example, Slovtzoff, Historical Survey of Siberia, pp. 43, 88.
\(^4\) See Krasheninnikoff, II, p. 48.
\(^5\) See Dittmar, Die Kortken, p. 11.
Among the tools used by the Koryak blacksmiths, our attention is claimed first of all by the bellows. The Koryak blacksmiths use single bellows, made of seal-skin, with two planked lids, — one above, and one below. Such bellows we find also among the Chukchee blacksmiths, who are less skilful than the Koryak. The Koryak bellows differ from the bellows represented in Bogoras's work,¹ in that to the upper board a wooden handle is fastened, by means of which the blacksmith's assistant moves it.

Bogoras assumes that the Chukchee bellows were adopted from the Russians. If the information we have concerning the Tungus bellows is exact, then the Koryak, and through them possibly the Chukchee as well, in the pre-Russian or even in the Russian period, could have adopted the single bellows from the Tungus.

The bellows used by the blacksmiths of the majority of East Siberian tribes are double. They consist of two small oblong skin bags lying on the ground, so that the blacksmith's assistant is able to sit between them. Two pipes (of wood or metal) running from the bags unite to form one iron mouth which leads into the furnace. The furnace is usually simply a small hole in the ground, into which charcoal is piled. To make the double bellows stationary, they are fastened to the ground by means of the boards forming the bottom of the bags, and the pipes with their joint mouth are covered with clay. In other localities, soil or some other weight is placed on the pipes to hold them down, while the leather bags lie on the ground. Among the Maritime tribes, the blacksmith's bellows are made of soft seal-skin; among the reindeer-breeders, of dressed reindeer-skin; and among cattle-breeding tribes, of calf or cow hide. In each bag of the double bellows there is a short slit, to the edges of which small sticks are sewed the whole length down. When these sticks are brought together with the hand, the bag is hermetically closed. The blacksmith's assistant, sitting on the floor between the leather bags, alternately raises and opens with his fingers the one bag, and simultaneously closes and lowers the other bag. Work with such bellows is rather hard, as both hands are required and practice is necessary. Usually the work is done by some youth or by a woman. Occasionally I saw such double bellows used among the Tungus in the Yakut district, among the Yakut,² and also by Yukaghir blacksmiths, who had evidently adopted it from the Yakut.

Judging by Pallas's drawings, the bellows of Mongolian blacksmiths of

¹ See Bogoras, The Chukchee, Vol. VII of this series, Fig. 136, p. 215.
² I had no occasion to visit the mining regions of the Yakut personally and to see what bellows are used by the Yakut who are engaged in smelting iron-ore. In describing the process of smelting by the Yakut of the Yakut district, Sieroszewski (The Yakut, pp. 381, 382) does not dwell specially on the shape of the bellows used with the Yakut smelting-furnace. But Maak (see The Vilyui District of the Yakut Province, Part III, p. 181, St. Petersburg, 1887), in describing the method of iron-smelting employed by the Vilyuiak Yakut, says that they use double bellows in this process. "However," Maak adds, "with many blacksmiths even in my time (1854) such primitive bellows were supplanted by genuine bellows." Unfortunately, Maak does not state what he means by "genuine bellows."
the eighteenth century were also double.¹ The Gilyak and Ainu blacksmiths, too, use double bellows² as described above, a fact in which Schrenck finds proof that both tribes had borrowed the blacksmith's art from one source, — the Japanese. As for the Tungus, to judge by statements made by Georgi,³ their blacksmiths used simple bellows. Schrenck and Maak give the same information concerning the Gold.⁴ Schrenck, by the way, draws from this circumstance the conclusion that the Gold and the Gilyak had acquired the blacksmith's art from different sources, — the former from the Manchu-Chinese, the latter from Japan.

We see that between the Siberian peoples using double bellows, — i.e., between the Mongol-Turks and Ainu-Gilyak, — there live Tungus tribes that employ or formerly employed simple bellows. It seems uncertain whether the invention of the Asiatic double bellows belongs to any single people, the more so, as double bellows are met with not only in India and Malaysia, but even among the primitive blacksmiths of Africa. The group exhibited in the Paris Ethnographic Museum in the Trocadéro, and representing a negro blacksmith with his assistant sitting between two leather bellows, vividly recalled to me the Yakut blacksmith.⁵ Still it must be said that the small double bellows of the Siberian blacksmith, consisting only of two bags, must have been invented by a nomadic tribe. Two small skin bags, with a small anvil and a pair of hammers and tongs, are easy to adjust anywhere, and not difficult to carry from place to place. The Yakut blacksmith has remained until our time to a considerable degree an itinerant artisan. Usually the customer does not come to him, but he goes with his smithy to the wealthy Yakut to fill his orders. The principle of the double bellows, designed to force an uninterrupted current of air into the furnace, is doubtless superior to that of the single bellows. On this principle are built the modern factory bellows, which are operated by automatic communicators. It must be supposed that among the more primitive blacksmiths, too, the double bellows, if not borrowed from another tribe along with blacksmithing, are not of the oldest type.

The inconvenience of the double bellows above described consists in the necessity of having assistance in all work, as it is inconvenient for the smith now to occupy a position between the leather bags and then to jump out to

¹ See P. S. Pallas, Sammlungen historischer Nachrichten über die Mongolischen Völkerschaften, I, Plate V.
² See Schrenck, II, p. 255.
³ Georgi, Part III, p. 45.
⁴ See Schrenck, II, p. 254; and Maak, Journey to the Amur, St. Petersburg, 1859, pp. 175 and 207. I did not happen to see modern bellows of the Tungus nearest to the Koryak; but the Tungus of the Yakut Province, i.e., neighbors of the Yakut, at present use, as I stated above, the double bellows, evidently adopted from the Yakut.
⁵ The ancient Egyptians already employed double bellows. Judging by ancient drawings, they consisted of two vessels covered with skin. A slave stepped in turn with his feet, now one and then on the other leather lid of the vessel, and at the same time opened the aperture in the other vessel. Andree (Die Metalle bei den Naturvölkern, p. 4) supposes that from the Egyptians the double bellows spread all over Africa.
the furnace and anvil, especially if the sluggishness of movement of the primitive blacksmith and the lack of concentration upon his labor are taken into consideration. Our common village blacksmith, in making small articles such as the primitive blacksmiths produce, manages without an assistant. Standing near the furnace, he pulls the rope of the bellows, and, when the iron has become red-hot, he takes it from the furnace and turns around to the anvil.

To turn again to the Koryak blacksmith. The single bellows are used lying on the ground; and the furnace, too, like that of the Yakut blacksmith, is built in the ground. He needs an assistant, who, sitting down flat, raises and lowers the bellows by means of a handle.\(^1\) A Koryak smithy is less mobile than a Yakut one. The chief blacksmiths (one, Če'ul by name, in the village of Kuel; and the other, Kiya'učin by name, in the Paren settlement) have built special smithies separate from the living-apartments. They are small log-cabins of about the height of a man. A large window cut in the wall, and left completely open, serves as an entrance. In the ceiling, the logs of which are covered with earth, a square hole is cut out in the middle, which lies above the furnace. A small anvil is placed on a low block quite near the furnace, and the blacksmith sits\(^2\) by the anvil on a low stool. The Koryak blacksmith’s tools are not numerous. They consist of two or three hammers and forge-tongs of two or three sizes. The tools nowadays are bought of Russian merchants; but along with the Russian, Chinese hammers, brought from Vladivostok, are also met with. The geological hammers brought by me from America met with complete approval on the part of Koryak blacksmiths. The bellows of the chief Koryak blacksmith are of rather large size. They give an intermittent but strong current of air, nevertheless thick pig-iron is but poorly heated in the furnace. Koryak blacksmiths prefer to work in bar or thin block iron. Besides, they are unfamiliar with the art of working with two hammers. They know quite well how to weld iron; but only the best artisans, such as the blacksmiths mentioned above, succeed in obliterating all traces of welding. They are not acquainted with the art of tempering; and iron arms or knives made by them are distinguished by their flexibility, but the blades of good spears and knives have a thin steel plate welded to the iron. Thin steel blocks bought for this purpose are purchased by the blacksmiths from merchants or from the Government depot. The steel loses a considerable degree of its hardness in the furnace, but the finished blade of the knife or axe is still hard enough. The stock of coal for the furnace is usually made by the

\(^1\) From Mank’s description of a Gold blacksmith, it appears, however (Journey to the Amur, p. 207 and Plate II), that he did manage to get along with his single bellows without an assistant.

\(^2\) The Yakut and Tungus blacksmiths, too, work sitting. The same is stated by Andree (Iw Metalle bei den Naturvölkern, p. 86) concerning gipsy blacksmiths. This is probably explained by the fact that the furnace of these blacksmiths is on the ground, and the anvil must therefore be not much above the ground.
Koryak blacksmiths in summer. They make fires of driftwood, and pour water over the coals after the wood has burned over. Then they carry the coals over to the smithy in skin bags. The Koryak blacksmith has a special suit for his work. In summer he works bare to the waist, dressed only in old skin trousers, and in winter he puts on a worn fur coat. Of course, in severe cold no work at all is done in the smithy above described.

The blacksmiths of Kuel and Paren work both on merchants' orders and for the barter carried on by the artisans themselves. The Russian merchants supply the artisans with iron, and pay for the work with tea, tobacco, and other wares. Besides, the blacksmiths themselves acquire iron, hammer out knives and spears, and travel with these to the local fairs or the camps of nomad reindeer-breeder, and exchange the iron goods for reindeer-skins, meat, and furs. The last-named are afterward exchanged to merchants. Skilful blacksmiths, like those above mentioned, are paid special respect. As among all primitive peoples, the blacksmith's art is not viewed by the Koryak as a trade which every one can learn, but as a divine gift. In Kuel and Paren, however, a considerable part of the Koryak can hammer iron; and in addition to the recognized talent, there are second-rate blacksmiths, who work periodically, before fairs, in order to acquire clothing and food in exchange for the products of their art. In general, the villages of Paren and Kuel may be considered as the centres of Koryak blacksmithing; while Kamenskoye is a commercial settlement in which are concentrated the Koryak intermediaries of exchange between the Russians and the "Reindeer men" (Koryak and Chukchee). In accordance with this, the Parenians and Kuelians, as representatives of labor, are poorer than the inhabitants of Kamenskoye, the representatives of commerce.

The articles hammered out are finished by the blacksmiths with files. The art of polishing iron is unknown to them. The work of Koryak blacksmiths is limited to side-arms, tools, and several other household objects.

Fig. 139 represents an axe (a) and an adze (b) made in Paren. The axe (ai'lan) is in the shape of a common Russian axe, and is used for chopping trees and wood. The adze (b) is mounted on a handle, axe-fashion, but its blade is set crosswise and is curved. This tool is called "axe with ears" (wełö-ailân). It is used in hollowing out troughs and dug-out canoes, like a crooked adze (see Fig. 140, b).

Fig. 140, a, b, represents two adzes made in Paren. That marked a is a straight adze (ga'ttti). In shape it is an imitation of the ancient Koryak adze made of ivory or horn. Its handle is also curved, like that of a bone adze. The handle of the specimen here figured is made of bone of whale, but wooden handles also occur. The blade is mounted on the handle without

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1 Among the Yakut, the blacksmiths stand on a level with the shamans. The Yukaghir blacksmiths have special protecting spirits. The position of the blacksmiths among the Tungus is similar.
a lashing, and in this regard the iron adze differs from the ancient one made of bone. This adze serves for the rough hewing of the outer side of wood.

With it are hewn the runners and stanchions of sledges, snow-shoes, the frames of skin boats, etc., which are finished afterwards with knives.

Fig. 140, b, shows a curved adze (welo'ga'tti, "adze with ears"), with which wooden buckets, troughs, dishes, and other wooden vessels,\(^1\) are hollowed out. The handle of this adze consists of two parts, — one of wood, and one of bone, — which are spliced together.

\(^1\) See pp. 570, 571.
Fig. 141 shows a man’s ordinary belt-knife, with a wooden sheath having tin rims and ears for suspending it on the belt. This knife, like all straight knives, has a thick back. It is called “belt-knife” (itt't-wal or yéč'ětwal), and is used in eating, and for working small wooden objects and carvings in bone. With this same knife, sharpened to a keen edge, hair is cut or shaved, the hair on reindeer-skins designed for clothing is cut and reindeer are stabbed when killed for food and not intended as offerings. With this knife, too, fish is gutted for sun-drying. Women usually carry it stuck into the boot-leg. In very rare cases do women carry such knives at the belt.

A knife of the same form, but somewhat longer (including the haft, about 45 cm. in length), is called “hip-knife” (yö-wal), because it is not carried on the belt, but is tied to the

\[1 \text{ See p. 604.}\]
right hip, under the coat, so as to be drawn easily with the right hand. With this knife animals are skinned and grass is cut, and with its back the foot-bones of animals are broken to extract the leg-marrow.

Fig. 142 represents a large knife with case, called "large knife" (ma'ini-wal), "breast-collar, or strap knife" (wa'gil-wal), or "knife carried on one's self" (a'mta-wal). It is carried like a sabre, across the shoulder, in a leather sheath (b) attached to a breast-collar. This knife was used even recently as a battle-weapon, like a short sabre, having supplanted the bone battle-knives made of the ribs of elks and wild reindeer. The sheath is of thong-seal skin sewed very roughly with sinew-thread. The short haft of the "large knife" is made of bone of whale. The style of ornamentation on this kind of iron-work will be discussed later on. The major of "large knives" are made without ornament. They are made chiefly for the Reindeer Koryak. At present wood is split, and frozen meat and bones are chopped, with this kind of knife.

Fig. 143 represents a spear made by a Kuel smith. It is double-edged,
long, narrow, ornamented, and well finished. The spears for every-day use are not ornamented. They are of simple and rough workmanship. Some spears are made with a ridge in the middle, which is also often met with on spears from the Amur region (see, Fig. 195).

Knives for special kinds of work are represented in Fig. 144. The woman's knife, a (ñau-wal) is of a sickle-shape, its form being an imitation of the ancient flat knife made of slate.¹

The woman's knife has no sheath. It is kept in the work-bag, together with shavings of skin. With this knife, women cut skins and furs for clothing.² The cutting is done on a cutting-board. Koryak women rarely use scissors. Imported broadcloth for the upper coat, and calico for shirts, are also cut with the knife. Koryak blacksmiths do not manufacture scissors. The large shears shown by Bogoras ³ are the work of Yakut or Amur River blacksmiths. Yakut women cut skin for clothing with such scissors. Nevertheless Koryak women exhibited great joy when we presented them with ordinary narrow iron scissors in return for services rendered, or for submitting to being measured, and immediately pressed them into service.

Fig. 144, b, represents a knife with a long handle, specially used for carving in bone or wood. However, this knife is also called a belt-knife, and is worn at the belt in a sheath. Its wooden handle is covered with sheet-brass which is adorned with scratches made with the point of a knife, and evidently representing a technical ornament. Fig. 144, c, represents a straight knife (tami'hu-wal, "working-knife"), and d a curved knife (kehi-wal, "curved knife"), used in carving bone and wood, and in hollowing out spoons, ladles, dippers, plates, and dishes.

Fig. 145 represents an iron chisel and an iron bow-drill for work in wood. The chisel (a) has a curved edge for making holes. The handle of the drill (b) and the bow are made of bone of whale. A similar bow-drill, only with a smaller point made of steel, is used also in riveting old kettles, and generally for boring in iron.

I did not happen to see a pump-drill in use. It is curious that the bow-drill is called in the Koryak language mîl'gtîne ("fire-procuring"). This points to the fact that the use of the bow-drill for procuring fire had preceded

¹ Murdoch (The Point Barrow Eskimo, Fig. 106, p. 153) mentions an ancient large single-edged slate knife of this shape, belonging to the Eskimo, and supposes that it was used specially for cutting food. I am inclined to think that it was a woman's knife for cutting skin. Its shape is quite similar to the woman's iron knife of the Koryak, whose blacksmiths doubtless originally imitated ancient stone models. In Mason's article on the woman's knife of the Eskimo (Report of the U. S. National Museum, 1890, p. 411) are collected types of woman's knives of the Eskimo and certain Indian tribes from various localities. These illustrations show that nearly all — both the stone knives, and those of iron made in imitation of the stone ones — have a crescent-shaped blade, just as in the case of the woman's iron knife of the Koryak. Nearly all knives of which illustrations are given by Mason have handles like those of chopping-knives. Only in three of them (see Plates LIX, LXIV, and LXVIII, Figs. 1, 4, 21 do we see a handle on the side, just as on our woman's knife.

² Ornamented woman's knives are represented in Fig. 193.

³ See Bogoras, The Chakschee, Vol. VII of this series, Fig. 151, 4, p. 222.
its use for drilling holes; but it is certain that the Koryak, prior to the introduction of iron, were already using either a stone or a bone bow-drill to bore holes with. It may be supposed that the holes in stone ear-rings must have been made by means of the drill.

Fig. 146 represents a saw made by the Reindeer Koryak for cutting reindeer-antlers. It is made of sheet-iron by means of a file, after the pattern of imported steel saws. The teeth of the saw are very uneven.

Nearly the whole of the Koryak blacksmith's work is confined to the iron tools above described. I should mention, in addition, the manufacture of kettles from imported sheet-iron by Koryak artisans. They beat these kettles out with hammers, and the bottoms are fastened on with mortise-locks, in imitation of the imported kettles, so that they are all suited for cooking-purposes. They do not make tin teapots, as they cannot solder on the spouts. The blacksmiths also make pick-axes for picking ice-holes, marline-spikes, awls for sewing dog's harness, scrapers for dressing skins,1 paring-chisels, bracelets, and needle-holders.2

1 See Fig. 189, a.
2 See also iron fish-hook (Fig. 79, p. 534), harpoon and arrow heads (pp. 546, 559), bird-dart (Fig. 95, p. 558), armor (p. 562), picks (p. 578), and ice-creepers (Fig. 30, p. 605).
Two iron bracelets are represented in Fig. 147, $a$ and $b$. Small iron bars, finished and ornamented by means of files, are hammered cold into bracelets. There are also twisted iron bracelets, which are made of iron rods heated red-hot and twisted with tongs. In Fig. 147, $c$, is represented an iron needle-case with iron pendants. For dog-harnesses the blacksmiths forge toggles, swivels, rings, and small chains as substitutes for those formerly made of bone. Files for smoothing iron are bought by the smiths from traders or in the Government depot. Sometimes they themselves make files of iron bars by means of imported files. The Koryak blacksmiths do not make iron nails, but they do manufacture iron rivets for patching kettles and other broken utensils.

![Fig. 147, $a$ (7½ in.), $b$ (4¾ in.), Iron Bracelets; $c$ (10½ in.). Needle-Case (length, 13 cm.).](image)

![Fig. 148, $a$ (4½ in.), $b$ (5½ in.), $c$ (6½ in.). Brass Ear-Ornaments. 1/2 nat. size.](image)

**Work in Copper, Brass, and Silver.** — The Koryak work copper and brass in the cold state only. The production of objects wrought in this way is limited. As material for the work, imported sheet-brass, copper wire, and broken copper dishes, teapots, and kettles, are used. Of copper or brass wire are manufactured large ring-shaped ear-ornaments decorated with iron or brass pendants, or with many colored beads which are strung on sinew-thread. Fig. 148 shows three such ear-ornaments. The one marked $a$ represents an open ear-ring prior to passing it into the ear; and $b$ and $c$, closed ear-rings as they hang in the ears. Identical forms of ear-ornaments are found among the Tungus and the Amur Gilyak. The shape of these ear-rings, and their manner of manufacture, have undoubtedly been learned by the Koryak from the Amur tribes through the Tungus of the Okhotsk district, or they are manufactured in imitation of ear-rings brought to Gishiga from Vladivostok. The
same may be said of the metal bracelets. I have already described iron bracelets. Two made of brass are represented in Fig. 149, a and b.

The jew’s-harp shown in Fig. 149, c, is made of brass. Usually this instrument is made of bone. The needle-case (Fig. 149, d) is made of two gun-cartridges, and has brass and iron pendants.

The copper of worn-out teapots is used by the Koryak for patching and riveting damaged copper vessels. Spears and large knives are inlaid with copper and partly with brass. First the designs, representing chevron ornaments and various kinds of curves, are incised with a steel chisel. Then copper shavings are driven in with a hammer, and the weapons are smoothed off with a file.1

Silver-work, smelting, or cold-hammering are unknown to the Koryak; though the blacksmiths of the Tungus and Yakut, the tribes nearest to them, work also in silver. The Tungus work is done cold only, while the Yakut have attained a high degree of proficiency as silversmiths. With a hammer they beat out various ornaments and other objects from pieces of silver; smelt silver in crucibles of their own manufacture, made of fire-proof clay, and then pour the smelted metal into moulds; make alloys of silver with other metals; engrave the most complicated designs on silver ornaments; and enamel silver after the style of the Circassians. The material for this work is supplied mainly by old silver objects and silver coins.2

Tungus smiths hammer silver coins into small ornaments, such as earrings, rings, buttons, buckles, or little thin disks for breast-ornaments, and polish these with a file and soft leather made of reindeer-skin. The Tungus buy larger and more ornamental silver objects, such as belts, pendants for coats, and ornaments for hair-dressing, from the Yakut.

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1 For ornamentation on knives and arms, see Figs. 142, 143, 189, 193, 195.

2 In the Yakut Province, stories are in circulation that certain Yakut silversmiths reduce silver from ore, but carefully conceal the location of the mines. I could not verify the truth of these tales.
The love for silver ornaments is equally strong among the Tungus and the Yakut; among the latter, however, this passion has weakened of late, under the influence of civilization. They even preferred silver to gold, though the Yakut well know that gold is the more expensive metal, and though Yakut silversmiths know how to smelt gold, too. Even the poorest Tungus women have some silver ornaments on their dresses.

The Koryak, on the contrary, have no particular partiality for silver. Even the women of wealthy reindeer-breeders do not always possess silver ornaments. The color of copper or brass is more suited to their taste than the white color of silver. I remember that in Kamenskoye, when I offered a Koryak woman the choice between a wide brass ring with a shining shield and a narrow silver ring, she chose the former. A contrary result was obtained from the same experiment at another time with a Tungus woman.

The Koryak call silver ṭańa-po'lou'ntn ("easily selling iron"). This name, therefore, expresses the superiority of silver over iron. The derivation of the word for "iron" is unknown. At any rate, it was not borrowed from the Russians.

Work in Wood and Bone. — Wood and bone objects, from tiny carvings up to sledges, are nowadays wrought only by means of the above-described iron tools. For fastening the parts of sledges and of the frames of skin boats, pegs of wood or iron are not used. Everything is tied with leather straps; but the Koryak are fond of joining their small chests for holding tea-dishes, or other objects, with steel nails obtained from the Russians. Household objects of wood have been described before,¹ and carvings will be discussed later. The netting-needle, and the vice used instead of iron pincers for finishing iron objects with a file, are made of wood.

In addition to the knife for cutting herring,² many other tools are made of bone, antler, or ivory. A thimble and ring of ivory, which protect the thumb and index-finger in chipping stone tools and working wood with the knife, have been described.³ Fig. 150, a, shows a bone needle used in weaving baskets of grass. Fig. 150, ᵈ, represents a bone tool found by me in excavating an old underground dwelling at the mouth of the Nayakhan River. In shape it looks like an imitation of an iron hammer, but with this difference, that holes have been made in it for tying it to the handle by means of small leather straps. What its practical application may have been, is unknown. It is too small to have served for clubbing seals.⁴ It was found with potsherds; and if its shape has been copied from an iron hammer, then the potsherds must be of very recent origin. Fig. 150, c, represents a pair of ear-rings carved out of walrus-tusk with a knife. In shape these ear-rings are an imitation of the stone ear-rings referred to before (see p. 610), but differ from them in having linear ornaments.⁵

¹ See p. 570. ² See p. 573. ³ See p. 608. ⁴ See p. 545. ⁵ See also bone lamp (p. 567), stool made of antler (p. 568), spoons (p. 571), fish-rake (p. 573), picks and pestle (pp. 577-579).
Of bone tools, the following, besides those already mentioned, are still in use: an axe of bone of whale, with which bark is peeled from trees to get gum, and with which sods are cut for covering the walls and roofs of underground houses; a marline-spike (Fig. 151), which is indispensable on account of the extended use of lashings; bone combs for combing sacrificial grass; and plant-stems for technical purposes. In the absence of iron, toggles and swivels for the dog-harness are made even now of bone or antler. For making bone swivels, a ring made of the bone of a mountain-sheep is placed in boiling water, in which it expands and softens. Through this is passed the small head of a bolt, usually cut out of a walrus-tusk. After drying, the ring contracts around the body of the bolt, and the head cannot come out. Finally may be mentioned the Koryak bone-scaper described by Bogoras.

**WOMAN'S TAILOR-WORK.** — All the clothing is made by women. The sewing for each family is done by the adult women, but girls from the age of twelve or thirteen on assist their grown-up relatives. Among the tailor's tools, the woman's knife has already been described. Next, the needle and cutting-board should be mentioned. At present only imported steel needles are used. For sewing heavy skin clothing, only long thick needles are used. Special preference is given by the women to sailor's needles, with which they can pierce more easily than with round needles the thick skins used in winter for the inner sleeping-tents and the large outer tents. The cutting-boards are made in different sizes. For the most part, they are plain alder, poplar,

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1 It is curious to note that the bone axes that I have seen were mounted on a wooden handle, with the edge of the blade parallel to the handle, like iron axes, and not like adzes, as was formerly done. Thus, in the epoch of the transition from stone to metal is found not only the tendency to give metal tools the shape of tools of stone or bone, but also the contrary tendency to adopt for bone or stone tools the forms of imported iron tools.

2 See Part I, Fig. 42, p. 97.

3 See Bogoras, The Chukchee, Vol. VII of this series, Fig. 147, p. 219.

4 See p. 621.
or larch boards, about half a metre long and 15–20 cm. in width, planed off with an adze. On the reverse side, figures representing human beings and animals, and other ornaments, are carved out with a knife. The small pieces of white and black fur for making up patterns on clothing and rugs are cut on small ornamented boards with a wide notch in the middle, on which are wound the embroidered fur strips for trimming coats.

Fig. 152 represents an ornamented double wooden trinket-box with a connecting hollow bar around which embroidered fur strips are wound. The two small boxes serve for holding needle-cases, thimbles, slitting-tool, patterns, and other trifles. The wooden lids are fastened to the outer sides of the boxes with leather strips instead of hinges. They are closed by a sinew-thread which passes from one lid to the other through the hollow bridge connecting the two boxes.

Thread is still made of reindeer-sinew. For sewing-purposes the thin threads of the dorsal sinews are used, while the thick sinews taken from the legs serve to make ropes for netting and for basket-weaving. The sinew is pounded with a stone hammer on a stone table, and combed like flax with a bone comb; then threads or ropes of the desired thickness are twisted out of the thin fibre thus obtained.

Plate xxxvii shows women of the Maritime Koryak sitting sewing and cutting by the dim light of an oil lamp. On the right side a boy is sitting on the log which separates the sleeping-space from the middle of the house; a girl with her sewing, and a woman with a child, are sitting behind the log, on skins, under the raised cover of the sleeping-tent. On the left are seated a girl, and a woman with a cutting-board. Above are hanging clothes, foot-wear, and a fur rug. The sewing of reindeer-skin rugs will be described later on.

DYES. — The Koryak use a variety of dyes for dyeing skins, animal hair or fur for ornaments, and thread for weaving bags and baskets. For black or dark dyes they employ sea-mud, a decoction of swamp-moss and pounded coal mixed with fish-glue, or a decoction of berries of Empetrum nigrum with burned grass of Elymus mollis. With the first two is dyed the bark of the willow-herb (Epilobium angustifolium), of which bags are woven. Previous to being twisted into thread, this bark is soaked in sea-mud gathered on the coast after high tide, or in a hot decoction of swamp-moss.

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1 See Fig. 194.  
2 See Fig. 196, a, b.  
3 See Chapter XI.
Pounded coal mixed with fish-glue is used for coloring sledge-stanchions, engravings on bone carvings, sinew and nettle thread, and sometimes woodcarvings.1 A decoction of cranberry with ashes of *Elymus mollis* is used in dyeing black the strips and pieces of ringed-seal skins and of the thin skin from dogs' necks, which are used for ornamenting clothing.

Red dyes of various hues are made of ochre, alder-bark, and of berries of *Empetrum nigrum*. Ochre is used also as a paint, — either dry (for instance, in painting the cheeks of wooden masks2), or dissolved in water. Alder-bark serves mainly for dyeing dressed reindeer-hides, from which clothing is made to be worn with the fur side in. Dressed skins are rubbed with it, or it is boiled in water and the skin is soaked in the hot decoction. In the former case an uneven reddish dye results; in the latter, a bright even cinnamon color is obtained. Special skill is required for this process. Expert workers are found among the Maritime Koryak women, who know how to lay a very showy bright cinnamon hue on skin. After being treated with hot alder-dye, the skin hardens, and must be rubbed afresh to render it soft.

**Dressing of Skins and Cutting of Thongs.** — In the Koryak household, dressing of skins and cutting of thongs are important occupations, as all of the clothing is made of skins, which must first be dressed; while thongs are needed not only for lines, breast-collars, lassoes, harness, etc., but also for tying together sleds, for nets, and for many other necessities.

The dressing of skins is the task of women, while thongs are cut by men. The methods employed in both these industries are identical among the Koryak and Chukchee, and for the description of details the reader is referred to Bogoras's work on the Chukchee.3 I will only remark that in certain places these occupations develop into home industries. This is particularly true of the making of thongs. Strong thongs are obtained only from sea-animals. Accordingly the Maritime Koryak manufacture them, and exchange thongs of ringed-seal and walrus-hide with the Reindeer Koryak.

**Basket-Work.** — The bags and sacks made of seal-hides and reindeer-skin have been spoken of before (see p. 607). Here I shall confine myself to a description of the manufacture of woven bags and baskets. Like the manufacture of clothing, weaving is the occupation of women, and it is developed chiefly among the Maritime Koryak. The material for weaving is quite varied. The roots of different species of willow, the wild rye (*Elymus mollis;* Koryak, tu'wai), willow-herb grass (*Epilobium angustifolium;* Koryak, me'nmet or me'nmetan), nettle (*Urtica dioica* L.), thread from reindeer-sinew, and imported twine, are used.

Willow-roots, previous to weaving, are soaked in warm water, by which process flexible white rods are obtained. The stems of the *Elymus mollis*

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1 See for instance, the wooden dog (Fig. 178, a) dyed in black.
2 See Part I, p. 84.
are gathered in autumn. This plant grows on sloping sandy river-banks, and often reaches the height of a man. The women cut it down with knives, and carry it in sheaves to the villages. The grass is twisted into braids (Fig. 153, a), and bunches of these are hung on sticks in the storehouse.

The outer bark of the edible willow-herb\(^1\) (*Epilobium angustifolium*) is used for technical purposes. The pith is taken out and used as food. Thread is twisted from the bark in the same way as from nettle. The winter supplies of willow-herb are gathered also in the fall, and are preserved in bunches (Fig. 153, b):

The Koryak must have used nettle for weaving before meeting with the Russians. From certain passages in Dittmar’s\(^2\) book on Kamchatka, the conclusion might be drawn that the Russians had taught the Kamchadal how to treat nettle for textile purposes; but Krasheninnikoff and Steller, who wrote of Kamchatka nearly a century before Dittmar, speak of the use of nettle for nets and baskets as a long-known industry of the Kamchadal\(^3\).

The Koryak women gather nettles also in autumn, after the end of the fishing-season, tie it into bunches, and hang it under the storehouses to dry. In winter they work their yarn. With their teeth they pull off the soft fibres from the hard woody nettle-stems, pound them with a stick until the fibres come apart, and then twist these in the same way as they do sinew-thread.

I have already spoken of the use of sinew-thread in sewing. For basket and bag weaving or netting, strands are made of from four to six fibres, which are twisted together. The spinning of the thread for weaving from these plant and sinew

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1. See p. 578.
2. Dittmar, *Travel in Kamtschatka*, pp. 160, 164, 165. It is quite possible that what Dittmar says does not refer to the preparation of nettle by the Kamchadal in general, but to the endeavors of Zavoyko, Governor of Kamchatka, to accustom them to an improved method of treatment by means of spinning-wheel and weaver’s loom. But from the passages referred to in Dittmar it is not quite clear that he wanted to speak only of improvements in the Kamchadal method of manufacture. I do not know whether the better method introduced by the Russians has been preserved among the Kamchadal, but the Koryak employ even now the most primitive method of preparation of nettle.
fibres has not advanced beyond the method of a cobbler preparing his waxen end. The twisting is done with the palms of the hands,¹ and a long thread is obtained by twisting together separate parts. Fig. 154 represents a wooden reel on which is wound the sinew-thread for weaving. Similar skeins are made of the threads of plant-fibres.

When a Koryak woman comes into possession of imported flax, hemp, or cotton thread or cord, she uses it by mingling it in her work with home-made material, so that stripes of one and the other material alternate. Sometimes it happens that a Koryak woman purchases linen cloth, unravels it, and twists the ravellings into cord for weaving.

Among the Koryak, as among the Alaskan Eskimo, we find coiled and twined basketry; but in the majority of cases the work of the Koryak is better, and their methods are more varied, than those of the Eskimo.

Fig. 155 represents one of the varieties of coiled baskets. They are children's baskets, made of *Elymus mollis*; but larger-sized baskets of the same shape are used by women for berry-picking. Fig. 156 represents one square inch of Fig. 155, a, enlarged. As may be seen, the work is done

¹ It is interesting to note that an improved method of twisting thread is employed by the Yakut women, who twist with the palm of the right hand on the bare thigh. The origin of this method is explained by the Yakut woman's dress, the lower part of which consists of three pieces, — short trousers, knee-piece, and boots. In working thread, the Yakut woman takes off the knee-piece of the right leg, and, raising her coat, twists on her bare thigh.
quite roughly, and differs in no way, in material and device, from the same kind of basket-work of the Alaskan Eskimo, which has been described by Mason.\(^1\) Bunches of straw are used for the body of the coil. In whipping each coil with a straw thread, the upper part of the lower coil is caught in, thus fastening the coils together. The straw whipping-thread is passed through the bunches of straw that serve as the foundation by means of a bone or iron awl. As may be seen from the illustration, the women do not observe any regularity in passing the binding through the lower coil. In whipping they pass the thread either through the lower coil or into the interval between two coils, just as the Alaskan Eskimo\(^2\) do.

The ornamentation of this kind of baskets is made with straw dyed black or red, which is used for whipping the coils, and alternates rhythmically with undyed straw thread (see Fig. 155, \(\delta\)).

These baskets are circular in section, and the diameters of the circles grow smaller in size going upward. The rim usually consists, not of straw, but of a willow rod coiled with sinew thread instead of straw thread. The lid is separate, and is fastened to the basket with a small strap. On the opposite side, straps for closing the basket are fastened.

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1 See Mason, Aboriginal Basket-Work, Figs. 5, 6, p. 203.
2 For a sample of cleaner work and regularity of stitches, see the Zuñi coiled basket-jar in Mason's Aboriginal Basket-Work, Plate XLI, Fig. 81 and the fabrics from a cave in Kentucky (Holmes, Prehistoric Textile Fabrics of the United States derived from Impressions on Pottery, in the Third Annual Report of the Bureau of Ethnology 1881—82, Fig. 67, p. 403).
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Fig. 157 represents a type of coiled basketry made of Elymus mollis; but the coils of straw are whipped with twisted sinew thread, and not with straw thread. In b a part of the bottom of the basket is shown on a larger scale. The straw coil forms a spiral. The coils are whipped and held together by a sinew thread, also without any regularity, like the straw thread in the preceding figure. The whipping is done with a bone needle like the one shown in Fig. 150, a.

Fig. 158 represents a basket made of willow-roots on the river Opuka. The material for whipping consists of splints of willow-roots. This basket, too, belongs to the coiled type, but differs from the two preceding figures in the style of coiling. Rods made of willow roots or branches form the warp. Beginning from below, the splint of the root whips two rods of

Fig. 159 (a, b). Unfinished Bag of Nettle-Fibre. a, Detail of weaving.

the warp at once. In this process a space equal to the width of the splint is left between each whipping. Then a third rod is added above, and is fastened to the second rod in the same manner, but so that the stitches pass under the second rod between the stitches joining the first pair of rods.
Attention may be called to the neatness and regularity of this work. The seam nowhere passes over the preceding whipping, as it does in grass basket-weaving. The shape of these baskets, which are oval in cross-section, and the form of the lid, suggest that they may be an imitation of some imported model. In material and technique, this basket is exactly identical with that of the Tinné, who, as Mason supposes, taught the Alaskan Eskimo to weave.¹

Baskets or bags made in twined weaving are open and close. The latter are waterproof.

Fig. 159 represents an unfinished woven sack made of nettle-thread, and a piece of the sack, on a larger scale, showing the method of weaving. An empty sack is so soft that it may be rolled up. After the warp-threads on the bottom of the sack are fastened by the woof-threads, the sack is hung up on two poles or on a stretcher. At the end of the warp-thread, knots are made, lest the twisting should be undone during the work. Certain rows of the warp-threads are black, and alternate in regular order with rows of undyed threads, thus

¹ See Mason, Aboriginal Basket-Work, Plate V, p. 295.
determining the ornamental style of the bag. The weaving is done by twining two woof-threads over the warp. The end of the woof is gathered in a skein and undone according to need. The weaving continues round the sack from right to left.

Fig. 160 represents flat bags like those on the preceding figure, but finished. In b a strip of seal-skin is stitched around the opening of the bag. It is sewed with sinew-thread to the last woof-threads, to which are also fastened the loose ends of the warp. This bag has never been in use, and in the skin strip at the opening are no holes through which to pass the thong which is to close the bag when full (Fig. 160, a). The workmanship of these bags exhibits great taste and skill. The ornamentation of the bag is made as follows: at certain intervals among the nettle-threads of the warp there run three threads of sinew, dyed black, which thus form narrow black longitudinal stripes between wider stripes of the light-gray nettle. These alternating stripes of various colors make a pleasing impression. The width of the light stripes varies; and this somewhat disturbs the impression which the ornamentation would produce on the eye if it were executed with greater regularity. The bag is further ornamented with bunches of colored crewel, which are caught in the twining, forming tassels similar to those shown in Fig. 199, a. This ornament forms three cross-stripes. Of these, the lower two consist of three rows; the upper one, of four rows.

On the bag marked a, instead of the bunches which form the cross-stripes, there is an embroidery of crosses in colored wool, the regular arrangement of which produces a very pleasing effect. The black cross-stripes consist of threads made of the outer bark of Epilobium angustifolium dyed in sea-mud.1 To this bag is attached a woman's carrying-strap or head-band.

The twined bags here described serve for carrying goods on foot-journeys. Women carry them by means of a head-band; men, by means of a chest-yoke.2 In them women also carry children (see Plate xxxvi). In the Koryak tongue every bag or basket is called apke'lin; baskets with ornamentation, kele'apkel ("ornamented baskets"); while the coiled baskets described before are called tene'apke'lin ("sewed basket").

Fig. 161 shows the method of weaving close-twined baskets. Elymus mollis is pre-eminently the material used for this purpose; but the work on them is more perfect than the work on coiled baskets of the same straw. The warp is formed by threads of twisted straw of Elymus mollis. The weaving is done by twining

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1 See p. 628. This method of dyeing textile material black is found also among the Haida (see Mason, Aboriginal Basket-Work, p. 297).
2 See p. 606.
with two straw threads. This method of weaving produces a texture dense, waterproof, and yet flexible and not coarse. Fig. 162 shows three baskets woven by this method. The ornamentation of these sacks is obtained by weaving in threads of *Epilobium angustifolium* dyed black. In *a* the threads from this grass have been dyed in a decoction of swamp-moss. To this dye is added a little fish-oil, which gives it a glossy hue. Bags woven in the way here described vary in size. They are used chiefly as women's work-bags. In the majority of cases the upper part (a third or a half) of the bag consists of reindeer or seal skin stitched to the woven part, as shown in *a* and *b*. Around Penshina Bay the Koryak women, among whom I collected all the above-described specimens of basket-work, do not weave (at least at present) any grass mats; but the Koryak of northern Kamchatka, like the Kamchadal, make grass mats. Fig. 163 represents a grass basket for berries, of the Koryak of northern Kamchatka, which is of cylindrical shape, and is made in twined weaving. In neatness, workmanship, and ornamentation, the basket recalls the best specimens of Indian basketry of the North Pacific coast.

Mr. Bogoras has collected in northern Kamchatka a few grass bags which show a different technique. They are made throughout of braids of grass. The bottom is formed by a long narrow strip of skin, to one end of which
the first braid is sewed. The braid then continues spirally around this strip of skin, the spirals being sewed together. These bags are ornamented by inserting at a certain place a dark or ornamented braid, which occupies one turn of the spiral, to be followed by a plain turn, which again may be followed by a decorated turn. Thus it happens that at one place in the basket the ornamented and unornamented strips are sewed together, and the irregular appearance is presented because the ornamented turn of the spiral always ends one row above the point where it begins. This technique is shown in Fig. 164, b. In this case the lower part of the basket is made of coarse braid, while the upper two-thirds are made of a much more closely woven braid. In Fig. 164, c, the insertion of the decorative band is made in a different way, a single black spiral being inserted, which tapers at both ends. The technique of this style of basketry is shown in Fig. 164, a.

The Maritime Koryak are about the only part of the tribe engaged in basket-weaving from plant and other fibre. The Reindeer Koryak women have no time, and their large cold tents are unsuited in winter for carrying on the work of preparing the material and weaving the baskets. The Reindeer Koryak women content themselves with sewing-bags made of skins and with the woven baskets obtained by exchange from the women of the Maritime tribe.

Ancient Pottery. — I have referred several times to the excavations of ancient Koryak underground dwellings, which I made at the mouth of the river Nayakhan and on the seacoast between the mouths of the rivers Nayakhan and Gishiga. Before undertaking to describe the potsherds found in these excavations, I will make a few general remarks on the remains of these underground dwellings and how the excavations were conducted.

The Koryak themselves consider these remains as the dwellings of their ancestors, who had lived there previous to the advent of the Russians, and they call them by the same name as they call their present underground dwellings (see pp. 448, 453). These dwellings are therefore the dwellings of the Koryak, and not those of another tribe, and they are not very ancient.

Seen from the outside, these remains form circular or nearly circular
foes had set fire to these dwellings, and resemble the remains of underground dwellings on Yezo, as described by Dr. Grimm. Grimm calls attention to the charred posts found in his excavations. In some pits I also found that the posts which evidently supported the roof were completely charred. The Koryak explained this by stating that the Russian conquerors or other

...much to my regret, I was unable to carry on systematic excavations. The method of my travels precluded a long stay in those regions. Besides, it was in the month of July, when the soil was still frozen to the depth of one foot; so that digging was impossible, and the ground had to be broken with an axe. Therefore no amount of precaution could prevent the breaking of the articles found. Being unable to make regular and extensive excavations, I confined myself to digging up the centres of the holes in the hope of

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discovering the location of the fireside. I really did find charred logs, coals, stones forming the hearth, potsherds, and remains of tools. Let us now consider the potsherds.

All the potsherds found by me are made of coarse clay, containing fine gravel and pieces of quartz. They are quite thin (4–12 mm.), so that their manufacture has little in common with that of the thick and clumsy clay lamps and unbaked quadrangular kettles of the modern Chukchee and Asiatic Eskimo described by Bogoras. The potsherds found in the excavations are black with soot and fat, and were evidently well baked, as they remained strong and hard, although they had been lying in the wet soil.

The Koryak themselves well know that the potsherds now found are remnants of the clay vessels in which their near ancestors used to cook their food. The Koryak call a clay pot séku'keña, i.e., "clay kettle" (from sé, "earth and clay;" and kukeña, "kettle or pot"). Iron kettles are called by them polounto-kukeña.

In a myth it is related how Yiëna-ñeut, when a child, was deserted by her father Big-Raven in an underground house. There she grew up alone, caught birds, and cooked them in the clay pot she found behind the fireplace. The mentioning of pottery in mythology shows that the Koryak themselves assign to pottery an ancient origin.

A fairly accurate idea of the size and form of the whole pots may be gained from the fragments. The restoration of a pot is shown in Fig. 165, a. Its mouth has a diameter of about 21 cm., and its height must have been approximately 24 cm., while the walls are 4–8 mm. thick. The pot is moulded with the hand, and the outside bears all over it the impressions of close-woven twined basketry, such as is shown in Fig. 161. Evidently this impression was made by taking a piece of twined fabric in one hand, and pressing it against the moist pot, the twined woof being placed so that the lines run at right angles to the rim. In some fragments of pots the impress of this woven fabric is very distinct. Another fragment in the collection indicates that the pot of which it once formed a part must have had a still larger diameter. The piece is too small to reconstruct the exact form of the pot, but it would seem that the pot was not less than 30 cm. wide at the mouth. All the pots are covered with a heavy layer of soot. A thick potsherd showing a decorated rim is shown in Fig. 165, b.

The unquestionable existence of pottery among the Koryak in the recent past presents great interest, in view of the fact that the former existence of pottery among other so-called pala-Asiatic peoples has been disputed by many writers.

Let us consider, first of all, the Kamchadal, a neighboring tribe kindred to

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1 See Bogoras, The Chukchee, Vol. VII of this series, Figs. 102–104, pp. 185, 186.
3 See Steller, p. 322; Krasheninnikoff, II, p. 45.
the Koryak. True, Steller and Krasheninnikoff visited them after they had been considerably influenced by Russian culture; but, in speaking of the ancient Kamchadal method of cooking food, they mention only boiling in wooden troughs by means of red-hot stones, and there is nowhere in the writings of these authors a reference to clay vessels. Schrenck considers the absence of pottery among the Kamchadal as proved.\textsuperscript{1}

I have found accounts which stated that the Koryak also used red-hot stones for boiling. However, in these statements I do not see any contradiction to the fact that there are traces of the existence of pottery among them. The latter, to my mind, seems a later invention than boiling by means of red-hot stones; but, even after the invention of pottery, cooking by means of red-hot stones might have continued.

But as iron kettles were acquired, the manufacture of clay pots probably disappeared earlier than the custom of boiling with stones in troughs, as may have been the case with the Kamchadal. Witsen\textsuperscript{2} states, based on information given by Cossacks, that the Kamchadal used to make clay vessels. In an old underground Kamchadal dwelling, Dittmar found “small clay vessels” of most primitive workmanship. “The clay crumbled under the hands, it had evidently been badly (if at all) baked,” says Dittmar. As the pots were saturated with blubber, Dittmar thinks it possible that they had been lamps, and not cooking-pots;\textsuperscript{3} but this opinion may be offset by the shape and size, especially the depth, of the pots found.\textsuperscript{4} Besides, in another passage, Dittmar quotes the tale of an old Kamchadal who brought to him the stone implements that he had dug out

\begin{figure}
\centering
\includegraphics[width=\textwidth]{Fig_165.png}
\caption{Fig. 165. \textit{a} (\textit{q}1\textit{q}_2), Pottery Vessel; \textit{b} (\textit{q}2\textit{q}_2), Rim of Pottery Vessel.}
\end{figure}

\begin{itemize}
\item \textsuperscript{1} Schrenck, II, p. 140.
\item \textsuperscript{2} See Witsen, Noord en Oost Tartarye, 1705, p. 673.
\item \textsuperscript{3} See Dittmar, p. 213.
\item \textsuperscript{4} Dittmar gives the following measurements of the pots: upper diameter, 12 cm.; lower, 10 cm.; maximum width, 14 cm.; depth, 10 cm. This vessel, therefore, had an aperture smaller in diameter than the middle part, and its bottom was still smaller than the aperture. Clay lamps are of different shape (see Bogoras, The Chukchee, Vol. VII of this series, Figs. 102, 103, pp. 185, 186; Nelson, Plate xxvii). Nelson gives 2\frac{1}{2} inches (i.e., less than 7 cm.) as the depth of two lamps (Nelson, p. 64). The Koryak stone lamps (see p. 566) are 4–6 cm. deep.
\end{itemize}
of ancient underground houses, and who said that potsherds of coarse clay vessels are often found among other objects in excavating ancient underground dwellings on the eastern coast of Kamchatka.1

Lastly, the Gishiga Cossacks, who often visit Kamchatka on duty, told me personally that they came across the same kind of sherds of clay pots as I found in the ruins of ancient Koryak houses.

At present neither the Gilyak and Ainu, nor the Kamchadal and Koryak, make clay pots. Schrenck expresses the opinion that even in antiquity this art was unknown to the Gilyak and Ainu.2 Concerning the statement of the Japanese traveller, Mamia Rinso, that the Gilyak on Saghalin manufactured clay ware resembling that of the Chinese and Japanese, Schrenck supposes that this art was introduced by the Chinese and Japanese at a quite recent date, and has been lost again. On the other hand, Schrenck finds that the potsherds collected by Pfeiffer, Lopatin, and Polyakoff in various parts of the Amur region and in Saghalin, samples of which were in his hands, were so old as to have no ethnological connection whatever with the tribes inhabiting the region at the present time.3

Leo Sternberg, the latest student of the Gilyak tribe, in his brief preliminary sketch of the Gilyak, published in the "Ethnographical Review,"4 expresses an opinion concerning the ancient Gilyak pottery identical with that of Schrenck. In his opinion, the Gilyak were not familiar with pottery. Further on, I shall briefly touch upon his arguments. The Gilyak themselves call the remains of the ancient underground dwellings on Saghalin Island, where the potsherds were found, kugi-tulkë, which means "Ainu little pits," i.e., the Gilyak attribute them to the Ainu. Following the course of his arguments, Sternberg further supposes that these little pits did not belong to the ancestors of the present Ainu either, for the Saghalin Ainu themselves attribute them to another people by the name of Tonchi.5

Here I reach a question interesting in the highest degree, — the question, Who were the ancient inhabitants of Japan and of the underground dwellings in Yezo and other places, — the Ainu, or another pre-Ainu people? This question divides Japanese and other investigators into two camps. Of the Japanese scholars, Professor Koganei especially, espouses the former view; Professor Tsuboi, the latter. Concerning Saghalin, my friend Dr. Sternberg apparently seems to side with Tsuboi; while Dr. Lauffer, a member of our

1 See Dittmar, p. 189.
2 See Schrenck, II, p. 139. Schrenck, by the way, expresses the opinion that pottery was unknown to any of the so-called pale-Asiatic peoples, with the exception of the Eskimo. He supposes that the Eskimo came to America from Asia, and classes them among the pale-Asiatics; but this opinion, as we see, is utterly refuted by the facts.
3 See Schrenck, II, p. 141.
4 See Sternberg, The Gilyak (Ethnographical Review, published by the Ethnographical Section of the Imperial Society of Friends of Natural History, Anthropology and Ethnography, Moscow, 1904, Parts 1, 2, 3).
5 Ethnographical Review, 1904, I, p. 5.
expedition, expresses views in harmony with Professor Koganei's.\footnote{1} Of the recent works devoted to this question, one of especial interest is Professor Koganei's excellent article, "Ueber die Urbewohner Japans."\footnote{2}

I can touch upon this question only so far as it bears upon pottery. On the one hand, remnants of primitive pottery have been discovered on the Chukchee Peninsula, in Baron Korff's Bay,\footnote{3} in Kamchatka, on the coasts of the Okhotsk Sea and its bays, on the Kurilian Islands, at the mouth of the Amur, on the islands Sakhalin and Yezo; on the other hand, the Eskimo of northwestern America even now make clay pots, and have left traces of this art which existed among them in the past.\footnote{4}

Whether pottery was known to the Aleut, we do not know as yet. Veniaminoff says that the clay vessels he saw among the Aleut had been obtained by them from the Russians.\footnote{5} In the description of the articles found by Dall\footnote{6} in the grave caves of the Aleut, we find no remains of clay vessels; but until archaeological investigations have been undertaken in the Aleutian Islands, it cannot be asserted that pottery was unknown to the Aleut. Judging by the results of our expedition, the Indians of the North Pacific coast never had pottery.\footnote{7}

Territorially speaking, we have thus found, so far, that pottery in its primitive stage was widespread on the northern coasts of the Pacific Ocean from the islands of Japan around almost to the coast strip of southern Alaska.

\footnotesize{1 See Berthold Lauper, Die Angeblichen Urvölker von Yezo und Sakhalin (Centralblatt für Anthropologie, Ethnologie und Urgeschichte, Jena, 1900, Band V, Heft 6).


3 Bogoras (The Chukchee, Vol. VII of this series, p. 186) says that certain potsherds found by him in the ancient "jaw-bone houses" are thinner than the above-mentioned clay lamps and kettles, and point to another type of clay pots in the past.

4 Thus we have Baron Wrangel's statements of the beginnings of the nineteenth century, that the Eskimo in Alaska made pots (Wrangel, Statistik und ethnog. Nachrichten über die Russischen Besitzungen an der Nordwestküste von Amerika, St. Petersburg, 1839, p. 147); Dall's information concerning the seventies of the last century (Dall, Alaska and its Resources, London, 1870, p. 218) and the present-day information of Nelson (Nelson, The Eskimo about Bering Strait, pp. 201, 202). Concerning the inhabitants of the island Kadyak, we possess the following information, dating from the beginning of the last century: "From clay they make fire-pots, in which they melt whale fat. Formerly they could also bake pots, but now this art is lost, possibly for the reason that they found our kettles more convenient" (see Voyages to America of the Naval Officers, Klavstoff and Davydoff, St. Petersburg, 1812, Vol. II, p. 104). Krasheninnikoff (II, p. 305) states that the Konys of Kadyak cooked meat in clay pots. At the end of the last century Murdoch found on Point Barrow fragments of pottery which, according to him, existed earlier than iron kettles (Murdoch, pp. 91, 92). G. B. Gordon, in his Notes on the Western Eskimo (Transactions of the Department of Archeology, University of Pennsylvania, 1906, Vol. II, Part I, p. 83), based on data collected by the expedition sent to Alaska in the summer of 1905 by the Museum of the University of Pennsylvania, states that at present the art of pottery has died out among the western Eskimo, but the older people still remember the time when lamps and cooking-vessels were made of clay. Plates xxiii and xxiv of the same paper show different types of clay vessels of the western Eskimo.

5 Veniaminoff, Notes on the Unalaska District, Part II, p. 239.

6 Dall, On the Remains of Prehistoric Man obtained from Caves in the Catherine Archipelago, Alaska Territory and especially from the Caves of the Aleutian Islands (Smithsonian Contributions to Knowledge, 1878, Vol. XXII).

7 This conclusion is based on the results of the excavations made by Mr. Smith at the mouth of the Fraser River, in the southern part of Vancouver Island, and on the coast of Washington; but it would be very important to extend the archeologic investigations also to other parts of the coast-line between the Alaskan Eskimo and Columbia River and the interior Athapascons, in order to draw a final conclusion.}
As to the question what tribes have left remains of this art, there is still disagreement in the majority of cases. That the clay pots, of which potsherds have been found by me in Koryak territory, were made by the recent ancestors of the Koryak, there can be no doubt. The same may be said in regard to the Alaskan Eskimo, but here is involved the question of their original gradual distribution. So far as mythology is concerned, I have accepted Professor Boas's theory that the Eskimo came to the coasts of the Pacific Ocean from the east. In questions of somatology we have some data pointing to the change of the physical type of the Eskimo from the east westward, as we approach nearer and nearer to the Pacific Ocean.

The central and eastern Eskimo had lamps of soapstone, but we find no indication that they now can or formerly could make clay pots. If we consider as correct the theory that the Alaskan Eskimo came from the east, and that their physical nature and their traditions have changed in the new locality under the influence of the Indians, then they may have adopted the art of making pottery, too, after their arrival on the coasts of the Pacific Ocean, from the former aborigines, as their eastern fellow-tribesmen evidently did not know this art. I should remark that I bring forward these considerations only as an attempt at solving the question concerning the primitive culture of the Asiatic-American tribes.

Regarding the Ainu, it is impossible, it seems to me, not to agree with the considerations of Koganei, that the pits on Yezo, Saghalin, and the Kurilian Islands, which contain the potsherds now holding our interest, are remnants of the dwellings of the ancestors of the modern Ainu. For the Gilyak, we must for the present accept the opinion of Sternberg, — the best authority on this tribe, — who argues that the Gilyak are new-comers on Saghalin Island and at the mouth of the Amur, and suggests that they may have been neighbors of the Aleut. Still one cannot help remarking that Sternberg's chief arguments offered as proof that the clay potsherds from the "little pits" on Saghalin belong to neither the ancestors of the Gilyak nor to the ancient Ainu, are identical with the arguments of Tsuboi concerning the last-mentioned tribe alone. These arguments consist in the following: In the myths there are no allusions whatever to the former use of pottery by the Gilyak or Ainu; on the contrary, the traditions of both tribes attribute this art to other tribes, the Gilyak attributing it to the Ainu. The Ainu of

1 See Part I, p. 359.
2 See Dina Jocheelson-Brodsky, Zur Topographie des weiblichen Körpers nordostsibirischer Völker (Doctor's Dissertation of the University of Zürich), Braunschweig, 1906.
3 Unfortunately, no archaeological researches have been made in the territory of the northern Athapascan and Tlingit.
4 If this supposition should prove correct, the finding of remains of pottery on the Aleutian territory would be of importance.
6 See Koganei, Ueber die Urvonater Japans, pp. 304, 303.
Yezo, on their part, attribute this art to the mythical tribe Koropokguru, while the Ainu of Sakhalin claim that the mythical tribe Tonchi made the pots which have been found in the ruins of underground dwellings.\(^1\) He also thinks that if the Gilyak and Ainu had known this art before, it would not have been lost.

I shall not expatiate upon the linguistic interpretation of the words “Tonchi” and “Koropokguru,” which may be found in the works referred to.\(^2\) I wish only to remark that oral tradition cannot take the place of history if it does not agree with the data of archaeology, physical anthropology, linguistics, and comparative culture. In the last-named respects much remains to be done, but what has already been done with reference to the Ainu completely proves that the Koropokguru are the ancestors of the present Ainu. It is enough to read the description of the contemporary underground dwellings of the Ainu on Shikotan to come to the conclusion that after their destruction they would form the same kind of pits as we still find on Yezo.\(^3\) It is quite possible that the names handed down by tradition of what purports to be vanished tribes are but the ancient names of territorial groups or clans of one or another of the now existing tribes, just as I have been able to prove concerning the so-called vanished tribes of the Khodintsi, Omoki, Kongienisi, etc., of the Kolyma region,\(^4\) that they are not vanished tribes, but ancient local names of the divisions of the Yukaghir tribe.

The present-day absence of pottery among the Ainu and Gilyak cannot be proof that they never had it formerly, either. We possess many proofs, and among others my own data collected among the Koryak, that pottery may disappear with the advent of metal utensils.\(^5\) Likewise nothing is proved by the absence of any mention of pottery in the myths. The memory of peoples that possess no knowledge of writing is, on the whole, very short with reference to facts relating to their past life. To give an instance, I was surprised when the Arctic Yakut who came to the extreme north very recently did not know, when questioned by me on this point, that their ancestors had

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\(^1\) It should be remarked that so far no traditions ascribing them to mythical tribes have sprung up with reference to the potsherds found in 1865 in the excavations of underground dwellings at the mouth of the Amur (see Schrenck, II p. 141), and to the remains of such dwellings between Khabarovsk and the mouth of the Amur (see Laufer, Die angeblichen Urvölker von Yezo und Sakhalin, in Centralblatt für Anthropol., Ethnol. und Urgeschichte, 5. Jahrgang, Heft 6, p. 329).  
\(^2\) See Laufer, Die angeblichen Urvölker von Yezo und Sakhalin, etc., p. 325; Koganei, Ueber die Urbewohner Japans, pp. 374, 375.  
\(^3\) See Grimm, Beitrag zur Kenntniss der Koropokguru auf Yezo u. Bemerkungen über die Shikotan-Aino (1892); Hitchcock, The Ancient Pit-Dwellers of Yezo. Japan (Washington, 1892).  
\(^5\) On the disappearance of pottery among the eastern Indians of North America, upon the arrival of the whites, see Charles Rau, The Archaeological Collection of the United States National Museum (Smithsonian Contributions to Knowledge, Washington, 1876, Vol. XXII, p. 73). Concerning the inhabitants of the island Kadyak and the western Eskimo, see p. 642, Footnote 4. There are indications that in southern Siberia, primitive pottery was forgotten and lost by the local inhabitants about the time of the arrival of the Russians (see D. Klement, The Antiquities of the Minusinsk Museum, Tomsk, 1886, p. 65).
manufactured clay pots, and not even that their more southerly fellow-tribesmen are still making pottery. That the present pottery of the Yakut, still made with the hands, without the potter’s wheel and without knowledge of the art of glazing, is of ancient origin, has been completely proved by Sieroszewski in his work on the Yakut.¹

After this chapter had been written, I had the pleasure of meeting in Berlin Dr. E. Baelz, formerly professor at the University of Tokio. He had the kindness to place at my disposal the manuscript of his most interesting paper, “Zur Vor- und Urgeschichte Japans,”² in which he discusses the Ainu question. Professor Baelz is in full accord with Professor Koganei, and thinks that the remains of underground dwellings and the primitive pottery of the stone age in Japan belong to the ancestors of the present Ainu. He states, that according to Batchelor, the best authority on the Ainu language, the word “Koropok guru” means simply “inhabitants of underground dwellings.” The Ainu themselves have traditions relating to the former use of pottery; and among the Kurilian Ainu clay pots like those of the stone age are in use even now. Clay figures representing men, which were found by Professor Baelz together with potsherds and other remains of the stone age, are represented with full beards like those of the Ainu. Professor Baelz’s theory on the origin of the Ainu offers, however, great difficulties. He maintains their relationship to the Caucasian race. If this theory is accepted, we must assume that the Ainu, after reaching their present seat, adopted the material culture of the palæo-Asiatic tribes and of the American tribes of the northern shore of the Pacific Ocean.

² Published in Zeitschrift für Ethnologie, 1907, pp. 281–310.
XI. — ART.¹

The art of the Koryak — expressed in carving, engraving on bone and wood, drawing, and ornamentation of implements — is similar in many respects to the primitive art of ancient man of that epoch of the stone age of southern Europe which is called by the French archaeologists "époque magdalénienne."² The climatic conditions and the surroundings of the life of man at that period were, according to geological, palaeontological, and archaeological data, much like those of the life of the primitive peoples of to-day in the polar and near-by regions of the Old and New Worlds.

The resemblance between the graphic art of the Eskimo and that found in the archæologic remains of the cave-dwellers of southern Europe has led some European archaeologists to formulate the theory of the origin of the Eskimo from the cave-dwellers of France,³ — a theory which is far from being well founded. However, the art of the modern Koryak, as regards sculptural carving and dress-ornamentation, is above the art, not only of the cave-dwellers of Europe, but also of the modern Eskimo.

Sculpture. — For carving, the Koryak employ different kinds of wood, the antler of reindeer and the horn of mountain-sheep, bone of whale, teeth of the white whale and the bear, walrus-tusks, and mammoth-ivory. Sometimes the horn of the narwhal, brought from the shores of the Arctic Ocean, is also used. The material most suitable, on account of its solidity and fineness of grain, is ivory of the walrus and mammoth, especially the latter, which is as hard as the former.⁴

Both the walrus and the mammoth tusk, before being carved, are put for some time into boiling water, which makes them softer for a while. Walrus-tusk is used to a greater extent than is the mammoth-tusk, because this latter is not found so frequently in the Koryak territory as in the more

¹ The manuscript for this chapter was prepared by Mr. Jochelson while in Europe, and consequently he has not been able to consult the specimens in his collection. For this reason some matters of detail have been added by the editor, and also the greater part of the discussion relating to the technique and rhythmic arrangement of the designs on clothing, basketry, and rugs. — Ed.


³ See Hoffman, p. 764.

⁴ Mammoth-tusks, which are obtained as the result of occasional palaeontological finds, furnish good material for carving if extracted directly from the frozen ground. Tusks so obtained usually have no cracks, are solid inside, clean and white, and not much inferior in quality to ivory. If, however, previous to being found, the tusk has been washed out of the ground and exposed to the air for any length of time, undergoing the process of weathering, it loses its consistency, begins to crack, and assumes a yellow color resembling that of tobacco-juice. Concentric layers are formed on the outside, which gradually separate from the rest of the mass, and crumble, making it unfit for carving-purposes. Articles made of walrus-tusk also lose their original whiteness when exposed to moisture for a long time. Old carvings from walrus-tusk, both of the Koryak and of the Eskimo, also acquire the yellow tobacco-color.
northern regions of the Chukchee territory, — in the tundra along the shores and on the islands of the Arctic Ocean.

The shoulder-blades and vertebrae of the whale are also used for carving. Not being hard, this bone is well adapted for the purpose; but the coarseness of its grain and its dirty-gray color give to the articles made from it an unattractive appearance.

The antlers of reindeer and the horns of mountain-sheep also furnish good material for carving. They are inferior in fineness of grain to ivory. They are sufficiently smooth, and consist of a uniformly hard and tough but not fibrous mass, so that they can be carved and rubbed in all directions. Before being worked, they also are softened in boiling water. Owing to their dark color, however, they do not furnish a material satisfactory to the aesthetic taste of the primitive sculptor, and are used only in the absence of the white walrus or mammoth ivory.

Miniature toy figures of human beings, birds, and other animals, or spoons ornamented with different figures, are frequently made from reindeer-antler and sheep-horn. It is worth noting, that, according to Hoffman, quite a number of specimens of Eskimo workmanship, upon which both simple forms of ornamentation and pictographic records occur, consist of pieces of reindeer-antler shaped into the desired form, and obtained from the barren-ground or woodland caribou; but no specimens of horn of the mountain-sheep or mountain-goat, which are employed by the more southern Coast tribes, have as yet been found in the Eskimo collections of either the United States National Museum or the Alaska Commercial Company in San Francisco, Cal.¹ Nor are any cases on record of sculptural carvings of animals made of reindeer-antler by Eskimo. Carvings in musk-ox horn are known, however, from the Eskimo tribes of the west coast of Hudson Bay.

Wood as material for carving is employed principally by the Koryak of Penshina Bay, since they do not hunt walrus; but along the shores of Bering Sea, wood-carvings are seldom found, owing to the absence of wood in that region. Nor do we find many small wood-carvings of animals among the Eskimo. The Koryak employ for carving all kinds of wood found in their territory, such as larch, poplar, alder, birch, and stone-pine. As a rule, wood, owing to its fibrous quality and the lack of uniform density in its different layers, cannot be considered good material for sculptural work; and the impracticability of its use is further increased by the primitive instruments employed. The most suitable material, on account of its density, is furnished by the birch-tree and by the roots of the stone-pine; but the latter are so hard that they can be worked only with great difficulty by means of the knife.

Stone is not used by the Koryak as a material for sculptural purposes.

¹ See Hoffman, p. 777.
This may probably be explained by the fact that the Koryak practised the art of polishing stone very little. As is well known, but few traces of the working of stone for artistic purposes have been found in palæolithic stations of Europe. Among the Eskimo carvings in the National Museum at Washington, we find some specimens of animal figures made from soapstone and flint.1

Nor do the Koryak use clay for moulding figures, and we do not know if they ever used it for that purpose. In the excavations of ancient dwellings of the Maritime Koryak, mentioned before, I found traces of their former art in pottery which disappeared with the introduction of metallic utensils; but no remains of clay toys have been found.2

There is no doubt that among the works of art of North America, the Eskimo carvings of animals resemble those of the Koryak most closely. The Eskimo, the Koryak, the Kerek, and the Chukchee are the only primitive tribes among whom miniature sculpture has been so strongly developed.3

All the tribes mentioned here use the same technical processes in carving. Their carvings are realistic in character, are of small or even miniature size, and to a great extent are made as much for the pleasure which the carvers derive from their work as for the satisfaction of the aesthetic tastes of the people. The difference between the Eskimo and Koryak carvings is, that the latter are less available for practical application than the former, and are of greater artistic worth. In that regard the Chukchee carvings resemble more closely those of the Eskimo, judging from the collection furnished by our Expedition and from the collection of the Ethnographical Museum of the Imperial Academy of Sciences in St. Petersburg.4 Even the Kerek carvings are inferior to those of the Koryak in their finishing touches. The Chukchee and the Kerek carvings still further resemble those of the Eskimo, in that they are more frequently decorated with engravings, consisting chiefly of dots and lines, than those of the Koryak.

The plastic art of the Indians of the North Pacific coast, in so far as it is expressed in carving, is entirely different from that of the Koryak and

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1 See Murdoch, pp. 398, 399.
2 Nelson obtained on the lower Yukon, where the art of pottery was formerly developed, a pair of rude modelled clay dolls (see Nelson, Fig. 126 on p. 342, and p. 343). In the excavations of the ancient Ainu underground dwellings were found, among the remnants of pottery, clay figures of men. Some figures collected by Professor E. Baelz are now in the Museum für Volkerkunde of Berlin (see p. 645). It is possible that the Koryak made figures of unbaked clay, and that therefore no trace is left of them, as articles made of unbaked clay crumble in the moist ground. The aversion with which the Koryak seize upon every material fit for sculpture may be judged from the fact that their children, as soon as they convinced themselves that the plaster I used could be cut with the knife, started to make toy dishes and animal figures from the pieces which fell on the ground while I was making my masks. Before trying the use of the knife, however, they touched the plaster with their tongues, to see if they could make more palatable use of it.
3 Among European nations, the Swiss are known for their miniature sculpture from wood and ivory. Really artistic articles may be found quite frequently among the Swiss products; but as a rule, their figures of animals, notwithstanding the careful and detailed finish, produce a less vivid impression than some of the crude figures of the Koryak, in which the most characteristic posture of the animal is brought out.
4 See Bogorsk, Chukchee Material Life, Plates xx, xxi.
Chukchee. Although some samples of Indian art among the collections of the Amerian Museum of Natural History are proof of the ability of Indian artists to give their carvings quite a realistic and artistic expression of animal forms, yet the general tendency of the Indian art of carving is purely symbolic, aiming principally at bringing out the most characteristic parts of the body of the animal at the expense of its other parts, and of a realistic presentation of the animal as a whole.

The carvings of the western neighbors of the Koryak, the Tungus and the Yakut, can in no wise be compared with their own. The former lack all artistic merit. Taking as a fair sample the collection of Yakut carvings obtained by me, consisting of figures of animals or human beings made from mammoth-tusks, we find it to consist of rigid figures having only an outward resemblance to men and animals. The artist was unable to put life and motion into them. It is seldom that any of the Yakut can carve even such crude figures. Near Yakutsk, for instance, two or three Yakut are known to turn out open-work from mammoth-ivory. They also turn out rigid realistic carvings of the kind I am describing. They make combs and boxes from mammoth-ivory, ornamented with open-work carving. Yet these articles are rather products of mechanical art, made to meet the demand of the Russians, than works of art for art's sake.

The art of the Yakut, principally their decorative art, is of purely Central Asiatic, Chinese, or Russian origin, and consists of curves, spirals, and conventionalized animals and plants. Only the enormous wooden kumiss goblets and cups, from which the Yakut drink, and make sacrificial libations during the religious kumiss festivals, are supplied with primitive technical ornamentation, judging by the Yakut names of the carved figures. When we speak of Koryak or Chukchee carvings, it should be added that we refer to the Maritime people only. The Reindeer Koryak, with very few exceptions, have not developed that art. This is not due to the fact that the reindeer-breeders have no aesthetic tastes, but to their lack of the necessary leisure. The Maritime Koryak, on the contrary, spend the winter almost idly in a more or less warm house, and have sufficient time to indulge in the pleasure derived from the art of carving. The same reason may be advanced to explain why only the men engage in carving: the women are too busy with the household, and apply their aesthetic taste to the ornamentation of their dresses.

It is worth noting, that, among the Koryak carvings, we seldom find figures of reindeer, and the few we do find are poorly executed. The conclusion might be drawn from this, that fondness for carving developed among

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the Koryak before the beginning of reindeer-breeding, and that through force of habit the artists used for their models principally objects of maritime life.

The carvings of the Maritime Koryak along the shores of Bering Sea — the Alutor people and those on the rivers Opuka and Poqač — are more artistic than those of the inhabitants on the shores of Penshina Bay. The latter, moreover, lack such material as walrus-tusks, since walrus are not found in their home; and the artists there have to be content mainly with wood, and have to obtain their walrus-ivory through barter.

Among the objects of Koryak miniature sculpture are not only quadrupeds, birds, fish, and other animals, but also human beings. The artists render the figures of human beings or of animals in the round or in relief, mostly in high-relief mounted on a base.

**Carvings representing Men.** — In carvings representing men, wrestling-matches or the beating of drums, as well as hunting-scenes, are most frequently selected, on account of the animated motions of these actions. In wrestling, as well as in domestic shamanism or in the beating of drums for their own pleasure, men strip to the belt. This is the form in which the artist strives to present vividly the human body. Female figures are carved less frequently, and always dressed. Unlike the Chukchee women, the Koryak women do not strip at home. Besides, the realistic presentation of the female body is much more difficult than that of the male, and it is also more difficult to put life into the figure of a human being clothed than into a nude figure. The striving of the Koryak artists toward the realistic presentation of the human form pertains mainly to the upper part of the body. The curves of the back and the tension of the muscles are very strikingly reproduced in ivory by good artists. The Koryak artist does not take the trouble to finish off in detail the feet of men or of animals. Human heads are more poorly finished than are those of animals.

Let us begin with the less artistic models from the shores of Penshina Bay.
Figs. 166 and 167 represent different forms of wrestling of two contestants. In Fig. 166 two wrestlers are trying to throw each other. In both of these groups some care is bestowed upon the modelling of the back, the muscles of the shoulders and the curvature of the spine being indicated. In Fig. 166, a, an attempt is also made to model the chest. This specimen is not quite complete, the two arms on the farther side being carved out, but still connected by a piece of wood, which on the nearer side has been whittled away. The farther arms of the wrestlers are so placed that the man on the left rests his straight left arm against the right shoulder of the man on the right; while the man on the right grasps the arm of the man on the left, from above, on the inner side of the elbow. The chests of the wrestlers shown in Fig. 166, a, are not modelled in detail.

Fig. 167 represents wrestlers pulling each other. In these figures neither back nor chest is modelled so as to bring out muscular details. In a the contestants, with a leather noose thrown around their heads, are pulling it in opposite directions with the backs of their heads. In b the contestants, sitting on the ground with the soles of their feet firmly pressed against each other's, pull with the hands. In c the contestants, also sitting on the ground, are holding a stick, which each is pulling in his own direction.

Fig. 168 represents a man beating a drum. His position is very characteristic. The back and the left shoulder are well modelled, the head being forward and turned to the left. The modelling of the twist of the neck, brought about by this turn of the head, is particularly well executed.

All the carvings in Figs. 166–168 are made from different kinds of wood. In spite of the crudeness of the work, the absence of detail, and the lack of proportion in the parts of the bodies, the figures reveal the attempts
of the artist to make the position and the curves of the body correspond with the movements expressed in the figure.

Figs. 169 and 170 represent carvings from walrus-ivory. With the exception of Fig. 170, a, made at Opuka, all the other figures were carved in Paren and Kuel. The details of these carvings alone put them above the wood-carvings of the same villages. To a considerable extent this feature depends on the quality of the material; but, aside from that, the carvers of these figures were the best masters of the art to be found on the shores of Penshina Bay. The idea of representing people in motion — singing, dancing, and beating the drum in different fantastic postures — must be called bold for a primitive sculptor.

The Koryak sculptor has no model to copy from. In his creative art he must reproduce from memory exclusively, without the aid of the accessories of modern artists, the real forms impressed upon his mind. As yet he is unable to reproduce the details, or to finish the parts of the body in the carved figures, true to nature. The figures themselves represent a more or less vague sketch of the artist's idea. All the little figures of dancing shamans in Figs. 169 and 170 resemble very much the unfinished work of a modern sculptor, in which the posture is well defined, the proportion of the parts is preserved, and a certain animation is to be seen. As little finished as are the faces of the dancing shamans, one can read the expression of ecstasy in some of them, as in Fig. 169, b and d. In all these specimens the muscles of the back and the neck are much better modelled than those of the chest and of the limbs. In most of them the details on the limbs are entirely wanting. In the specimen shown in Fig. 169, d, an attempt is made to model the chest too. On all the drums the cross-strings forming the handle are indicated on the inner side. On some of them the cords are undercut, so that they are similar to the cords made of nettle-threads, of the actual drums, although thicker. In others they are simply indicated by bars extending across the drum, which are not separated from the flat surface indicating the inner side of the drum-head. In all these specimens the drum and the drum-stick are connected by sinew or skin string. The iron rattles on the drum^1 are not indicated.

^1 See Part I, Fig. 19, p. 55.
It should be noted that most of the carvings in Figs. 169 and 170 are made without mountings; and, in order to give them stability, the artist had to guess at the position of the centre of gravity. The drum, which is heavy as compared with the figure of the man, is designed to shift the centre of gravity to the fore part of the figure. All the drums held by the men in Fig. 169 and in Fig. 170 a, and the drum-sticks belonging to them, are carved separately from the human figure, and inserted in notches in the hands, the fingers being left entirely unfinished. On the contrary, the carving shown in Fig. 170, a, representing a dancer with a drum and a drum-stick, is wrought from one piece of walrus-tusk, including the base. This figure was made on the river Opuka. Its extremities are finished better than those in the preceding figures, and the hands have carved fingers as well. The drum-stick is too large as compared with the drum; but this license was taken to give support to the drum. It should be noted that not all the figures show the upper edge of the trousers, although it is supposed that the men are stripped only to the belt.
The carvings represented in Fig. 170 differ from the preceding in that more care is bestowed on the representation of the head. While all the preceding figures have no hair and no ears, we find here the characteristic hair-dress of the Koryak shown. The middle of the head is shaved, and the ring of hair is indicated by an ivory ring with hachure. In Fig. 170, $\delta$, the ears are also represented. While in the first of these two specimens the lively motion and the characteristic pose of the head deserve particular praise, as also the attempt to represent the hand holding the drum and the rattles attached to the drum, the figure shown in $\delta$ is very disproportionate. It is, however, the only one of this group in which the muscles of the arm are represented with any detail. The left profile of the man is particularly good. On the left side the folds in the skin of abdomen and chest, brought about by the forward inclination of the body, are also represented remarkably well. On the drum all the attachments are represented in detail.

Fig. 171 shows two men producing fire with the bow-drill. The execution of these figures is similar to that of the figures shown in Fig. 169.

A still higher technique and greater artistic merit are to be found in the figure of a man on a base, holding a drum, which was obtained by Mr. Bogoras on the shore of Bering Sea (Fig. 172, $a$). It is carved from walrus-tusk. The plastic curves of the back and the tense muscles of back and sides are rendered with anatomical accuracy and realistic vividness. The chest is flat, and the muscles are not indicated. This may be due to the difficulty of reaching the chest. The surface of the chest is rough, while the whole rest of the figure has a high polish. The head is executed in great detail; and the cut of the eyes, and the form of the cheek-
bones, are quite characteristic of the Siberian type. The same vivacity, though less artistic execution, marks Fig. 172, b, which represents a man who has caught by the antlers a young reindeer which is trying to pull back. In Fig. 172, a and b, the heads of the human figures are represented as having the hair cut in a circle, and tonsured in the middle.

Fig. 172. Ivory Carvings. a (6 cm.), Drummer (height, 6 cm.); b (4.5 cm.), Man and Reindeer (height, 4.5 cm.).

Fig. 173, a human figure in sitting posture, made from wood in the settlement of Big Itkana, represents the captain of an American whaling-schooner who goes to Penshina Bay nearly every summer. The figure is painted black. This figure is marked by the absence of any artistic merit like the other wood-carvings of the Koryak of Penshina Bay; but it is interesting to note that the figure is given a droll aspect with the hat pulled over the eyes, the buttoned-up coat, and the hands thrust into the pockets. Similarly we find in the Chukchee collections of carvings of the Ethnographical Museum of the Imperial Academy of Sciences in St. Petersburg a human figure — judging by the cap, an American or Russian, — in a comic and rather indecent posture.1

Among the walrus-tusk carvings from the shores of Bering Sea, representing human beings, we found also specimens without any artistic value, as is shown by Fig. 174, a, b. These two crude carvings, — with arms indicated, but not separated from the rest of the body, — although obtained by me in the settlement of Kuel (Penshina Bay), had their origin on the Opuka River (Bering Sea).

Fig. 174, a, represents a woman in a sitting position, with a child on her lap. The hole in the lower part of the figure shows that it is intended

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1 See Bogoras, Chukchee Material Life, Plate xxx, Fig. 12.
to be carried on a strap, and to serve as a toy, not as a specimen of real art. This explains why the figure has no finish. The face of this figure is perfectly flat.\(^1\) Fig. 174, \(\delta\), also appears to represent a woman. The occurrence of engraved and etched concentric and single circles, dots, and lines, which are common ornaments on the animals carved from ivory by the western Eskimo, are to be noted on this figure, and also the suggestion of an Eskimo woman's jacket, with its characteristic hood and front flap. On the back the row of circles with dots is continued by two more circles on each side, leaving the middle of the back, just over the legs, undecorated. Over this row is another horizontal row of five circles with dots, which extend over the back from arm to arm. The collar-like shoulder-part is continued over the back with a slight curve downward. The space between the double line, which is continued from the front over the shoulders, and the sharp lower edge of the garment, is occupied by a line of seven black dots which slant a little upward from left to right. On the middle of the hood at the back are two circles with dots, — one over the other, — and a number of vertical lines of dots which curve forward at their lower ends. This figure probably represents an

Eskimo woman, or it may have been made by an Eskimo artist.

In connection with the various Koryak carvings, the wooden figures of men should be mentioned, made without any artistic finish, with their extremities on pivots, like mechanical dolls. These figures serve as toys for children, and are to be found also among the Chukchee.\(^2\)

At a previous place I called attention to the crudeness of the images and the conventionality of the figures of idols and amulets.\(^3\) Compared with the carvings of the Koryak of the coast of Bering Sea, the images of their anthropomorphic "guardians" appear like the products of a backward tribe.\(^4\) In connection with this question, I advance the hypothesis that the cause of the crudeness of religious carvings lies in the vague conception of the artist as to the appearance of the invisible anthropomorphic beings. Between the

\(^1\) Compare Part I, Fig. 56, p. 114.
\(^2\) See Bogoras, Chukchee Material Life, Plate XXI, Fig. 7.
\(^3\) See Part I, p. 115.
\(^4\) In a note published in C. Lumholtz's Decorative Art of the Huichol Indians, Professor Boas discusses the crudeness of amulets and other sacred objects, as compared to the elaborate finish of objects of art. He calls attention to this phenomenon among the Huichol Indians, the Gold, the Gilyak, and other tribes (see Memoirs of the American Museum of Natural History, Vol. III, p. 287).
two classes of carvings, the religious and the realistic, there are, of course, intermediate stages, especially in carvings that serve practical purposes; but, in so far as realistic sculpture aims to afford pleasure, it has a development independent of religion: its only source is in the aesthetic need of man.

Of course, all our wants, both material and spiritual, influence each other to a certain extent. So religious ideas have almost always influenced the character of art, and the influence has generally been detrimental. I even go so far as to think that the symbolic tendency in the plastic art of the Indians of the North Pacific coast is also due, to a certain extent, to religious ideas. The symbolism of these Indians in sculpture is a perversion of true realistic art. The high technique displayed by Indian artists in their carvings of masks, helmets, and other articles, clearly proves that realistic representations of animals are not beyond their power.

Professor Boas explains the symbolic tendency of the Northwestern Indians by the dependence of the art of sculpture on the material,—that is, that, since it serves for decorative purposes, the subject to be represented is more or less subordinate to the object on which it is shown, but it is quite possible that the symbolism of the carvings made in connection with totem-posts was due to a vague conception, on the part of the artists, of the totem ancestors, whom they imagined now as real animals, and now in anthropomorphic form. The only features which are essential, therefore, for the recognition of the ancestor, are those that are most characteristic of his animal state, at the expense of the secondary features. The application to the human face, of the characteristic features of the head of the animal which serves as a totem, may be explained in the same way.

Carvings representing Animals. — In the archæologic remains of the stone age of the Old and New Worlds we find, among works of primitive art, representations mainly of human figures, and very few of animals. In the miniature sculpture of the Eskimo, principally made of ivory, we see, on the contrary, a tendency to reproduce mostly animal forms; but in the Chukchee and Koryak carvings we find, side by side with animal forms, also those of human beings.

Carvings of human beings have been described in the preceding pages. I shall now take up specimens of carvings of animals. Here I must repeat what I have already said, that the carvings of animals among the Koryak and Chukchee are much less frequently adapted to definite purposes than they

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1 Taking our illustrations from the history of the sculpture of civilized nations, we see, that, among the Greeks, religious ideas corresponded with the requirements of realistic art; Buddhism, and to a certain extent Christianity, introduced a great deal of conventionalism into sculpture; while the Semitic religion entirely suppressed this branch of art.


3 Ibid., pp. 125—176.
are among the Eskimo. Among the Koryak, as well as among the Chukchee, real artistic carvings of animals have for their object solely the satisfaction of the artistic taste. I had opportunities to see how carvings brought to the settlements along Penshina Bay from the shores of Bering Sea were preserved in the work-bags of the women, who would frequently take them out only to look at them. To what extent the artistic instinct is developed among the Koryak may be judged from the fact that they easily recognized drawings and pictures in the books which I showed them, and always recognized the photographs of their friends. On the contrary, the northern Yakut, the Tungus, and even the Yukaghir, frequently failed to recognize photographs which I took of their friends. Some of them even failed to recognize that the photographs represented human faces.

Specimens of Koryak carvings representing animals are shown here in Figs. 175–179. Those represented in Fig. 175 were obtained by me among the Maritime Koryak on Penshina Bay, but were made originally by the inhabitants of the coast of Bering Sea. All are carvings from walrus-tusk. That shown in a represents a group of four sea-lions (Eumetopias Stelleri Peters) on an ice-floe; b, a black bear (Ursus arctos L.) with a fish in its mouth; c, a white hare (Lepus variabilis Pall.) in a sitting posture; d, a sea-lion (Eumetopias Stelleri); e, a mountain-lamb; and f, a mountain-sheep (Ovis nivicola Escholtz).

As I said before, in speaking of Koryak carvings in general, the feet of
the animals are imperfectly made, although these carvings represent the work of the best artists. It should be said, however, that the unmounted animal carvings could not stand if the feet were made properly. To give them greater stability, the feet of the two sheep (e, f) are not entirely separated. On the other hand, the flippers of the sea-lions on the ice-floe, which serves as a stand (a), are finished very vividly as compared with those of the single sea-lion without stand (d). On the whole, however, the position and the motion of the animals of the carvings are rendered with such realism as to call forth vividly its picture in the mind of the spectator, and they testify to the great skill and aesthetic taste of the artist.

In comparison with these specimens, the carvings of Chukchee artists are of far inferior artistic merit. Even more inferior than these specimens are the Eskimo carvings of animals made at different places, and obtained by different collectors, although the nature of the Eskimo carvings, and the method of working them, are exactly the same as those of the Chukchee and Koryak.

Among the Koryak carvings we do not find, for reasons which are perfectly apparent, any figures of the polar bear; but we do find them among the Chukchee, and it is remarkable that the Chukchee carvings of this animal, judging from the specimens reproduced by Bogoras, are distinguished by the same artistic faults as those made by the Eskimo. Without explicit description, it is difficult to recognize the polar bear in the Eskimo carvings intended to represent that animal.

The walrus and seal are very vividly reproduced in Koryak carvings, but the figures of whales are lifeless, and resemble very much the Eskimo carvings of whales (compare, for instance, the wooden whale in Part I, Fig. 30, a, p. 72, with the Eskimo figures of whales). However, the whale reproduced on p. 72 is made for a religious ceremony; and carvings made for religious purposes are, as I have said, inferior to those made for aesthetic purposes. This becomes especially clear when comparing, for instance, the realistic figure of a bear in the carving in Fig. 175, b, with the crude wooden bear made for a festival on the occasion of a bear-hunt. Artistic carvings are produced only by men endowed with special skill and with a leaning towards art, while religious carvings are made by any Koryak.

Fig. 176 represents fishes, a worm, and a grasshopper. Three of these (a, d, and e) are made from walrus-tusk, one (b) from mammoth-ivory, one (c)
from bone of whale. All of these carvings were made on the shore of Bering Sea. The one shown in \( d \) is especially vivid. Fig. 176, \( a \), judging by the fin on the back, near the tail (evidently the adipose fin) represents a fish of the family Salmoideae, probably Salmo lagocephalus. The fish is ornamented with engraved dots and lines painted black, similar to the etchings of the Eskimo, especially those of Alaska; but they are made with more idea of symmetry. We find similar ornamentations in the carvings of the Kerek and Chukchee. Fig. 176, \( c \), represents a flounder. The tail and the fins are indicated by small engraved lines; and the entire body is covered with dots on the front, while on the back the ornamentation consists of a herring-bone pattern running from head to tail. An exactly similar flounder is contained among the Koryak carvings of the Museum of the Academy of Sciences at St. Petersburg, where there is also to be found another specimen without dots.\(^1\) A similar figure of a flounder with dots is in the Eskimo collection of E. W. Nelson, made in Alaska.\(^2\)

Fig. 177 represents carvings of birds. All of them were made near Bering Sea, and \( a \) and \( c \) are carved from walrus-tusk; \( b \), from mammoth-ivory. Fig. 177, \( a \), represents a sea-bird, probably a cormorant. The neck and head of the bird are life-like, but the wings are not indicated; and there are no feet, the bird being represented as sitting on the water. As a rule, the common way in which the Koryak represent birds in their carvings is to make them appear in a floating or sitting position, so as to avoid the necessity of making the feet: another way is to represent them soaring with outstretched wings. Little figures of birds are carved by children from various materials. Near Penshina Bay they are made from reindeer-antler and mountain-sheep horn, also from birch-wood or roots of the stone-pine.

In the Koryak collection of the American Museum of Natural History there are a large number of small carvings of water-birds, birds of prey, and

\(^1\) See Bogoras, Chukchee Material Life, Plate xxii, Figs. 15, 16.

\(^2\) See Hoffman, The Graphic Art of the Eskimo, Plate L VII, Fig. 1.
I. Others. There are also wooden partridges with well-defined wings. Some of the carvings representing birds are ornamented with black dots, like some Eskimo carvings of birds. Turner mentions a collection of carvings of water-birds made from ivory by the Eskimo of Hudson Bay, mainly identical in type with the similar carvings of the Koryak and Chukchee, but not ornamented with incised designs.

According to Professor Boas, the Central Eskimo use carvings — some representing birds, others men or women — in a game similar to dice, which they call "images of birds." Murdoch obtained a collection of carvings representing birds and a wolf from the Asiatic Eskimo at Plover Bay. The carvings were supposed to be merely works of art, but Murdoch admits that the Asiatic Eskimo also use them for games. Turner, on the other hand, remarks about his collection of ivory carvings representing birds made by the Labrador Eskimo, that he never heard of their being used in games. Nor have I ever heard of the Koryak using bird carvings in games.

The nature of the carvings in Fig. 177, b, c, makes them less realistic than the miniature carvings representing birds. The introduction of claws as a substitute for feet seems to me to be the first step in the process of con-

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Fig. 177. Ivory Carvings representing Birds. a (Ig 3/4 cm.), Swimming Cormorant (height, 3 cm.); b (Ig 3/4 cm.), Hawk (height, 7 cm.); c (Ig 3/4 cm.), Eagle with Movable Wings (height, 5 cm.).

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1 See Boas, Central Eskimo, Fig. 522, p. 567; Nelson, Fig. 125, p. 342; Murdoch, Fig. 364, p. 365.
2 See Turnen, The Hudson Bay Eskimo, Fig. 83, p. 260.
3 See Boas, The Central Eskimo, Fig. 522, p. 567.
4 See Murdoch, p. 365.
Jocheelson, the Koryak.

Ventionalization of the plastic art, which developed among the Indians of the North Pacific coast. Moreover, the tail, wings, and body in Fig. 177, d, representing a mouse-hawk, are much inferior in their realism and artistic finish to most of the Koryak carvings. Fig. 177, e, represents an eagle with a fish in its talons, and in the beak a little animal, the hind part of which is broken off. This figure served as a mechanical toy; it has detachable wings, which are made to move by means of a thread. This made it difficult for the artist to observe realism in making his figure. The upper side of the figure is ornamented by etched designs; the wings, by lines indicating feathers; and the back and tail, by dots and squares, — the conventional way of representing the body and tail of a bird.

Fig. 178 represents carvings which differ in material, and were made in different places. The one in a was made in the settlement of Shestakovo (Penshina Bay), from wood, and the work is well done. The tense posture of the dog in harness, with tail curved upward in expectation of the start, is quite vivid, but the rigid feet are not well executed. The dog is painted black. The carving marked b, a pair of wrestling bears, was made in Paren (Penshina Bay), from reindeer-antler. Wrestling bears are a favorite subject among Koryak artists, but near Bering Sea they are carved from walrus-tusk with greater skill. In our collection there are two bears in the act of coition, made from wood, and carved with great realism. The specimen shown in c was made from mountain-sheep horn, in Kamenskoye (Penshina Bay). On a
common mounting we have two mountain-sheep pursued by a dog and a man. The latter figure has its head broken off. Its feet display motion, but this cannot be said of the other figures in the group. In \( d \) is represented a walrus in sitting position, made at Opuka (Bering Sea), from walrus-tusk. Although the upper part of the body is very realistic, the carvings made from walrus-tusk along Bering Sea are generally more artistic. This specimen is of interest in that it is ornamented with dots in Eskimo fashion. Such ornamentation is very seldom found on the carvings from the coast of Penshina Bay.

Specimens of carvings of animal groups and hunting-scenes have been shown in Fig. 175 \( a \) and Fig. 178 \( e \). Figs. 179 and 180 represent specimens of small carvings of more complex groups, which do not serve any practical purpose, and must therefore be classed with art pure and simple. The most interesting feature of these carved groups is the absence of bas-relief. The mounting serves simply as a base for the group, which is carved out of one piece with the former; or the groups form high-reliefs (Fig. 179, \( d \)). However, I have also seen bas-relief carvings in which the figures were raised less than half their height above the base. Among these carvings, certain groups represent some household or hunting scene; others, as in Fig. 179, \( a \), a free combination of several scenes having nothing in common. This specimen represents on one side a man aiming his gun at a bear; on the other side, a man getting into a hand-to-hand fight with a bear; and in the middle, a rock with a bird sitting on it. This group is carved from walrus-tusk, and was obtained by me in Paren (Penshina Bay), but was made at Poqa’c (Bering Sea). The high-relief carving shown in \( b \) comes from the settlement of Levati (Penshina Bay), and is made from stone-pine. On the right hand is shown a whale pursued by hunters in a skin boat. The edge of the boat was broken off accidentally in working the brittle wood with a knife. The form of the boat, the prow being narrower than the stern, shows that it is of the type of the upper part of Penshina Bay. On the left side is shown a ground-seal (Erignathus barbatus) on an ice-floe, and two hunters stealthily approaching, — one in a skin boat, and the other in a dug-out. The hunters have hunting-hoods on their heads, which make

Fig. 179, \( a \) (\( \text{Fig. } 178 \), \( d \) (\( \text{Fig. } 178 \)). Ivory and Wood Carvings representing Hunting-Scenes. Length, 14 cm., 20.3 cm.
them resemble the heads of seals. The carvings do not show any oars, either in the large skin boat or in the small boat. The middle of the high-relief carving represents a bear approaching a ringed-seal (*Phoca hispida*), which was evidently left on the ground by the receding tide.

Fig. 180, *a*, represents a large skin boat with oarsmen, and is carved from walrus-tusk. It was obtained in the settlement of Big Itkana (Penshina Bay). According to the Koryak, it was made in that settlement; but it is very strange that the shape of the boat, the prow being wider than the stern, should resemble the Koryak skin boat of Bering Sea. This is shown by the position of the man at the stern and the four oarsmen sitting with their faces toward the stern. A child is shown sitting in the bottom of the boat, near the stern. Fig. 180, *b*, is a carving made at Opaka (Bering Sea), from walrus-tusk, and represents an ice-floe with six walrus on it, and two hunters close by, their guns resting on supports and levelled. The seal-skin boat of the hunters, with the broad prow of the Bering Sea type, is also on the ice-floe.

Fig. 181 shows a carving of walrus-tusk from Paren (Penshina Bay), and represents a sledge drawn by six dogs, with the driver and his whip, the latter serving as a brake. The sledge, dog, harness, and base are all carved from one piece, while the driver and his whip are carved separately. It is interesting to compare the driver of this sledge with an Eskimo figure (made of ivory) from Point Barrow, representing a man in sitting position. Both carvings are very much alike.

Fig. 182, carved from walrus-tusk at Paren (Penshina Bay), is a specimen
of architectural carving, and represents a dwelling of the Maritime Koryak before it is covered with earth. On the roof is seen a man coming up the ladder through the opening. One of the poles is mounted with the head of a sacrificial dog, and next to it is the spear with which the dog was stabbed.

Fig. 183 represents a model of a dog-sledge with a ten-dog team and the driver. This model was made by a Russo-Koryak half-breed by the name of Fletcher. He was born in the Russianized Koryak settlement Yamsk, and is now engaged in trading at Gishiginsk. He owes his American name to the fact that when his father or grandfather was baptized, a Russianized American who had settled at Tighil in Kamchatka acted as his godfather.

The skilfully finished model of the sledge is made of birch-wood; and the dogs, of stone-pine. The way the dog-carvings are finished reveals an artistic talent of high order. The artist has not only put life and motion into the wood-carvings, but has skilfully rendered the different postures of the dogs as determined by the temper of each animal, the phase of its motion, or other factors. Thus the forward pair of dogs are made with tails hanging down. Being the leaders, they are intent upon following the trail pointed out by the driver by shouts, to which the dogs are listening. The drooping tails indicate fatigue or intense strain on the part of the dogs. The hindmost pair of dogs are also characteristic. Usually the lazy dogs are put next to the sledge, so that they can be more easily reached by the whip. One of the dogs in the last pair, fearing the whip, is pulling very conscientiously, as is shown by its lowered head. The other dog is turning its head on the run towards the driver, to make sure that he is not harboring any evil designs against it.

Of course, this carving cannot be considered as primitive Koryak. Fletcher, being able to read, had seen specimens of art of civilized nations in the

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1 For a description of dwellings see pp. 455–461.  
2 See p. 436.  
3 See p. 505.
drawings of illustrated magazines, which may have influenced him; but his skill and his native artistic instinct were inherited by him from Koryak ancestors.

In explanation of Fig. 183, I should add that the dog-harnesses, central line, and the lashings of the sledge, were made by Fletcher of leather. For the figure of the driver he made a wooden head with a face showing very well the Koryak type. The figure is dressed like other Koryak dolls.

_Household Articles ornamented with Carved Figures._ I have stated before that carvings were less frequently of practical use among the Koryak than among the Eskimo. Nevertheless small household articles ornamented with carved figures of men and animals, such as we find among the Eskimo, are also to be found among them. Figs. 184 and 185 are reproductions of such articles.

Fig. 184, _a_, is a dipper made from alder-wood in the settlement of Big Itkana (Penshina Bay). The handle of the dipper shows a carving representing two wrestlers. Only the upper parts of the bodies are shown. Fig. 184, _b_, represents a spoon made on the shores of Bering Sea, from the horn of mountain-sheep. Fig. 184, _c_, was made from mountain-sheep horn in Alutor (Bering Sea). The handle is ornamented with carvings representing two bears.

Among small articles ornamented with carved animals, our collection contains also belt-clasps with the figures of two seals, and a pipe with the figure of a seal, made from walrus-tusk in Kamenskoye (Penshina Bay).

Fig. 185 is also a reproduction of specimens of carvings made for ornamental purposes. That marked _a_ represents a snow-beater made from antler of wild reindeer by a Reindeer Koryak of the Opuka River, and is ornamented with a carved head of a mountain-sheep; _b_ represents an awl used by women in ornamenting their dress with slit-embroidery. The handle of the awl was carved from wood in Big Itkana (Penshina Bay), and the orna-

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1 See p. 679.
mentation represents a sledge with a team of eight dogs. Apparently the whole handle represents at the same time a bear, the point being the snout, the ears being indicated just under the sledge, and the two prominences on the lower side representing fore and hind feet. It resembles in form the bear figures used by the Eskimo in the cup-and-ball game.\(^1\) The specimen shown in c is a pipe made of bone in Kamenskoye (Penshina Bay), and very crudely ornamented with the carving of a human face.

The Koryak carvings of animals on household articles follow the rule of modern ornamental carvings, — that of serving to embellish and brighten up the ornamented article without obscuring it. For that reason, ornamental carving may retain its realistic character of pure art. Among the Indians of the North Pacific coast we find a tendency to cover the entire article with an ornamental animal. It has been pointed out by Professor Boas\(^2\) that this tendency has resulted in depriving carvings of their realism. Judging by some illustrations of objects in the work of Nelson\(^3\), this inclination prevails to a considerable extent also among the Alaskan Eskimo. Professor Boas ascribes this tendency of the Alaskan Eskimo to the influence of the art of the adjacent Indians. Perhaps a trace of this proneness to turn an ornamental animal into a real article, certainly its inception, is to be found among the Koryak and Eskimo of other localities, but in a most primitive form. Thus the wooden cup for the whale festival among the Koryak\(^4\) represents that animal. In the Eskimo collections from Point Barrow we find a bone

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1. See Boas, Central Eskimo, p. 566.
4. See Part I, Fig. 39, b, p. 72.
ladle, and boxes for harpoon-heads, in the form of whales; and among the Eskimo of Hudson Bay we find ivory needle-cases carved in the form of whales.

I believe that the aesthetic taste is as strong and spontaneous a longing of primitive man as are beliefs. Whoever has lived among primitive people knows well how strong is their passion for all kinds of ornaments. In one of his stories from the life of the Chukchee, Mr. Bogoras pictures a hunch-back shepherd gathering variegated pebbles, and spending his leisure time in laying them out in different combinations for his own pleasure. Mr. Bogoras told me personally that the incident was drawn from real life. Undoubtedly there are cases when an article which first served as an amulet becomes, in the course of time, an ornament; but there are cases, on the other hand, when an article of art becomes an amulet later on. For that reason we must prove in each particular case the course of inter-action of the two psychological factors, — the religious and the aesthetic, — and this it is not always easy to settle. Taking, for instance, the wooden figure of the whale for the whale festival, it is difficult to tell whether the whale-carving was first made from a mere desire on the part of the artist to imitate nature, or whether the necessities of the ritual furnished the impetus for carving the whale. Personally I am inclined to the former hypothesis. We find a similar phenomenon in the Eskimo custom of putting the carving of a whale into the mouth of a new-born male infant in order to make him a good hunter.

In the Koryak carvings, and to a certain extent in those of the Eskimo, in so far as they are not adapted to practical wants, we have an excellent illustration of the spontaneous development of primitive art independent of religion. Those amulets which consist of wooden limbs or parts of animals, instead of the entire animal, cannot be classed with pure art, because they serve, not as expressions of real sense-impressions, but of vague ideas of anthropomorphism and the substitution of a part for a whole. This accounts for the crudeness of the images of Koryak idols, as pointed out by me before, which distinguishes them from carvings made for the pleasure of carving. Ornamental carving still retains in many cases the realism and the finesse of art for art’s sake; such as, for instance, the mountain-sheep on the spoon illustrated in Fig. 184, b.

Less attention is paid to finish and realism in the carving of toys. A large number of objects in miniature carving, used as toys, are very poorly executed. These objects can easily be recognized by the hole made in them, by means of which they can be strung on a thong. Children quite frequently

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1 See Murdoch, Fig. 45, p. 105; Fig. 251, p. 249.
2 See Boas, Baffin-Land Eskimo, Fig. 136, p. 93.
3 Tan (nom-de-plume of Mr. Bogoras), Sketches and Stories, Vol. III, Chukchee Stories (St. Petersburg, 1900), p. 120.
4 See Part I, Fig. 30, 4, p. 72.
carry whole bunches of such toy carvings so strung. Probably for the same purpose, many Eskimo carvings have holes in them. The workmanship of the walrus-bone carving in Fig. 174, a, representing a woman with a child, may be explained by the fact that it was meant for a toy.

**Dolls.** — In connection with the carvings which serve as toys, and are made by men, I will speak briefly of the dolls, which are made by women. They differ from carvings which represent human beings, first of all, by the fact that the main attention is paid to the dress of the toy, which is made by the women and girls very carefully and tastefully. In this respect the Koryak dolls are much like those of the Eskimo. Dolls representing women show underneath the coat the wide trousers of the combination-suit tucked into the boots; while the head has braids of hair, wool, or beads, attached on the side or at the back. Fig. 186, a, shows a doll representing a woman with braids, but the long coat conceals the wide trousers of the woman.

Fig. 186, b and c, shows two dolls representing Koryak men, — one in a travelling-coat, and the other

![Dolls](image)

Fig. 186, a (Fig. 174), b (Fig. 177), c (Fig. 178). Dolls. Height, 23 cm., 15.5 cm., 16 cm.

in a house-coat. No attention is paid to the face in making dolls. In e we find a particularly well carved and typical wooden face; but in d there is, instead of a head, a leather cone in the form of a sugar-loaf, with beads attached in the place of eyes. It is interesting to note that dolls are often made with conical heads in a way similar to that in which the Koryak and the Kamchadal represent a certain class of "guardians" and spirits.¹

Even more primitive is the doll of the Reindeer Koryak shown in Fig. 187. It is made of the hoof of a new-born reindeer, and represents a girl with her hair dressed. This doll, by its conventionalism, fully corresponds to the wooden limbs representing "guardians."

¹ See Part I, p. 38.
Bone Chains. — In speaking of the skill of the Koryak in carving figures of human beings and animals from bone, the art of carving chains with whole unbroken links from walrus or mammoth ivory must also be considered. Although the completed chain shown in Fig. 188, \( f \), resembles in shape a metallic watch-chain, and would seem to be an imitation of it, yet the bone chains, heavier than these, serving as handles for baskets, buckets, etc., were carved by the Chukchee and the Koryak long before they met the Russians. Krasheninnikoff, in his time, could not help admiring the workmanship of such chains made from walrus-tusk, and brought to Kamchatka from the Chukchee Cape.\(^1\) Among the Eskimo bone bag-handles, we find even now chains with links carved out of a single piece of ivory. In Nelson's collection there are numerous specimens of chains that serve as bag, drag, and other handles.\(^2\)

Chains of different sizes, carved out of a single piece of bone or wood, and serving as handles and for other purposes, are found also among the Gilyak and Ainu. Specimens of such chains are in the American Museum of Natural History as well as in the British Museum in London, and in the Museum für Völkerkunde in Berlin.

Not all the Koryak are equally skilful in the work of carving in general, and of chain-carving in particular. In each locality there are men who are specially skilful in this or that branch of the art. Thus, for example, there is a blacksmith in Paren, on the western coast of Penshina Bay, by the name of Kiya'uchnin, who is known for his skill in carving bone figures of men and animals; while the Koryak A'xa, of Ushatkovo, is known for his ability in carving bone chains.

Fig. 188 represents chains of his workmanship in all stages: \( c \) is a sawed-off piece of walrus-tusk; \( d \), a piece which has been whittled down with a knife to a quadrilateral form bearing the marks of the first few future links; \( e \) shows the progress of the work in carving the links; and \( f \) represents the completed chain. Here we notice that in carving the links, the chain \( f \) has gained in length as compared with the tusk, as shown in \( d \), to the extent of 12 cm., the tusk being 32 cm. long, while the chain measures 44 cm.

The Koryak used stone implements in working bone before they knew of iron. The walrus-tusks were split into strips by means of stone chisels and wedges, and the work was continued by means of stone knives and awls. At present tusks are sawed by means of an iron saw, home-made or imported, and the rest of the work is accomplished with the aid of a knife.

\(^1\) See Krasheninnikoff, II, p. 50.
\(^2\) See Nelson, Plate xxii, Fig. 1; Plate xlvi, Figs. 4, 7, 10; Plate lii, Fig. 16; Plate lxvi, Figs. 18, 19.

See also Hoffmann, Plate lv, Figs. 1–3.
found with monstrous forms; for instance, in my collection there is a little figure of a partridge with two heads. The Koryak from whom I obtained this carving could give me no satisfactory explanation of it; and I do not know whether it was the product of the individual fancy of the artist, or whether it represents some mythic bird. Among the carvings of the Eskimo of Point Barrow, reproduced in Murdoch’s work, we also find figures of animal monsters, among which there is an ivory carving of a ten-legged bear and a double-headed animal carved from antler.¹ Murdoch’s illustration repre-

¹ See Fig. 144, d, p. 621.
² See Murdoch, Figs. 412, 414, 416, pp. 405–407.
senting a giant holding a whale recalls a Chukchee ivory carving in the collection of the Academy of Sciences at St. Petersburg, representing a human figure with three pairs of white whales on its breast. This figure corresponds with the Chukchee myth of a giant who once came from the American shores to the Chukchee coast, where he went to sleep, and remained asleep all winter, while the white whales came out on the shore and gnawed at his flesh.

**Engravings.** — We have seen that the realistic animal carvings of the Koryak, like those of the Eskimo, are frequently ornamented by means of incised designs consisting of plain dots, rings, or lines; but we do not find any complex engravings of patterns or figures of pictographic character, such as are found on the carvings of the Alaskan Eskimo.

![Image of a skin-scraper with ornamented handle and a knife with incised designs.](image.png)

In the collection of carvings in the Museum of the Imperial Academy of Sciences at St. Petersburg, there are two bone pipes with engravings of diminutive figures of men and animals. These pipes were acquired among the Kerek, but had their origin among the insular Eskimo of Bering Sea.

The tools and implements of the Koryak are mostly devoid of all ornamental engravings. The few ornamental engravings which are found on the tools and other household articles may be divided into the following classes, — the simplest, or Eskimo-like; the pictographic, or engravings resembling those of the northern Indians of the interior and the Alaskan Eskimo; and the conventionalized, adopted from Asia. Figs. 189–191 represent specimens of the first group of ornamental engravings.

Fig. 189, a, represents an iron skin-scraper. Its wooden handle is ornamented with lines and zigzags. It was obtained in Paren. Fig. 189, b,
represents a belt-knife of Koryak make. The blade is ornamented with a zigzag design. The wooden handle is entirely covered with brass, which is decorated by grooves and lines which enclose fields of hachure. We meet the zigzag ornamentation with acute or obtuse angles also in the ornamentation of garments (see, for instance, Figs. 209, 216).

Fig. 190 represents a woman's implement used in the ornamentation of funeral dress. It consists of a common handle made from walrus-tusk, with two flat chisel-edged awls of different widths which turn on pivots. When the smaller awl is required, the larger one is turned aside, and the smaller one is given a vertical position as required in use, and *vice versa.* The ends of the awls are of iron, but in olden times they were of stone or bone. These tools are used in making slits at uniform intervals in seal-skins painted black. Through the slits thus made are passed narrow strips of leather cut from the skin of a dog’s throat. This skin, when finished, is whiter and finer than the finest chamois-skin. In this way, in the middle of the black strip of seal-skin, an ornamental ribbon is formed, in which the black and the white narrow strips or squares succeed one another (see Fig. 197). These strips are used in trimming the coats and other parts of funeral dress. The parallel lines engraved and etched lengthwise on the handle of the implement represent the strips of seal-skin, while the short parallel cross-lines represent the slits made by the awl. The line ornament on the implement may thus be called a textile ornament. The middle of the obverse of the handle, and the whole reverse, are decorated with a herring-bone pattern, with the apex towards the cutting-end. On the reverse of the handle the lateral lines of the herring-bone pattern cover the whole surface. The haft of the wider awl has the ribbon-ornament shown in the illustration, and consisting of alternate squares on three sides; while the design on the reverse face consists of the two diagonals, the four triangles thus formed being filled in by two or three triangles the sides of which are parallel to the diagonals. The reverse of the haft of the narrower awl is decorated with two intercrossing herring-bone designs covering the whole surface, — one with the apex towards the awl, the other with the apex towards the handle, — the middle line of the two being the same. The outer and inner sides of this handle are decorated with a peculiar irregular design, which apparently consists of a chain of rhombi, their obtuse angles adjoining, extending along the haft. In each rhombus an attempt seems to have been made to place another rhombus parallel to the outer one, while some of the intervening outer triangles

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1 This method of ornamentation will be described later on (see p. 679).
are filled in with smaller parallel triangles, and others remain undecorated. The implement was obtained by me in Ku'el. The device shown in Fig. 191, a, is also made from walrus-tusk, and was obtained in the same place. It is used as a reel for winding embroidered and ornamented strips of skin or fur on its axle. These strips are used for trimming the edges of clothing. The axle and the two bone disks are decorated with dots, circles, and chevrons. Fig. 191, b, represents a bone ear-spoon collected by Mr. Bogoras in northern Kamchatka. The handle of the spoon is ornamented by a row of rhombi running lengthwise, and touching each other at their angles, inside of which vertical lines are engraved. The rhomboidal ornamentation resembles the engravings on Tlingit neck-ornaments, which contain rhombi without etched lines inside. As we shall see further on, the Koryak women, in decorating their fur rugs, used rhombi to represent ice-floes (see Fig. 238). The reverse side is shown in Fig. 191, b'. Here may also be mentioned an engraved harpoon-head (Fig. 191, c).

Fig. 192 represents three snuff-boxes of birch-bark, made in Kamenskoye. Those shown in a and c can be closed with separate wooden covers; the handle of the cover in c represents a dog's head. The cover of b opens on a pivot made of tin tubes and wire. The engraved ornamentation is almost the same on all the snuff-boxes. It consists principally of dots, triangles, and concentric circles. The circles are somewhat similar to the circle-ornament attached to clothing (see Figs. 224 and 227). The cover on b is ornamented with the representation of a conventionalized plant, the veins being made of inlaid wire, while on c there is a row of double rhombi on the side.

1 See Hoffman, Plate ix, Fig. 1.
Figs. 193 and 194 represent specimens of engravings of a pictographic nature. Fig. 193 represents two women's knives.\(^1\) Outlines of running reindeer are engraved on the blades by means of a steel awl. The outlines of the reindeer are somewhat inferior in vividness to the engravings of reindeer figures on ivory made by the Alaskan Eskimo; but allowance should be made for the material (iron) on which the Koryak artist engraved the reindeer. A middle line may be observed on the reindeer in \(b\), which is absent in \(a\), and consists of a series of minute vertical dashes. This line represents the spinal column.

Fig. 194 represents two cutting-boards\(^2\) used by women in dress-making. The boards contain ornamental engravings on the under side. The patterns for dresses are cut on the unornamented side. The boards are engraved by the men (the brothers or betrothed of the women to whom the boards belong), for amusement. The engravings consist of household and hunting-scenes; and the workmanship differs from that of most Eskimo engravings in that the figures of human beings and animals are not merely indicated by lines and by contours, but are cut out in intaglio. Moreover, some parts of the figures are frequently made somewhat more prominent than others, after the manner of bas-reliefs, which makes the figure of the animal more vivid than ordinary engraved silhouettes.

Both specimens reproduced here were collected on the Palpal from Koryak living on the coast of Bering Sea: \(a\) was made on the Opuka River; \(b\), on the Poqa'c River. In \(a\) is represented a scene from the life of fisher-

\(^1\) See p. 621.  
\(^2\) See p. 627.
men. The make-up is conventional, and there is lack of perspective. Thus on the left side we see a woman, who, in a kneeling position, is carving fish on the ground in order to dry it in the sun; farther to the right, what seems to be the figure of a man, holding a disembowelled fish and the severed head of the fish in his hands, is running toward the drying-frames in order to hang them up for drying; still farther to the right, a man is trying to catch a fish by means of a pole and hook. The boundary-line between the water and the shore does not appear. Evidently the river or the sea must be in the background, behind the man and the drying-frames. The lack of perspective does not appear so clearly in Fig. 194, a, for the reason that all the objects represented there are in one plane. It represents a hunter kneeling on one knee, with a flint gun, the butt of which is pressed against his shoulder, while the barrel rests on a wooden stand. He is aiming the gun at a bear, which is attacked in the rear by a dog. Although the figures are only silhouettes, the posture of the man and the motions of the animals are brought out with remarkable vividness. Moreover, the proportions between the different objects have been well observed. It is interesting to note here, that the specimen shown in Fig. 194, b, was made by a Reindeer Koryak of Poqač, a young man of twenty-five years, whom I have seen on the Palpal. This proves that among the Reindeer Koryak we also find men with a high artistic taste.
Along the shores of Penshina Bay the ornamentations on cutting-boards frequently consist of figures of steamers or schooners which land from time to time at the settlement. These engravings resemble in every respect those of the Eskimo in their manner of representing schooners and steamers.1

Figs. 195 and 196 represent forms of engravings of foreign origin adopted from the Tungus and other neighbors. Fig. 195, a-e, represents specimens of workmanship of Koryak blacksmiths,2 with ornaments engraved and with inlaid copper and brass. The art of the blacksmith being of recent origin among the Koryak, their decorations on articles of iron are adopted from other tribes. In my opinion, the ornamentations of the belt-knife (a), of the "large knife" (c), and of the spear (b), shown in Fig. 195, came down to the Koryak from the Amur natives through the medium of the Tungus; and the Amur people, in their turn, adopted them from the Chinese. This ornamentation appears as a simplified conventionalization of the simple and combined cocks, which we see in the Amur spear (Fig. 195, d).4 The ornamentation of the wooden handle of the knife a, which is inlaid with tin, is evidently adopted from the Yakut, among whom such knife-handles are often found; and the ornamentation represents, as I was told, in a conventional way, the larch-tree. The short handle of the large knife c is made of bone of whale.

The interior part of the ornament of the cutting-board (Fig. 196, a) is also of the Amur type. The middle of this board serves for winding embroi-
dered trimmings used for dresses, fur strips for coat-trimming, and other strips for dress-ornamentation. The combination of curved lines in this ornamental engraving is not of Koryak origin; but, instead of the spiral ornament of the Amur tribes, we have here a series of arches, the ends of which meet on one side. The rings with stars on the snuff-box (c), were adapted by the artist from a drawing on Russian printed calico. I shall speak more fully of such adaptations further on. It will suffice here to call attention to the perfection of the circles, and the sense of symmetry shown in the outlines of the stars, notwithstanding the fact that the Koryak artists, besides the point of the knife, have no instrument, such as a pair of dividers, for making curved lines.

I could get no explanations as to the fantastic ornamental engravings of Fig. 196, b, which are far from being symmetrical; but there is no doubt that we have to do here with mixed elements of primitive geometric ornamentation and conventional plant-forms, possibly the stone-pine.

Ornamentation of Dress. — In the ornamentation of clothing and fur rugs, we see a combination of different influences, similar to that which we observe in the case of engravings on cutting-boards, boxes, and implements. We find here both the most primitive ornaments — consisting of dots, dashes, and rings — and other geometrical patterns in the shape of triangles, rhombi, and squares. Further, there is a technical style of ornamentation, representing nettings, for instance; animal ornamentation, consisting of a realistic representation of individual animals and human beings, or of groups of them, of a pictographic nature; and, finally, there is the conventionalized plant-ornament. The last kind of ornamentation I consider the latest acquisition adopted from the Russians.

While the carvings and engravings are the art of man, the ornamentation of clothing and rugs is the result of the artistic efforts of woman. The simplest dress-decoration consists in the binding of skin dresses with fur, or in the trimming of fur clothing with fur of a better kind than that of the clothing, or of a different color, and in the use of white, black, and red dyed skin, either with the hair removed or placed flesh side outward, the hair which is on the inside of the coat being shorn.
Technique of Ornamentation. — The designs on garments are throughout arranged in horizontal or vertical strips, as may be seen in Figs. 216, 217, 225, 227. These strips consist of a series of parallel stripes, each showing a particular design. In all Koryak ornamentation of clothing, these strips are made separately. In making them, they are wound on reels like those illustrated in Figs. 191, a, and 196, a, b. After the strips have been finished, they are sewed together.

The methods of decorating these strips are quite varied. A great many designs are made by a method which may be called "slit-embroidery." This method is applied particularly for making designs consisting of narrow white lines on a black background, the black background being thick black skin, — chiefly the skin of a ringed-seal dressed and dyed black, — and the white being produced by means of prepared thin white skin of the dog's throat and of sinew-thread. A series of narrow slits are made in the black skin which is to be decorated (Fig. 197). A strip of white dog-skin of the same width as the slits is laid under the line of slits, and a small loop of this skin is pushed from underneath through the slits, where it is caught by a sinew thread, which lies on the surface of the skin, and is passed through the loops, which are then drawn tight. In some cases, instead of laying the dog-skin under the black skin, the slits are not cut through, but are connected by splitting the skin from one slit to the next slit. In this case the dog-skin is passed right along between the outer and inner layer of the black skin. It is caught in the same way as described before. The principal types of designs made in slit-embroidery are shown in Fig. 198.

The technique of the slit-embroidery is such that the designs necessarily consist of long connected series of rectangular figures; the white skin which is pulled through the slits forming a series of short parallel lines the ends of which are
connected by the white sinew thread. The width of the rectangles varies considerably, since often a series of slits forming one straight line are connected by a single thread (Fig. 198). Sometimes also, instead of rectangles, the designs consist rather of an angular meander, a single thread being pulled through the skin loop in one direction, then across to the next loop, and back in the other direction. Some of the finest of these slits are not more than 1 mm. in width, while the rows of slits are sometimes as near together as .25 mm. Coarse slits of this kind are as wide as 2 mm., and the rows are about 1 mm. apart.

The designs consist, on the whole, of groups of rectangles, either held together by chains or separately arranged in rhythmic groups. Other designs consist of triangles rising over a wave-line or over a connected line, or entirely isolated.

In making up rows of designs in this technique, all the slit-embroidery gives thin white lines on a black background.

Although the dog-skin, when seen near by, is a little more yellow than the white sinew, this difference disappears by contrast with the dark background. The same method is sometimes used for making red fringes at the borders of garments. In this case the lowest border consists of a strip of bare white skin. Dog-skin is pulled through the slits as described before, and in these slits tassels of red yarn or of the hair of young seal dyed red are caught. Sometimes there are double slits, so that the tassel is caught as shown in Fig. 199, a.

In some cases single white cross-strips on a narrow black background are made by winding a narrow strip of white skin once around the black strip, which is then sewed to the preceding strip in such a way that the ends of the white winding are just in the seam, where they are held in place.

Whenever wider white lines on a black background are desired, another technique is applied. This consists in the application of short narrow strips of stiff white reindeer-skin, — more rarely of white dog-skin, — which are caught in the seam between two adjoining strips of dark skin (Fig. 199, b), the whole seam being overlaid with sinew or hair (see p. 681). When a narrow strip of squares is to be formed in this way, the lower ends of these strips are caught in the same way in the next seam below. This same method is applied in making the fringe along the lower border of garments (see Figs. 207 and 212). In this case, strips of such skin alternate with tassels of the hair of young seal dyed red, both being caught in the seam, which,
however, is not overlaid with sinew. The hair of the tassel is doubled over and the small strip of skin placed in the bend, and the two are caught in this way, generally by three stitches. The hair which lies under the skin makes in this way a somewhat raised seam. The same method is used for emphasizing the stitches of a white seam. In this case very short pieces of stiff, white skin are caught in the manner described before, and are cut off close to the overlaid sinew.

When narrow black strips or small black squares on a white background are desired, still another method is used. A narrow strip of black skin about 3 mm. in width is wrapped with white dog-skin about 1 mm. wide. In the middle of the outer side a longitudinal narrow strip of white dog-skin is applied under the winding. This method is used, for instance, in the garment 70.

For overlaying seams and for making curved or diagonal designs on black bare skin, a method which we might call "sinew or hair appliè" is used. The sinew or hair is laid on in the desired form, and is stitched over with finer sinew, the stitches passing through the upper layer of the skin, and not appearing on the under side. For overlaying, hair from the mane of the elk and reindeer, and hair of the mountain-sheep, are used. This method is the same as the one used in sewing coiled grass baskets (see p. 632).

A succession of disconnected white squares on a black background is made in the same style of embroidery by weaving in white dog-skin, which passes through a series of slits (632).

Whenever red fur is desired as an inset in these designs, it is made by applying tassels of dyed hair of young seals to reindeer-skin, the flesh side of which is dyed red and turned outward. These tassels are arranged close together in horizontal rows, each tuft of hair being turned over in the middle and being held by a stitch which passes only through the outer layer of the skin (see Fig. 199, a). Other patterns, such as checker-work and realistic figures, are almost always made of skin mosaic, each strip being finished by itself, and being sewed to the preceding strip. All the sewing is done on the right side; and wherever the seam is not covered by other ornamentation, it is overlaid with sinew or hair. Mosaics in which complicated forms are set in are made from patterns cut from the thick skin of the thong-seal, which is used for cutting out the various figures, say of white skin, with or without hair. The same pattern is used to cut out the figure from the black background. The white figure is then inserted in the opening thus made. In this way black and white silhouettes of animals or other figures are obtained on a white or a black background. The conventionalized plants and geometric figures are more difficult to cut out and sew in

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1 The same type of overlaid seams is found in Norton Sound, Alaska.
than animals. Frequently the designs are made up of such small pieces, that it is surprising how such tedious work can be done at all. Not every woman can cut out figures. There are specialists among them who supply these figures.

On some coats made of skin without hair, designs are also formed by small tufts of hair of young seal dyed red, which are sewed on in rows or in straight lines and zigzags, the tufts appearing like red spots on the white background of the coat. Such tufts are also used to make triangular forms on white or black backgrounds by being sewed in as described before (see Fig. 210).

Long narrow strips of skin, almost like fringe, appear sometimes in the long strips of embroidery along the lower border of coats (see Fig. 210). These are generally caught in the same way as the fringe at the bottom of the coat, which was described before, each strip of skin being caught separately. In the coat here referred to, they consist of long narrow strips of bare white skin decorated with equidistant black cross-lines.

Tassels consisting of bare skin are made of long pieces of skin slit up into from five to eight narrow strips, which are sewed on flat to the back or front of the coat. Generally these are arranged in rows, the strips being sewed on in pairs or in groups of three, four, or five. Sometimes tassels are made of threads of reindeer or elk\(^1\) sinew, white or dyed red. Sometimes tufts of hair of young seal dyed red are tied for quite a distance down the base of the tassel, thus producing the effect of fur tassels with string ends. A more complex fur tassel is made up of small pieces of white and dark reindeer-fur, the ends of each piece being sewed together so that it forms a bell-shaped bead, which is wider open at one end than at the other. These are strung on a strip of skin, to which they are attached so that they cannot slip off. In many cases the upper part of these fur-bead tassels consists of a single strip which divides farther down. In one coat (\(\text{Fig. 184}\)) the fur beads are so small, and trimmed down so regularly, that they almost appear like bone beads. In some cases glass beads are strung on with the fur tassels.

On some of the dyed dancing-garments the ornamentation consists principally of white skin appliqué on the red background of the garment. The principal designs that occur in this form are rows of triangles. The same kind of triangles occur commonly on the fur coats with embroidered borders.\(^2\) Other designs in appliqué-work are shown in Fig. 200. For designs in appliqué see also the woman’s coat shown in Fig. 116, p. 589.

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1 It should be noted that the Koryak obtain elk sinew or hair for ornamentation from the Chukchee, Tungus, or Yukaghir, as there are no elk in their own territory.

2 Similar patterns occur in the decoration of Greenland garments. They are made in appliqué-work, which, however, is never caught in the seams, nor woven. It is simply sewed on.
Still another method of skin ornamentation consists in stamping designs in red color on bare skin. A series of wooden stamps used for this purpose are shown in Fig. 201. A coat decorated by means of these stamps is shown in Fig. 218.

Embroidery in silk and yarn is made by long flat stitches, which, however, do not pass through the skin, but only under the upper layer. The patterns are laid out in the following way: Looking at the design which serves as a sample, the woman marks on the skin with the end of a bone knife the necessary curves, circles, etc., and then covers these marks with embroidery. The Alutor Koryak women are especially fond of bead-embroideries.

Fig. 202 represents a belt embroidered with beads (a), and a pouch (b) for flint and touch-wood, which is sewed to a plain leather belt. The line-ornament of belt a is embroidered in three colors, — blue, black, and white; while the ornament with human figures on the pouch is made of beads of two colors, — white and blue. The belt (a) is represented here without buckle and strap.

Designs. — In order to be able to distinguish the latest designs in ornamentation from the ancient ones, we must first of all turn to that of funeral dress or of other articles connected with ritual, such as the dress used in dancing at whale festivals, or to the ornamentation of articles no longer in use, such as quivers. The ornamentation of funeral clothes is especially marked by conservatism.

On most of the funeral garments, ornamentation is made entirely of slit-embroidery, overlaid seams, caught-in strips, and skin mosaic. Sinew and hair appliqué occurs also, but not so frequently.

The designs made in slit-embroidery have been described before, and it has been stated that caught-in strips and wound strips result in similar
designs; characterized, however, by wider white lines as compared to the remaining black background. The more complicated forms do not appear in this technique; but we have, on the whole, series of rhythmically arranged rectangles, as shown, for instance, in the narrow strips containing white bars in Fig. 208.

There is another figure frequently found in the ornamentation of funeral and sometimes of ordinary clothing, — inscribed arches with elongated sides, or ovals with one end cut off. These figures may be seen on the two funeral quivers before mentioned. Embroidered figures of this kind are found on ancient Chukchee quivers\(^1\) and on some articles of the Alaskan Eskimo.\(^2\)

It is very interesting that, in the ornamentation of funeral and dancing costumes, we do not find any realistic reproductions of men and animals which could be considered as "guardians" of the dead or of the shamans, or of other persons who perform the religious dances. In the shamanistic costumes of the Yakut, the Tungus, and other Siberian tribes, we do find figures of "guardians" of shamans in the form of outlines of men and other animals. These figures are embroidered on the dress with sinew-thread; and sometimes figures cut out of leather, cloth, tin, or copper, or wrought from iron, are sewed on the dress.

Professor Boas has called attention to the difference in the decorative style applied in ceremonial and common objects among the Indians, the Eskimo, and the Gold of the Amur River.\(^3\) Their ceremonial objects are

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\(^1\) See Part I, Fig. 50, p. 107; also Fig. 43, p. 106; and Fig. 227 of this part.

\(^2\) See Rogers, Chukchee Material Life, Plate 31, Fig. 1; The Chukchee, Vol. VII of this series, Fig. 76, p. 157.

\(^3\) See Nelson, Plate xlv, Figs. 15, 31, 32; Plate xx, Fig. 6.

covered with more or less realistic designs, while the decoration of ordinary
garments represents geometrical motives. I have stated that the same
phenomenon occurs among the Yakut and Tungus in reference to the decor-
ation of their shaman’s and ordinary wearing-apparel. We see the reverse
among the Koryak. Their funeral and dancing garments are covered with
geometrical designs, and realistic designs are found only among the decorative
motives of ordinary coats and on fur rugs.

In the ornamentation of funeral garments there is only one case of a
figure resembling a starfish, and another resembling a frog. An ancient
Chukchee quiver has embroidered figures resembling the Russian letter Ẋ,2
which could be mistaken for a conventionalized frog. I point this out, be-
cause, in the Gilyak cult, the frog plays an important part, and its figure
serves as an amulet. In Yukaghir mythology the frog is mentioned, but neither
in the Koryak nor in the Chukchee myths do we meet with the frog.5

This may be the proper place to say a few words as to the part played
by figures in the decorative art of the Koryak in general. If we are to
assume that, in the case of all tribes, every ornament has, or had at one
time, a certain meaning, then I must confess that I have not succeeded in
finding the required explanations, either because the Koryak have forgotten
the meaning of their ancient ornaments, or because the particular persons
from whom I tried to obtain the explanations were not familiar with them,
in which case the subject still remains to be investigated.

I was able to ascertain that all ornamental designs on dresses, as well
as the tattooings, are called by the same name — ka’li or ke’le — as is
used by the Koryak to designate, not only all kinds of drawings, but also
the printing in books and Russian letters. Some Koryak said that simple,
double, and concentric circles represent the sun, the moon, or the stars. I
was told on one occasion that zigzags represent mountains; on another, that
they represent waves. Cross-like figures are supposed to represent flying
birds; but I was told that as a general rule the ornament had no special
significance. Even the information as to zigzags I obtained only after insistent
questioning, which may have stimulated the answer. The impression obtained
by me was, that the persons interrogated were considering their replies while
being questioned. For that reason, I do not attach special importance to
their answers. It will be clearly apparent from what follows, that the women

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1 See woman’s funeral overcoat, Part I, Fig. 51, p. 108.
2 See Bogoras, Chukchee Material Life, Plate XI, Fig. 2.
3 See Schrenck, III, p. 750.
4 See Jochelson, Yukaghir Materials, p. 5.
5 Mr. Sternberg has called my attention to the resemblance of some figures in the Koryak-Chukchee decorative
art to Gilyak representations of the frog, but I have never seen a frog in the country of the Koryak. Neither
Kraehenbühl (I, p. 492) nor Ditmar (Reisen in Kamchatka, p. 345) found it in Kamchatka. If the ornament
in question really represents a frog, this pattern must have been adopted from the south. I should add, however,
that, according to Slunin’s assertions (see Slunin, I, p. 339), one species of frog has been found in Kamchatka.

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use the designs employed in the ornamentation of the common dress, which have undoubtedly been adopted from the Russians or the Tungus, merely for beauty, without reference to their meaning.

Although, in the ornamentation of the common dress, we meet with ancient designs which we have seen on funeral clothes, yet we frequently find, also, realistic representations of men and animals, combinations of curved lines, and conventionalized plants. The realistic reproductions of animals in dress-ornamentation may have developed as a result of the imitation by women, in their designs, of the objects produced by men in their sculptural art. Combinations of curved lines and conventionalized animals, such as we have seen on knives and spears, were adopted, in my opinion, from the Amur through the medium of the Tungus; while the conventionalized plants, as we shall see further on, were copied from the designs on the calico prints imported by Russian merchants. Some woman referred to the Russo-Koryak half-breed Fletcher as the author of certain patterns. These were mostly figures representing conventionalized plants, copied from designs on imported calico or cloth. The woman using them knows that the design represents plants and leaves, but personally I know of no case where a woman would imitate plants which grow naturally before her eyes.

It is claimed that, among advanced agricultural tribes, the plant-ornament appears in decorative art after the animal-ornament. I should add, however, that, as regards the plant in Fig. 204, (3), or that on the rug in Fig. 239, I was told that it represents the flower of the dog-brier, which grows in abundance in the valleys of the Koryak rivers. One Koryak even told me that some women copied the figures for the leather patterns from leaves and flowers of living plants. I admit the possibility of this, although personally I have not met such women. As the habit of observation on the part of man when on his hunting expeditions furnishes him with material for carvings and engravings, so does the observation of woman when gathering berries, herbs, and roots, supply her with material for designs.

How women copy figures from drawings on imported calico prints and other tissues is shown in Fig. 203, representing specimens which I obtained from a girl in Kamenskoye. Fig. 203, a, represents a conventionalized plant-ornament as it appeared on a piece of Russian calico which I obtained from the woman; δ, the pattern, is a copy reproduced by the woman from a. The pattern is cut out of a piece of the thick skin of a thong-seal. We can see that the copy is rather crude. It shows a freehand, rough silhouette. This design was used in cutting out the patterns from the dark fur of the fawn in the following manner: the pattern is put on the obverse side of the fur, and by means of a bone knife its outline is drawn on the skin (some

See p. 665.
women even use Russian pencils for that purpose), and the figure is then cut out with the woman's knife, following the outline. Fig. 203, c, shows how the conventionalized plant is sewed into the strip of white fur of a young reindeer, in place of the figures, which were cut out in the described manner by means of the pattern (b).

Fig. 204 represents a piece of a fur strip for trimming the bottom of an overcoat. The ornamental figures are a mixture of ancient animal and plant ornaments. One figure represents a dog running, with its tail turned upward and its tongue hanging out. The other figure represents the silhouette of a horse with a saddle, and a pack behind the saddle. In this
silhouette it is very easy to recognize the horse. The use of the figure of a strange animal as a subject of decoration testifies to the power of observation of the Koryak woman. Among the plant-figures, one represents a flower, the other a bush with two birds sitting on it.

Later on, strips for trimming the bottoms of coats will be fully discussed. The middle part of many of these strips is embroidered with colored thread, in imitation of Russian designs. The cross in Fig. 211, in cotton thread, seems to have been adopted from Russian designs; while in Fig. 212 the entire strip, embroidered in silk, represents conventionalized plants.

Where fur mosaic occurs in funeral garments, we find only square, diagonal, rhomb, or triangular checker-work, or narrow parallel strips in various arrangements, but no realistic figures. Thus it will be seen that all the characteristic ornamentation of funeral dresses consists of geometric designs.

Arrangement of Designs. — In treating of the arrangement of designs, three important points of view must be borne in mind, — the sequence of strips making up ornamental borders, the rhythmic repetition of motives recurring these strips, and their arrangement on the garments.

As regards the composition of borders from single strips, it would seem that the fundamental trait of arrangement consists in the attempt to set off a well-marked middle decorated stripe, which is accompanied by wider or narrower borders. Examples of such borders are fully discussed in the following pages. The arrangement differs somewhat, according to the technique applied. Whenever the upper and lower borders of the ornamental strip are made of slit-embroidery, forms like those shown in Figs. 206–208 and 220–223 are found. Borders made of appliqué-work are very common, and these consist almost always of white triangles on a black or red background, as shown in Figs. 208, 212, and 216. Square checker-work in this arrangement is shown in Figs. 205, 220, and 223. Triangular or square checker-work is also made in skin mosaic, as illustrated in Fig. 209. The arrangement of the strips shows so much variation, however, that it is difficult to give any generalized description. The same kind of arrangement has also been applied in modern borders, with the only difference that for the ornamental middle row a strip of yarn or silk embroidery has been substituted.

The arrangement of stripes illustrated in Figs. 212 and 216, a, is found in many coats with embroidery ($\frac{\pi}{5}, \frac{1}{2}, \frac{7}{9}, \frac{7}{9}, \frac{7}{9}, \frac{7}{9}$); it is also laid out on the same plan, except that under the lower row of white appliquéd hanging triangles a row of checker-work is repeated. Sometimes, in place of the rhomboid checker-work, square checker-work is found. In one specimen ($\frac{2}{2}, \frac{2}{2}, \frac{2}{2}, \frac{2}{2}, \frac{2}{2}$) the upper checkered strip is missing. In still another specimen ($\frac{7}{7}, \frac{7}{7}, \frac{7}{7}, \frac{7}{7}, \frac{7}{7}$) only the central embroidery with the adjoining appliqué strips of triangles are retained. In another one ($\frac{7}{7}, \frac{7}{7}, \frac{7}{7}, \frac{7}{7}, \frac{7}{7}$) we find, in place of the upper strip of checker-work, a single row of alternate black and white squares, while in all
other respects the arrangement of the border is the same as in the specimens just described. In a few coats (for instance, \( \frac{10}{2}\) and \( \frac{10}{4}\)) the strips with appliqué triangles are replaced by slit-embroidery. The same is done in specimen \( \frac{10}{3}\), where, however, in the upper border, the slit-embroidery representing standing triangles is inserted between a strip of blue cloth with appliqué standing triangles and yarn embroidery. Under the embroidery, in the place usually occupied by the hanging appliqué triangles, we find black skin with rectangles in slit-embroidery. Two of these coats in which the slit-embroidery is used are dancing-coats made of skin dyed red.

Rhythmic Repetition of Designs. — More interesting than the succession of strips making up the border is the rhythmic repetition of motives in each strip and in the combined pattern constituting the whole width of the border. On the whole, there is a strong tendency to use alternate patterns intended to break the uniformity of an uninterrupted long border; but in many cases the rhythmic arrangement is much more intricate. In other cases the whole front of the coat is occupied by one pattern, while a change of arrangement takes place on the back. In still other cases the right and left sides of the back show different patterns. In the majority of cases there is one place in which the symmetrical or rhythmic arrangement of the patterns is interrupted.

This place is generally found under the left arm, not quite so often under the right arm. In some cases an exceptional pattern which does not fit into the whole rhythmic series is inserted at this place. This may be due to the difficulty of adjusting the strip to the garment; but from this difficulty a tendency seems to have developed to make a break in the design, even when not necessary.

It seems best to illustrate the peculiar tendency to rhythmic arrangement by the discussion of a number of borders. Fig. 205 represents part of a belt used in a man's funeral dress. The checker-work is made by weaving white dog-skin through slits in black hide. The ends of the slits are connected with appliqué hair embroidery. Each pair of white appliqué circles on the central strip is succeeded by one red circle.

Fig. 206 also represents part of a belt of a funeral dress. It consists of a strip of black skin on which right-angled figures are made in slit-embroidery. The numbers of links in the central connecting chain vary somewhat from three to six, the distances between the bars and squares not being quite
regular. On the whole, the squares and their distances apart are a little wider in the middle of the strip than at the ends. Towards the ends the squares are a little narrower, and they are slightly closer together. The end squares number about eight stitches across. The middle squares number ten or eleven. Throughout, the same width of the design, thirteen stitches,

![Fig. 206](image)

Funeral Belt with Slit-Embroidery. Width, 4.5 cm.

that is, six stitches either side of the middle line, — is preserved. The second square from the left, here illustrated, shows an irregularity in the bottom row, in that two adjoining slits are treated as a unit.

Fig. 207 is part of a wide border of a funeral coat which is trimmed with dog-fur. The whole border consists of alternate strips of black and white skin sewed together. The lowest strip is made of shorn reindeer-skin with

![Fig. 207](image)

Border of Funeral Coat with Slit-Embroidery. Width, 8.5 cm.

the flesh side up, dyed red. The designs on the upper row are arranged quite symmetrically. As shown in the illustration, these are of varying lengths, which are arranged as follows:

<table>
<thead>
<tr>
<th>cm.</th>
<th>8</th>
<th>12</th>
<th>8</th>
<th>17</th>
<th>12.5</th>
<th>22</th>
<th>9</th>
<th>9</th>
<th>22</th>
<th>12</th>
<th>17</th>
<th>8</th>
<th>11</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under arm.</td>
<td>8</td>
<td>12</td>
<td>8</td>
<td>17</td>
<td>12.5</td>
<td>22</td>
<td>9</td>
<td>9</td>
<td>22</td>
<td>12</td>
<td>17</td>
<td>8</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>Centre.</td>
<td>12</td>
<td>17</td>
<td>8</td>
<td>17</td>
<td>12.5</td>
<td>22</td>
<td>9</td>
<td>9</td>
<td>22</td>
<td>12</td>
<td>17</td>
<td>8</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>Under arm.</td>
<td>8</td>
<td>12</td>
<td>8</td>
<td>17</td>
<td>12.5</td>
<td>22</td>
<td>9</td>
<td>9</td>
<td>22</td>
<td>12</td>
<td>17</td>
<td>8</td>
<td>11</td>
<td>8</td>
</tr>
</tbody>
</table>

At the intervals hair tassels are caught in the seam. The vertical bars on this design consist, in the middle part, of single rows of stitches; while at both ends of the strip there is a tendency to substitute double rows, although not quite regularly. Seen from a distance, the impression is given that the middle part, which was probably placed on the front of the coat, contains finer and more regular work than the back, where the vertical bars are farther apart and heavier. The whole middle portion of the central black strip of the design consists of a regular alternation of rectangular fields of six and three stitches, as shown in the illustration, except that there is a slight irregularity in the occurrence here and there of three 3-stitch fields instead
of two 3-stitch fields, as would be required by perfect regularity. This portion of the black middle strip extends from the point where the 17 cm. bar of the top row on the left adjoins the 12.5 cm. bar, to the middle of the 17 cm. on the right. The whole rest of the left side of this strip is occupied by one continuous row of 3-stitch squares with only slight variations, while the whole rest of the right-hand side continues with a design the same as the one in the lower black strip, only a little narrower. If this interpretation is correct, the front would be occupied by one design, and the left and right of the back each by a different design. The white strip under the central black strip just described is embroidered in red yarn, except that portion which is under the two narrow bars of the upper row in the middle of the whole strip, which is done in green. It is obvious from this arrangement that the point indicated in the illustration is the centre of the front of the design. The usual fringe of caught-in strips and hair tassels finishes the lower edge.

Fig. 208 represents a strip for trimming the skirt of a woman’s dancing-

dress. The outer border of triangles is done in white skin appliquéd on dark-red skin. The central ornamental row is done in slit-embroidery. The series of two patterns shown in this illustration are repeated three times along the lower border of the coat. There are two types of circular designs on the middle row, — one with a cross in the middle, the other forming a double star. On the whole, they alternate in groups of three.

Fig. 209 represents another strip for trimming the skirt of the funeral
dress. This one is made of small strips and pieces of black and white fur of young reindeer, sewed together, with the fur outside. The ornamentation is exclusively linear and geometric. The double zigzag on the middle strip, interrupted by cross-strips of white and black fur, is frequently found, both in ancient and modern Koryak ornamentation. The fields containing the zigzag are separated by rectangular fields consisting of a broad middle stripe of red, bordered on each side by a narrow strip of black and white skin. Most of the red strips are made of reindeer-skin inserted with the inner side outward. To these are sewed four rows of tufts of young seal-skin hair dyed red. The seven red strips on the left are made of dyed skin without hair-tufts. The white strips with zigzag are not of equal length, but there is no clear evidence of intentional order in their arrangement. In one part of the design a wide and a narrow one seem to alternate quite regularly, while in other parts there seem to be groups of narrow ones followed by groups of wide ones. The triangular borders above and below seem to be arranged so that each stripe is quite independent of the others. There is no attempt to make the triangles either alternate or coincide so as to form rhombi.

The motive of a very beautiful border of a skin coat is illustrated in Fig. 210. It consists of a series of strips of skin embroidery, wrapped skin, and caught-in strips; the two broad white strips being made of wrapped skin, while the central and lowest strips are made of caught-in strips. The rhythmic arrangement of the motives in this specimen is very elaborate. The long fringe which is caught in a seam near the upper border is repeated at regular intervals. The slit-embroidery is interrupted at these places; and in place of the white bar design in the central strip, a piece of white skin is inserted under each fringe. The division of the upper row of slit-embroidery into three parts of unequal length will be noticed. Just under the intervals there are two tufts of seal-fur, a little wider below than on top, and these are set off more definitely by the arrangement of the caught-in strips in the lowest two rows. The beaded effect in the lower seams is brought about by very short caught-in strips of reindeer-skin.

It may be well to discuss at this place the rhythmic arrangement of more modern patterns, because apparently the principles of their rhythmic arrangement are the same as those used in older patterns. In the border shown in Fig. 204 the figures are arranged in one wider and one narrower symmetrical group. The wider group was probably intended to form the front of the coat. In this case, the front would contain the figures in the order — flower, horse, dog, bush, dog, horse, flower; while the grouping on the back between the two terminal flowers would have been dog, bush, dog.

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1 See Part I, Figs. 43, 44, p. 106; Fig. 48, p. 107; and Fig. 53, p. 109.
Some of the rectangles with rhombic checkers in an embroidered stripe (Fig. 211) have a white background. In these there are two rows of blue (or purple) rhombi at each end, and two middle rows of red rhombi (design 1).

Other rectangles have a yellow background, with red rhombi at the sides and blue ones in the middle (2). Besides, there is one rectangle with red background and black rhombi (3). The colors of the crosses are irregularly arranged. There are four with predominating red and white (4), and five with predominating yellow and blue (5). The most symmetrical arrangement of this type would result in a yellow rectangle in the middle of the front.
One end of the strip (shown in the illustration) shows three short blue bars on a red background (6). The peculiar cut at this end fits into a corresponding cut at the other end, and shows that the strip has been taken off as it is from a garment. The general impression of the design is that the symmetry of the crosses is subordinate to the symmetry of the rectangles. For this reason I have placed the crosses in the arrangement of the symmetry in the upper line.

\[
\begin{array}{ccccccccc}
4 & 5 & 5 & 4 & 5 & 4 & 5 & 4 & 6 \\
2 & 1 & 1 & 2 & 1 & 1 & 2 & 1 & 3 & 1 \\
\end{array}
\]

Front. Back.

The embroidery in Fig. 212 consists of four distinct elements, — one flower with leaves on each side (1), one branch with curved leaves (2), and one branch with terminal flowers (3); besides these, there is one other element which occurs only once on the back of the coat, which is marked (4). The embroidered strip is not sewed symmetrically to the coat, but it has evidently been planned in such a way that the arrangement in front of the coat corresponds to the following sequence:

\[
2 \quad 3 \quad 2 \quad 1 \quad 8 \quad 1 \quad 2 \quad 3 \quad 2;
\]

while the back is occupied by three designs of the pattern (3). On the back the small design (4) is found, the small designs on the whole back being arranged in the order

\[
2 \quad 2 \quad 4 \quad 2.
\]

On another coat (10) not illustrated here a similar kind of embroidery is found. The pattern consists all round of alternating rectangles containing a sinuous stem with triangular leaves and terminal flower (corresponding to design 3 of Fig. 212). This alternates with a symmetrical double design consisting of central flower and two pairs of diverging branches, which join again near the end, enclosing a heart-shaped space, and then diverge again, bearing at their recurving ends a single terminal flower. The only irregu-
larity in this design is again under the left arm, where one half of a symmetrical design is inserted between the two designs that would regularly succeed each other at this place.

The embroidered design of the coat \( \frac{70}{82} \) is the same as the one just described, the symmetrical design being in the middle of the front and of the back. Here an irregularity occurs under the right arm, where two of the asymmetrical designs are placed in succession. This asymmetry is emphasized by the division of the background of the design into a right darker and a left lighter half.

On a third yarn-embroidered coat \( \frac{70}{80} \) an irregularity is found under the left arm, where, in place of the symmetrical design, is inserted a rectangle which is divided into five equal strips running in the direction of the border. The upper, middle, and lower stripes are red; while the intervening ones consist of nine squares of colored yarn, the middle one being green, and these being followed on both sides by a series of white, blue, yellow, blue squares.

The embroidery of another coat (Fig. 213) consists of rectangles with a double-leaf design, which alternates with a red background and a background in greenish and bluish tints. The red varies from a light pink to a deep red, while the others vary from a very dark blue, almost black, to a bright green.

In one coat (Fig. 214) we have all round a double-leaf design on a single background alternating with another design consisting of three crosses. This pair of designs occurs in regular succession five times, but under the left arm it is interrupted by the two new patterns shown on the right-hand side of the figure.

In still another coat (Fig. 215) we find the same series of designs in symmetrical arrangement on the front and on the back. The middle is occupied by a cross, and the other designs follow as indicated. Under the right arm an additional design, consisting of the central cross and the rhomboidal fields with central dots, appears; while under the left arm a single field is added, differing in color from all the others, but related to them in form.

Fig. 216, a, represents an ornamented coat of reindeer-fur. The middle strip of the coat-border consists of conventionalized plants embroidered in colored
silks. The designs in front are symmetrically arranged. The centre is occupied by a double leaf, evidently the same as the leaf with flower which is found to the left and to the right in the second position. Adjoining the central leaf is a simple flower, which on the front of the coat occurs again following the flower with double leaf. Under the left arm of the coat the symmetry is broken by the insertion of a single flower in place of the flower with double leaf, which occupies the corresponding place under the right arm. On the back we find four single flowers, all turned in the same direction. The color-scheme seems very irregular. In front the central field is blue with a red leaf. The two adjoining fields are bright yellow,
with, on the one side a red, on the other side a purple, flower. The following fields of central flower with double leaf are, on the right-hand side of the coat, a central blue and lateral purple background, on which the flower is embroidered in red with yellow outline, the leaves with light greenish-blue, and red veins. On the left-hand side the central background is black, the lateral background blue, on which the flower is embroidered in fawn-color, the leaves in bright red with greenish-blue veins; i.e., the reverse arrangement of those on the right side. On the whole, it would seem that in the

color-scheme, yellow and pink and intermediate tints are almost equivalent, while blue and purple and intermediate tints are also equivalent.

In the fur coat a break in the continuity of the design along the lower border occurs under the left arm. The narrow white strip of skin which forms the upper edge of the border alone is continued. All the other designs are replaced by a single piece of reindeer-skin, which is set in. Besides this, one element of the embroidered design is replaced by a piece of reindeer-skin.
In the coat illustrated in Fig. 216, b, there is a narrow inset in the border on the left-hand side, in which the zigzag pattern is continued; the zigzags, however, being much closer together than in the rest of the pattern.

In the beautiful coat illustrated in Fig. 217, a, there is also a break in the lower border on the left side of the coat. Instead of the upper and lower strips of checker-work, we find stripes of plain dark fawn-skin. In the upper one there is a central square field surrounded by a narrow white stripe, and containing seven rows of dark and light checkers. The lower row has three such squares with somewhat coarser borders and checkers. In the middle row the zigzag ornament, which at this place should be interrupted by a rectangular inset, is continued as a zigzag line. This interruption of the regularity of the border may be seen in the illustration.

Fig. 217, b, shows a man’s coat made in Kamenskoye. The middle strip of the ornamental trimming of the skirt is embroidered with beads of three colors — blue, black, and white. The zigzag in the middle resembles the repetition of the letter M, and consists of two side curves of white beads and a middle curve of red beads. The portion of the blue background under some of the crests of the wave-line is made in light-blue color, which alternates with dark blue, but not quite regularly. The left side of one crest rises over a line of blue; and the adjoining crest, including the two lesser crests on each side, rises over a black background. On the left side, from the middle of the front to the middle of the back, this arrangement alternates regularly; while on the right side of the coat the light blue under one wave-crest alternates with dark blue under two wave-crests. In the middle of the five wave-crests on the back, which rise over light blue, a number of red beads are placed in the middle under the crest of the wave. The blue
all round the coat, over the waves, is made of blue beads of medium deep color. The arrangement of the lower border is asymmetrical.

Fig. 218 represents a shirt of soft dressed white reindeer-skin, which bears the imprint of stamps in the shape of rings, stars, etc., all of a red color obtained from the extract of alder-bark. The rings and stars are found in ancient Koryak ornaments. The other figures, I believe, were adopted from Russian designs. The shirt is ornamented with six different figures; the stamps for three of them, cut out of wood, being shown in Fig. 201. This method of colored decoration is used by the Indians of the Ungava district in ornamenting their buckskin dress. They also use paint-sticks on these occasions. The arrangement of these designs is symmetrical. If we call the designs from the middle line on towards the sides 1, 2, 3, 4, the arrangement is, for each quarter, 1 2 3 4 1 2 3; the last one (3), which has the circle with the inscribed cross, being at each side under the arms, and belonging to both the design at the back and to the design in front. On the sleeves the designs are arranged in circles running around the arm from the shoulder towards the wrist. The row of designs around the wrist apparently represent a flower.

*Description of Coats.* — The borders the arrangement of which has been described in the preceding pages are generally applied to the skirts of fur coats, as shown in Figs. 216 and 217. In the dancing-coats and in the more elaborate coats, additional decorations are found. Often the flap which hangs down over the chest, and which may be used for protecting the face, is decorated, as shown in Figs. 216, 6, and 217. On another coat (216) the flap is decorated with a white upright cross, under which there are two white circles. Another type of decoration of the flap, which occurs on two coats, is shown in Fig. 219. The flap of a woman's dancing-coat (216) is decorated with rhomboidal checker-work made of dark and white fur. The fourth and sixth dark lines of these rhombi from each side are made of skin dyed red, which, even when looked at from a little distance, is hardly distinguishable from the brown reindeer-fur. This whole square has thirteen vertical rows of white checkers. The top of the hood is sometimes decorated with a design which may represent reindeer-antlers, as shown in Fig. 217, a. This coat, one of the most beautiful specimens

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1 See Turner, pp. 295, 297.
2 In the account illustrated in Fig. 249 this design designates the number 100.
of skin ornamentation, is elaborately decorated, somewhat in the style of
dancing-coats. It is characterized by the decoration of the sleeves, — the
vertical strips running up from the lower border to the shoulders, and down
in the same way along the back, — and by the decorative patches on the
chest. In other cases we find on the ceremonial coats a decorative middle
strip, as in Part I, Plate I, Fig. 2; still others contain both the lateral
strips just described and the middle strip, as shown in Fig. 51, p. 108.
In the men's funeral coats these arrangements are even more complicated,
and it seems best to describe a number of these coats in detail. Another
characteristic trait of these highly decorated coats, particularly of dancing-
coats made of skin dyed red, are tassels, which are often attached to skin
rosettes (see Fig. 227).

Figs. 216 b and 217 a represent two men's coats made of skins of young
reindeer, in the ornamentation of which we find only the figures with which
we have become familiar in the ornamentation of funeral dress. The designs
are made of bits of black and of white reindeer-fur, of tanned leather, and
of dressed skins of two colors. The two strips of checker-ornament in
Fig. 217, a, are made up of squares of skin of three colors, — white, black,
and brown. The entire ornament in this coat is made with wonderful skill,
regularity, and regard for rhythm and symmetry.

The middle strip of the lower border contains a number of vertical
stripes adjoining the triangular and checkered designs in this field. These
small stripes are made up of seven or eight rows of bright-red tufts of wool,
which appear as a continuous red field, contrasting forcibly, by its brightness,
with the subdued colors of the skin. Down along the back are two lateral
stripes continuing the checkered lateral stripes of the front, which are the
same in design as the small square on the left side of the chest, — two
zigzags running down the back, bordered by a single white stripe. Front
and back stripes meet exactly on the shoulder. The fields bordered by
red, described before, in the middle line of the lower border, are all
different. Those on the back are shown in Fig. 217, a, under the sleeves.
On the back of the hood, just under the two horns of the figure shown in
the front view, are two round white spots. The borders on the sleeves are
similar in style to the lower border of the coat, the pattern consisting of
checkers, — of one diagonal row made of the inner side of the skin, and
followed by six diagonal stripes, alternating white and brown. The border
of the hood is also similar in style. The small crosses are made of skin
dyed red, while all the other squares are white and dark skin. The crosses
in the horn-like design on the hood have centres of skin dyed red.

On a woman's dancing-coat (see Part I, Fig. 27, a, p. 68) we find
elaborate decoration with tassels. The coat has two small beaded circles in
front, and three groups of tassels, each consisting of a small patch of white
skin with long pendants of the same material. There are also two pairs of black and white beaded strings on the front. On the back there are two circles near the shoulders, while farther down there are three pairs of tassels similar to those in front. They are attached to a small circle of white skin. The tassels attached to each of these are double; and the base of each tassel is wrapped with a piece of fur, which is again wrapped with a piece of blue cloth, around which a narrow strip of white skin is tied firmly in a spiral. These wrappings recall the wrappings of the braids of Eskimo women. On the back of the double-pointed hood there are also two small circles with concentric rings with tassels of white skin.

Patterns made only of skin mosaic are not common in coats of bare skin. One dancing-coat (Fig. 220), however, is decorated in this manner. The checker-work of the middle strip of the lower border is made of skin mosaic, consisting in the main of white and black skin, from which is set off at every ninth white square a large square made up of pieces of skin dyed red. Circles of skin mosaic are often placed at the base of tassels (see Fig. 227).

In Figs. 221 and 222 the details of ornamentation of the woman's funeral overcoat shown in back view in Part I, Fig. 51, p. 108, are given. The top of the hood is ornamented with a horseshoe-shaped border, the open side forward. The top of this border can be seen in the back view of the whole coat. The inside of this horseshoe is occupied by a rectangle standing on its narrow side, which consists of a piece of black skin surrounded by a narrow border of white skin without hair. On the black skin is checker-work made in slit-embroidery, each checker consisting of four rows of from five to eight slits. The rectangle is eight checkers wide by twelve high. The front of the coat has the same design as the back, except that the shoulder-strips terminate on both sides at the seams of the inset, which occupies the upper part of the chest, and which is covered by the chin-flap. That portion of the design rising over the horizontal waist-band shown in the back view is also absent. The border design of the hood, and the upper horizontal border on the front of the coat and the same border on the back, together with the whole border on the upper part of the back, are made up of the same elements (lower part of Fig. 221). In the design on the hood these appear in the order, from the inner side of the border to the outer side, chain of rectangles, circles, chain of rectangles, circles, white. In front they appear in the order white, circles, chain of rectangles, circles, white. It is worth remarking that in the middle of this strip, just over a central vertical strip, two double circles are
applied, separated by one single circle. In the closed design on the upper part of the back the order is, from the inner side outward, white, circles, chain of rectangles, circles, chain of rectangles, circles, white, at the bottom and right and left; while on top the outer chain of rectangles is followed by a slit-design, shown in Fig. 221, in which the upper right-hand corner of the closed design on the back, with the adjoining part of the shoulder-strip, is shown. The other strips — those on the shoulders, sleeves, and the vertical strips on the back are shown in the upper part of Fig. 221. They consist of appliqué work with overlaid seams. The large spots in the middle rows are made of skin dyed red. The lower border of the coat is similar to the borders previously described, and is shown in Fig. 222. Under the right sleeve the regular pattern is interrupted. This part is shown in the illustration. The star in the triangle on the back is made of slit-embroidery in white sinew and in colored yarn.

Another coat has the usual lower border, and a vertical strip down the middle of the front in slit-embroidery (Fig. 223, a), and on each side on the front of the chest, a rectangle consisting of seven stripes of checker-work on a black background, surrounded by a border of white skin, and with three simple tassels of white slit skin at the bottom. The rectangle on the left side has an eighth row under the seven rows of checkers consisting

of six circles. On the back of the coat, on each shoulder-blade, are rectangles of skin dyed red, with complicated irregular designs (Fig. 224) consisting of five checkered circles, a few small white circles, and checkered bars.
A little lower down, and nearer the middle, are two large checkered rosettes; and down the middle of the back runs a stripe the design of which is shown in Fig. 205. Around the sleeves, in the same position as shown in Part I, Fig. 51, p. 108, is a strip of black and white checker-work. The lower border consists of two narrow strips of slit-embroidery bordering a wide strip of checker-work done in appliqué (Fig. 223, b). Below this is a narrower strip, which consists partly of a similar kind of checker-work, partly of circular designs in appliqué-work, partly of slit-embroidery on a black background (Fig. 223, b–d). The upper wide strip consists of two different halves, occupying approximately the right and left border of the coat. Both parts of this strip are shown in Fig. 223, b. The lower border also consists of distinct designs. The design on the right-hand side of the front is seen on the left in Fig. 223, b; the one on the left side of the front is shown on the right in the same figure. The left side of the back is shown in c, while the right side of the back is shown in d.

Fig. 225 represents the front (a) and back (b) of a funeral coat; and Fig. 226 shows the front view of the upper part of the hood. The sleeves, skirt, and hood are trimmed all round with shaggy white
In the illustration of the funeral coat shown in Part I, Fig. 43, p. 106, this flap is concealed inside so as not to cover up the ornamentation on the chest. I call attention to this to prevent the erroneous conclusion that there are funeral coats without flaps, as is the case with ordinary coats.

Fig. 225, a, b (facing). Front and Back of Man's Funeral Coat.

in Figs. 205-208, only the embroidery in front is made mostly with colored silks instead of with the material formerly used for embroidery; namely, sinew-

1 In the illustration of the funeral coat shown in Part I, Fig. 43, p. 106, this flap is concealed inside so as not to cover up the ornamentation on the chest. I call attention to this to prevent the erroneous conclusion that there are funeral coats without flaps, as is the case with ordinary coats.
thread and hair of reindeer and other animals. The zigzags do not form sharp angles, but a wavy figure. It is of interest to note that some of the lines on the hood are embroidered with glass beads, which are not found in ancient ornaments, being an article with which the Koryak became familiar through the Russians or the Tungus. The women very conservatively avoid using beads in ornamenting articles having any relation to the cult. The dark, wide, vertical strips set into the white fur on the front part of the funeral coat are pieces of fur of a young seal dyed red. The tassels of hair under the embroidery are dyed the same color. The dark vertical stripes appear to be the inner side of the skin of reindeer. On the inside of the coat the reindeer-hair cut short may be seen. The flesh side of the skin is dyed red, — in some cases light red, in most cases very dark. These vertical stripes are set with nine rows of tassels (the middle one with twelve), partly made of the hair of young seal, partly (on the middle stripes) made of crewel. Under the strips of embroidery, fringe consisting of red tassels and caught-in strips is sewed on. Along the strip of embroidery just over the lowest row of vertical dark stripes, the fringe consists of alternate red and blue parts, which do not correspond to the lower vertical strips. The tassels under the lowest vertical strip are so arranged that there are five under the broader middle strip, while there are three under each of the four narrower strips which are found on each side of the front of the coat. In addition, there are three in the middle of each white space. Under the second stripe of embroidery running around the sleeve, under the shoulder, the tassels are red and light green. The embroidery between the single stripes on the front consists of black and white checkers, and rectangles consisting of three stripes, in which either the outer stripes are of a reddish to yellowish tinge, and the inner some bluish or violet color, or vice versa. There does not seem to be
any regular arrangement of these colors. The narrow strip of embroidery running over neck and shoulders, between the sleeves and back, is also set with a red and green fringe. The fringe above the strip at the coat-tail consists of 2 red rows, 1 green, 1 red, 1 green, 2 red rows. At the side, between the two strips across the bottom of the coat, a broad vertical white strip is set in with embroideries. This may be seen on the left-hand side of the back view of the coat. In the seams running along the sides of the coat, from under the arms to the bottom border, there are tufts of red and blue yarn. The cap has two ears made of cylindrical pieces of fur, which may be seen in the back view of the whole garment. The design on the front (shown in Fig. 226) is made up, in the lower rows, of a mosaic of dark and light reindeer-fur, with red tassels between the two upper strips. Over this is the usual type of slit-embroidery surrounding a strip of embroidery in thread. A similar arrangement is repeated on the upper part of the cap. The two rows of embroidery seen in the back view of the coat over the ears adjoin the row of tassels seen on the top of the cap in Fig. 226.

Fig. 227 represents the back of a woman’s coat made of skins of young reindeer in Alutor, near Bering Sea. It is ornamented all over with bead-embroidery and loose bead-strings. The figures embroidered with beads on the skirt resemble the oval halves on the funeral quivers (see Part I, Fig. 50, p. 107). The two upper circles on the back are embroidered with beads, while the inner rings of the three lower circles consist of thin disks with imprints of the cross, and figures of animals sewed on. These disks, of course, are of foreign origin. The coat is made with the fur turned inside, and the skin on the outside is dyed brown.

A dancing-coat (Fig. 10) made of skin dyed red has tassels attached to circles. The lower border consists of a strip 12.5 cm. wide, edged above by appliquéd pendant triangles, below by standing triangles. Under the right arm the upper row is interrupted by three pendant bells, while under the left arm the lower row is interrupted by six standing bells.

The coat (No. 188) differs in style from the older coats. It is made of reindeer-skin, and has the cut of a European overcoat, the front being tied together with strings. Both sides of the front and the collar are trimmed with a strip of white fur. Each front is trimmed with a strip of alternate black and white checkered rectangles, the latter being bordered above and below by a strip of brown and a strip of white. The lower border consists of two rows of square checkers, beginning with a narrow strip of white, followed by a narrow strip of dark; then follows a 3-row checker-work of dark and white, which, in turn, is followed by one dark and one white strip. Under these is another strip of checker-work made up of squares slightly smaller than those of the upper row. While all the other upper strips are about 1 cm. wide, these checkers are only about 8 mm. wide. Instead of
regular alternation of black and white diagonal squares, we have at intervals of approximately fourteen squares two heavier dark diagonal stripes made up of the regular diagonal series, — squares of dark fur, immediately followed by another series of squares made of skin dyed red. This is followed by a series of white squares; and next we find another diagonal of squares of skin dyed red followed by the regular series of squares of dark skin. These diagonals run from left below to right above. In one place there are two double dark diagonals separated by fields of checker-work. The sleeves are finished off with checker-work enclosed by one dark and one white strip.

Decoration of Bags and Baskets. — The ornamentation of basketry depends upon the technique that is applied. The simplest form of basket-decoration is that found in open twining. In all work of this kind the decoration is brought about by inserting colored warp-strands (see Figs. 228, 229, c). Various effects are produced by the different grouping of the colored strands. This type of decoration is found both on grass bags and nettle-
fibre bags. Another type of decoration that is applied in this technique is produced by the insertion of tassels made of dyed hair of young seal, or of crewel. The single bunch of hair or the single piece of crewel is caught in the twined stitch in the manner indicated on p. 680. The designs made by these tassels are quite analogous to those applied to clothing, which were described before (see Figs. 210 and 225). The wide rectangle on the bag shown in Fig. 228, a, for instance, is made of tassels of seal-hair dyed red, and of red, light blue, and dark blue crewel, which form checkered rectangles like those found on the embroidered strips of the funeral coat shown in Fig. 225. The designs found on the ornamented rectangles on Fig. 228, b, form in the top row a zigzag band like that shown in Fig. 209; and below this, checker-work similar to the checker-work found on so many of the coats. It seems that the most

Fig. 228, a (4) (5), b (5) (6). Twined Baskets. Maritime Koryak, North Kamchatka. Height, 45 cm., 53 cm.

typical method of applying the tassel-ornament is in the form of a series of rectangles, decreasing in size from above downward (see Fig. 228). In a few cases the tassels are distributed at regular intervals over the face of the bag. This kind of decoration is found only on the front of the bag. In a few specimens the tassel decoration is also found on close-twined weaving (Fig. 229, a, b).

The designs found in close-twined weaving are quite different from those found in open-twined weaving. The two bags shown in Fig. 228 and a third one in Fig. 229, c, illustrate specimens in which the body of the bag is made
in open-twined weave, while the upper border is made in close-twined weave. In the latter the color effects are brought about by using undyed and dyed woof-strands. In many cases the designs found in this kind of weave recall strongly the slit-embroidery designs which were described before. Thus the design found on the upper border in Fig. 228, a, is similar in type to part of the strip shown in Fig. 206, or to the second row in Fig. 207. The top row shown in Fig. 162, a, has the same form as the top row in Fig. 207, while the lower rows correspond to the common bar design, which is brought about either by slit-embroidery or by caught-in strips, as in Fig. 210. In Fig. 163 the analogy is even closer, in so far that the rhythmic alternation of the width of the white squares is quite similar to the rhythmic arrangement found in the slit-embroidery. Thus, in the four upper bands of square designs,
which are each seven stitches wide, we find the following arrangement. The two outer lines are throughout black; and in the three inner lines the following arrangement of colors is repeated: 1 black, 1 white, 1 black, 2 white, 2 black, 2 white, 2 black, 2 white. The two lowest bands of square designs have a regular alternation of 2 white and 2 black.

Quite a different type is represented by curiously asymmetrical zigzags, which are shown on the border of Fig. 228, in Figs. 229 a and 163. While the zigzags may be related to the zigzags found on clothing, the peculiar arrangement of the design seems to be typical of twined basketry. It is not impossible that in its origin it is related to the triangular border designs surrounding the embroidered strips of clothing (see, for instance, Fig. 212). In Fig. 228, the zigzag is shown in its simplest form. In Fig. 229, a and c, and even more in Fig. 163, the same zigzag appears enlarged, and with small triangles inserted in the larger zigzag.

The border of Fig. 229, c, has above and below a series of standing and hanging triangles quite similar to those found in the embroidered strips of clothing; and the whole arrangement may perhaps be compared to the band of appliqué embroidery shown in Fig. 208. The standing triangles are also used independently, being arranged in single or double rows.

Another type of decoration which is used in close-twined weaving consists in the application of cross-zigzags which form rhomboidal designs (see Fig. 162 b, c, and Fig. 229 b). In the top row of Fig. 229, b, we also have a series of diamonds surrounded each by two angles the sides of which run parallel to the sides of the central rhomb.

Attention may also be called to the decoration at the lower part of the basket shown in Fig. 163, where alternating rows of varying widths of vertical black and white lines, and of diagonal black and white lines, occur.

The ornamental designs on coiled basketry are also similar to the designs used in slit-embroidery. Four distinct methods are employed in producing ornamental effects on coiled baskets. Narrow strips of black, occupying a small portion of a single coil, or forming vertical bands consisting of pieces of black occurring in a series of coils, are made by using material which is dyed black for whipping the coils. The black checker-work shown in Fig. 230, a, and the vertical stripes shown in Fig. 230, b, are made in this manner. A similar technique is used in the well-made basket shown in Fig. 231. Here the design is made by using dyed nettle-fibre instead of grass for whipping the coils. The method differs from the preceding in so far as in the checker-work the nettle-thread is carried on continuously, and the

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1 A quite analogous design on twined baskets from Ruanda, in East Africa, shows very clearly that the asymmetrical form of these zigzags is a result of the technique of twining. These African baskets are also very closely woven, and exhibit almost exactly the same design as the Koryak baskets (see collections of the Berlin Ethnographical Museum, Cat. No. III 1, 6989). — Ed.
whipping is merely arranged on the outside in such a way that two successive lines of nettle-thread are followed by two successive lines of grass whipping. Horizontal bands, such as are shown in Figs. 230 and 232, are made in a different manner. A grass coil is inserted, which is overlaid on the outside with one continuous strip of grass which is dyed black. This coil is not whipped by the close stitch, like the other coils of the basket, but is sewed to the preceding coil by a very loose stitch made of nettle-thread dyed
black. This stitch is identical with the stitch employed in the bottoms of baskets. A fourth method is applied in a few Kamchadal baskets; horizontal bands being made by overlaying an ordinary whipped coil with grass dyed red, or with red, blue, or black strips of cloth. This is held in place by passing every third or fourth stitch over the strip, which is thus woven on the coil (see Fig. 233). Various forms of checker-work, zigzag bands, and rectangles, are the principal figures that are found. The covers of round baskets often bear designs forming rosettes. In one basket Fig. 230, δ), figures are found which evidently represent human beings.

Decoration of Rugs made of Reindeer-Skins. — It is doubtful whether this art was developed among the Koryak women previous to their contact with the Russians. At present it has developed into a domestic industry. Koryak fur rugs are carried by traders far and wide. They may be seen on the walls or floors and among the furniture of Russians living at Petropavlovsk, Okhotsk, Yakutsk, and Vladivostok. In Irkutsk their price is ten times as high as at home. Among the rich Yakut, Koryak rugs of fine workmanship, made of skins of young reindeer, sometimes take the place of the crude rugs of Yakut production made of cow or horse hides.
In every village of Maritime Koryak on Penshina Bay, I found the women at work on rugs during the winter, but only once did I see a rug used by the Koryak themselves as an ornament in the house. It covered the platform which served as a sleeping-place for guests. Evidently this industry has developed as a result of Russian demand. To a great extent this is also true of embroidered coats. Every Russian or Yakut merchant, or official in the Maritime or Yakut provinces, if he has to travel on private or official business, buys an embroidered coat of reindeer-skins of Koryak manufacture. It is seldom that the Koryak themselves wear embroidered coats. They are worn only by Koryak traders. Women wear embroidered dresses more frequently than men. I speak here of every-day clothing, and not of festival, dancing, or funeral garments, which are always embroidered. The making of rugs has principally developed among the Koryak of Penshina Bay. They find competitors, especially in silk embroideries, among the Russianized Koryak women of the Yamsk settlement. The Russianized Yukaghir and Chuvantzy women on the Anadyr River and on the lower course of the Kolyma River also enjoy quite a reputation for their art of ornamenting fur dresses and making rugs. The Russianized native women of the Kolyma, however, are less skilful than those of the Anadyr.

In decorating fur rugs, colored thread and silk or bead embroideries are not used. Small pieces of the white and of the black fur of young reindeer sewed together are the only material used for the ornamentation. The comparatively cheap fur of young reindeer — with its thick, soft, and glossy hair — matches in beauty the expensive furs, and is less valuable only on account of its lack of durability, since the hair usually falls out soon, as in dresses of reindeer-skin. Rugs, however, last longer. Since the entire beauty of a rug is in its ornamentation, it is almost wholly made up of the pieces of white and of black fur which form the ornamental figures. A Koryak girl will work all winter on a rug, if it is a large one, in order to exchange it with a merchant for cloth, calico, ornaments, or food-products. The rugs are either square or of elongated rectangular form. Their length varies from one metre to three metres. As in dress-decoration, the regular designs are geometrical forms, animals, conventionalized plants, or a mixture of all these forms.

The rugs here illustrated were made in the villages of Paren, Kuel, Mikino, and Kamenskoye.
Fig. 234 represents a large ornamented rug, the principal designs of which are familiar to us from the decoration of funeral dress. It is intended to be symmetrical around the central vertical row of squares. The upper four horizontal rows are perfectly symmetrical. Numbering the rows as indicated on the figure, it seems probable that \(10 \ e\) and \(9 \ f\) have been exchanged by mistake, because with this change the following lines would also be symmet-

![Fig. 234 - Fur Rug. Width, 240 cm.](image-url)

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9 j, 10 k, and in the tendency to alternate angular and round designs in rows 5 and 7; in the exclusive use of round designs in rows 4 and 8; and in the repetition of angular designs in every fourth place in rows 1, 3, 9, 11. Attention may also be called to the occurrence of the curvilinear plant-design in the two lowest rows, which do not appear in other parts of the rug. It may also be noticed that there is a tendency, which may be observed in other specimens as well, to repeat the same design in white on a black background, offsetting the same design in dark on a white background. Thus 6 d must be considered equivalent to 4 h and 8 k and to 2 j and 10 j; and the black circles 6 k and 2 d and 10 d are equivalent to the white circles on a dark background. On the whole, the impression conveyed by the rug is that of a definitely planned repetition of designs, without, however, attaining to such unity of plan as would result in a clear pattern.

In certain respects another rug (\#5) is similar to the one just described. It also consists of a large checker-work, alternate squares of which consist of small checker-work. Here we find on the dark fields a single conventionalized curved leaf; but a different design is shown in the top row and in the bottom row, consisting of a four-pointed star, the centre of which is a four-leaved flower from which branches extend, dividing at their ends into two leaves. The same design is repeated on the extreme right and left field of the second row from the bottom. This similarity of corresponding fields occurs in a number of rugs.

Fig. 235 represents part of a rug, the ornamentation of which consists of crosses made up of white rhombi on a black background. This cross, in my opinion, was adopted from Russian designs. The borders of the rug are trimmed with three strips of fur, — the innermost one covered with the checker-ornament; the second, of solid white color; and the third, black. In one part of the rug the rhombi are set into solid skin. This portion of the rug is somewhat irregular. In other parts the pattern is made up of long strips of dark skin alternating with strips of mosaic work consisting of checkered rhombi and of large rhombi of dark skin. In this part of the rug the arrangement of the rhombi in the direction parallel to the long strips is quite regular, while the arrangement in the direction of the other diagonal is not so regular.
Fig. 236 represents a small square rug, elegantly and beautifully made, with pictographic ornaments in the centre. The same group — a man sitting in a sleigh drawn by two white reindeer and a black one — is represented in the upper and the lower rows. The hind reindeer is evidently drawing the sleigh, although the sleigh and the man are too small in comparison with the reindeer. The second and third rows from the bottom represent two wolves pursuing two reindeer. In the lower row the group is made up of white silhouettes of animals, while in the upper row they are dark. The white animals are sewed to squares of dark skin, which are set into the rug. The same is done with the white sledge in the left-hand lower corner. The reindeer can be distinguished from the wolves by the absence of the tail and by the hoofs, which are clearly seen in spite of the smallness of the figures. The reindeer have no antlers. These are evidently either reindeer in spring, or fawns. The latter seems to be the more likely, since the reindeer are shown of the same size as the wolves. Although the polar wolves are very large, yet they are smaller than full-grown reindeer. The wolves are recognized by their straight, thick tails. Dogs, when pursuing wild animals, turn their tails upward. Owing to a lack of knowledge of perspective on the part of the women artists, all the running animals are placed in one line, which deprives the wolves in the hunting-scenes of realism and vividness. Somewhat more vivid is the scene in which two skin boats are towing a captured whale, but that is because as a matter of fact these objects usually form one line. The wound of the whale is indicated by a small tuft of red yarn, which appears in the illustration as a black speck near the tail end. The whale on the right is evidently placed there to fill up the black background, and the same may be said of the skin boat in the left-hand corner above the whale.
Another rug \( ^{70}_{8144} \) has a central field similar to that of the one just described. The figures on the two rugs look so much alike that they seem to be cut from the same pattern. There are in the middle the same two reindeer pursued by a single wolf, the lower row black on a white background, the upper white on a dark background; but the background in this case is set off from the whole rug by a narrow white strip surrounding the rectangle in which the white animal figures are inserted. These two rows occupy the centre of the middle field. Under it there are two dark reindeer on a white background, of the same type as those in the right-hand upper corner of Fig. 236; between them, the sledge-driver shown in the left-hand upper corner of Fig. 236 in dark on a white background. The boat under this driver is repeated in white near the lower border of the central field, pursuing the whale in white, which is shown at the right-hand end of the second row in Fig. 236. This same design is repeated in dark on a white background in the top row. The second row from the top contains designs not found in Fig. 236. On the right and left there are two flowers, — the one on the left dark on white, the one on the right the reverse. Between them is a dark lion on a white rectangle. This central field is surrounded by an inner rectangle consisting of a single row of black and white squares between two white lines. To the dark border-field in Fig. 236, with its rhombi, corresponds a similar border-field in which there are a series of white vines. In the middle on top the figure of the lion is repeated in white on a dark background. This is surrounded by a white strip of the same width as the dark stripe, in which the same designs are repeated in dark, except that the lower corners contain twice a design shown in Fig. 203, 6, while the two upper corners are occupied by a conventionalized leaf like the one shown in Fig. 213, under which is repeated the same design which is found in the lower corners. This specimen is interesting in comparison with the other specimens here described, because it shows that the same stereotyped patterns are used in a variety of combinations.

An animal-ornament similar to that shown in Fig. 237 is pictured in one of the central fields of another rug. The whole rug consists of large checkers of dark and white fur. Its width equals that of forty-three of the small squares (220 cm.), and its length is the same. A border of nine rows of small squares surrounds the middle field on all sides. In this field four squares of dark skin, each equal to eleven checker units in length, are inserted, thus leaving a row of three checker units up and down and from right to left, separating the four squares. On the upper left-hand square a tent is represented, and on each side four sledges, one of which is held by one man, while another man sits on it. The lower left-hand square is decorated with repetitions of two stars, three seals, and four birds. The right-hand lower square has a plant-design similar to those on the outer border of
Figs. 239 and 240. On the upper right-hand square (Fig. 237) are a number of animal designs. The animals and the man represent a reindeer-herd followed by their herdsman; but, in the absence of perspective, this impression is not produced, the animals being represented one above another in a vertical plane. An interesting feature in this design is the smallness of the figure of the herdsman, who is more distant than the reindeer, which suggests some conception of perspective; and also the tracks of the reindeer-hoof, which are represented by white pieces of fur sewed in.

Fig. 238 represents an entire fur rug with a mixed ornament. Besides men, the animals represented here are dogs, seals, flying geese, some flying bird in the form of a cross (in the corners of the middle square), and a lobster-like animal in the inner square. On the white back of the latter is shown a conventionalized figure, in black fur, of what may be an animal or a plant, the same that I have seen on Russian printed calico. The figure is also found separately, of white fur on a black background, in the space between the two inner squares. None of the figures of the rug have any relation to one another, and even the same order in their arrangement is not always observed. Deserving special attention among the figures are two white ice-floes in the form of rhombi, on which black seals are resting. Near the lower right-hand corner is a man in a skin boat, with small oars tied to the sides, such as are used in Penshina Bay.1

The checkered border setting off the middle square is made of alternate diagonal rows of dark fur, white fur, and reindeer-skin dyed reddish brown. On the right-hand side these diagonals run regularly in the order brown skin, white, dark, white fur, from the right-hand side below to the left-hand side above. On the left-hand border they also run quite regularly, so that the dyed skin runs diagonally from the left side below to the right side above. On the left-hand border the diagonals of dyed skin run zigzag, but so that every third diagonal is interrupted by a square of dark fur. In this way a pattern results which consists of half-diagonal squares alternately turning to

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1 See p. 539.
the left and to the right. On the upper and lower border the arrangement of diagonals and these half-diagonal squares are irregularly arranged. Most of the circles and rhombi are made of white and dark fur. The four groups of corner circles have, in place of the dark fur, dyed skin. The outer dark rings of the eight circles in the upper row are made of the same material. In the border containing the plant-ornament, the second circle from below, right and left, is made in the same way, as are also the four circles in the innermost square.

Of a similar mixed character is the ornament of the rug shown in Fig. 239. Especially interesting in this ornament are the conventionalized plants, which are not represented as silhouettes, but have their interior parts also worked out.

The bulk of this rug is made of white and dark reindeer-skin; but the insets of fine checker-work on the right and left are made of dark and light fur, and also of stripes of brown skin, which give the patterns that appear
distinctly in the illustration. The arrangement is such that in every case the bare skin takes the place of white pieces, excepting in a few spots along the upper and lower borders of the designs. In the second strip from the top on the right-hand side of the rug, about halfway between the three dark strips on the right side and the inner square, there are two vertical lines of brown rhombi inserted in place of the dark fur patches. These do not appear in the illustration, because the difference between the dark fur and the brownish skin is too slight. Stripes of light reddish-brown skin are also used in the four patches on the lateral borders surrounding the animal figures. These appear in the cut of somewhat lighter color than the adjoining stripes of dark fur.

Still better, and indicative of greater skill, is the work represented by the plant-ornament on the rug shown in Fig. 240, especially the wreath in
the centre. Looking at this delicate and elaborate design, one would hardly imagine that it was made of a fur mosaic sewed together with sinew-thread: it looks more like a drawing sketched with a flexible brush. Inside of the wreath we find the figure of a Tungus astride a reindeer. The execution of the figures of the animal and the rider is wonderfully true to life. I suppose that the human figure does not represent an adult Tungus, or it would be considerably larger. It should be noted that the ornamentation of his cap and of his cut-away coat, as well as that on his apron, boots, and trousers, and also the tongue of the reindeer, are done in colored yarn. It is the only rug that I have ever seen embroidered with yarn. A few leaves of the flowers which appear in outline in the illustration are set in, being made of pieces of skin of the same color as the background of the rug.

Almost all the rugs have their patterns arranged in such a way that one definite side must be considered as the lower side, around which the arrangement of patterns is fairly symmetrical. This feature may be observed in the arrangement of the patterns in Fig. 234, 236–238, 240. It may also be noticed in specimen \( \frac{10}{27} \). Here the middle is occupied by a double circle, somewhat irregular in form, the centre of which is occupied by a cross of leaves similar to design 1 in Fig. 212, and surrounded by a ring of eight leaf-designs similar to the design in Fig. 213. The border of this rug is formed above and below of four rectangular patches with diamond designs (Fig. 241) alternating with five patches of dark skin of the same form and
size. On the sides the same designs occur as the top and bottom design, repeating in this way the feature which is of common occurrence, that in checker designs in which the rectangular or square patterns run on a smooth background in diagonal rows, the same patterns occur at the extreme fields of the horizontal and vertical rows. The vertical rows of this rug contain five rectangles with patterns alternating with six smooth dark rectangles. According to what was said before, the uppermost and lowest of these rectangles are the same as those of the horizontal rows. The two following patterns contain the same rhombi, somewhat coarser, and instead of the edge consisting of triangles and rhombi, an upper edge consisting of alternate dark and white squares, and a lower edge consisting of the same design over a straight white line. The central pattern on each side is asymmetrical, and consists of the pattern just described, over which the upper half of the same pattern is placed, containing the upper half of the coarse central rhombi and the upper line of squares. Thus it will be seen that the whole design is symmetrically arranged right and left, with the exception of some irregularities in the central circle. The symmetry of the border is broken, on the one hand by the asymmetry of the central design, on the other hand by the fact that all the patterns have clearly a heavier lower side and a lighter upper side, all the patterns in the upper and lower half being placed in the same direction.

A square rug \( \frac{70}{34.53} \), — consisting of a central field with a star-like flower design made up of four trees with roots occupying the diagonals, the roots towards the centre, and four spiral branches (two white on black, one black on white, and one leaf design similar to the one shown in Fig. 213, occupying the middle of the sides of the square — has three borders consisting of alternate dark squares and design squares. In the innermost row the pattern consists of squares containing a checker of nine smaller squares. Each side is divided into thirteen fields. The middle row consists of a similar alternation of squares, each pattern square consisting of a checker-work of twenty-five small squares. The interesting feature in this row is that the sequence of these fields is not quite regular. There are sixteen or seventeen fields to each side. The sixth field from the left on the upper side, which normally should contain checker-work, has the figure of a long-tailed quadruped sewed in. The following square to the right is the regular checker square, which is followed by one of the regular dark squares with a white mammal sewed in. The third square from the right in the upper row is made up of rhombi instead of squares. The second square from the right in the lower row contains figures of two swimming cormorants, resembling
very much, in shape, Fig. 177, a. The outer row contains again the coarser checker-work of the same size as the inner row. Here a number of animal figures are inserted on dark fields. On the left-hand side on the lower border of the rug we find one man holding a drum, and another man apparently holding a club. On the left-hand side on the upper border we find a large and a small mountain-sheep on one field; while on the right-hand side there are a number of small figures set into one field, apparently representing a flying bird, a man, and two bears. It is worth remarking that these latter have their feet towards the left, the only case in which figures of animals inserted into rugs in this way do not stand upright. It should be mentioned, however, that the man in this figure does stand upright.

Another rug which illustrates the character of the symmetry which underlies the rug designs is illustrated in Fig. 242. Attention may be called to the occurrence of the triangular design in the upper border as compared with the square design in the lower border; to the continuation of the lateral strips downward; and to the finish on both sides by a series of broad rectangles having one additional row of small squares on each side. It will be seen from this that clearly the underlying thought is not that of a series of white crossing diagonals, but the maker had rather in mind the alternation of the larger rectangles, — one consisting of dark skin; the next, of a checker of nine dark and white squares. In this way the rug was made. The corner pieces are all made of a single piece, and some of the dark rectangles along the right and left border are also made of single pieces of skin.

Drawings. — The Koryak use colors more often in decorative art than in articles of sculpture. Wood-carvings are frequently colored black, more seldom red or brown. Engravings on bone carvings are also filled with black paint, and on wooden masks the beard is also indicated by means of black paint, while red ochre or blood is used to redden the cheeks of masks. I have spoken above of the use of dyes in manufactured articles and in technical work; the decoration of skin dress by means of stamps has also been mentioned

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1 See Part I, pp. 83, 84.  
2 See p. 628.
in this chapter. The art of drawing in colors realistic or conventionalized objects on leather or some other smooth surface, is unknown to the Koryak; but I have numerous collections of Koryak pencil drawings representing household or hunting scenes, and revealing the same power of observation, and ability to represent what they have seen, both on plain and round surfaces, but with the same faults of composition and the same lack of perspective as occur in engravings of men and in the decorative work of the women. The collections of drawings were made on paper with pencil by different Maritime Koryak of Penshina Bay, who drew at my request, and without any instruction or explanation on my part. The rapidity with which the Koryak, including the children, executed the drawings, showed that this was an art to which they were accustomed. In the method of reproduction of men and animals, they closely resemble the Indian pictographs and the engravings on bone of the Alaskan Eskimo. Some of these drawings, of a religious or mythical nature, have been reproduced in the first part of this volume.1

Fig. 243 represents a reindeer-race. Each of the sledges is drawn by a pair of reindeer, and the participants in the race sit astride the race-sledges. The reindeer are represented from one point of view. Of course, there is neither linear nor space perspective: however, in order to overcome this fault, the left-hand reindeer is represented, not behind (i.e., covered by) the right one, but above it, — a device known not only to the Indians and Australians, but also to the ancient Egyptians. None of the artists drew the reindeer from two points of view, as they did the dogs.

Fig. 244 represents dog-driving. The interesting point about this drawing is the lack of regularity in composition. The dogs are drawn not only without reference to perspective, but from two points of view. The driver

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1 See Part I, Fig. 1, p. 28; Fig. 28, p. 69; Figs. 40, 41, p. 93; Fig. 57, p. 116; Fig. 58, p. 123.
and his sledge (which, by the way, are too small in proportion to the dogs) and three dogs are represented from one point of view; and the other row of dogs, from another. It is interesting to note that this manner of drawing is not an individual characteristic, as I have similar drawings of dog-sleighs made by different artists. It is singular that one boy in Kamenskoye, seventeen years old, — the author of the map Fig. 251, — made a few drawings in which the dogs and reindeer, hitched to teams, are represented one behind the other, as they appear to the observer who stands on the side. In a few cases the fault of primitive drawings of representing solid objects as transparent is also avoided; and the right-hand animal covers the greater part of the left-hand one. In these cases I suspect that the boy was imitating a printed illustration which he had seen.

Fig. 245 represents a sheet on which the artist has drawn five separate subjects. That in a represents a hunter in a kayak stealing up to an ice-floe on which there is a seal; b represents hunters in a large skin boat, who are pulling themselves up to an ice-floe by means of a hook; while engaged in this, the hunters have ceased to row. c represents a hunter about to attack a bear with a spear. d represents a foot-race, and here there seems to be a suggestion of linear perspective, since the figures of the runners become larger from right to left. e represents a group of hunters who are thrusting their harpoons at seals which they have come across on the beach at low tide; the seals are hastening to get back into the water. The line represents the edge of the water, and the zigzags indicate the waves on the beach. Here, as in the other drawings, we have, in the absence of perspective, the arrangement of one object above the other. One of the hunters is represented falling to the ground during the quick run.

Fig. 246 represents two subjects. In a, several hunters in kayaks are pursuing a seal on a shallow beach; the seal cannot dive, but glides along

![Fig. 245: Koryak Drawings. a, A Seal-Hunter; b, Hunters in a Skin Boat; c, Bear-Hunter; d, Foot-Race; e, Sealers.](image)
on the water, disturbing its surface. In 6 we have a fisherman with a hand-net, standing in the water.1

Fig. 247 represents three phases of the whale-hunt. In the first attack (a) the oarsmen are rowing with all their might to get near the spouting whale; the harpooneer, in the bow of the skin boat, being shown in the act of thrusting his harpoon. The second drawing (b) shows the whale struck by a harpoon and by a spear; but it is still dragging the boat and the hunters with great force, creating a current in the water. In the final situation (c) three skin boats, tied to one another by thong lines, are towing the captured whale.

It is interesting to note that the last boat is going stern forward, evidently in order to give the bow, by which the whale is towed, the proper direction.

I gave to an artist in Kamenskoye three pencils — black, red, and blue — to see how he would use the colors in his drawings. In most cases he used the colors correctly, following the colors of the objects which he represented. In illustrating the interior of the house, for instance, he drew the enamelled teakettle on the fire with the blue pencil, the flame with the red, and the smoke rising from the fire with the black pencil. Another of his drawings represented the carcass of a skinned sacrificial dog that had been left in the tundra, being torn by crows. The carcass was colored red, and with such fine shadings that the rounded muscles of the skinned animal could be seen. The crows were entirely black. In the figures of dogs he made their protruding tongues red, and in those of seals he made the eyes red. However, in some drawings he used the colors in a most fanciful manner.

A few words may be said as to drawings of religious and mythological

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1 See p. 530.
subjects. They do not in any way differ from ordinary drawings, specimens of which are reproduced here. They have the same defects, and are also realistic. Somewhat fanciful is a drawing of the spider-crab, representing the marine deity.\(^1\) The drawings of circles around the heads of the Supreme Deity, his wife and son,\(^2\) and the beams radiating from the heads of the first two, seem to be an imitation of the circles and rays representing the halos around the heads in orthodox icons, which the artist had no doubt seen in Russian houses on more than one occasion on his trips to Gishiginsk.

**Writing.** — Although I found no pictographic letters on bark among the Koryak, — such as are found among the Yukaghir, and which serve with them as a means of communication between people at a distance, — yet the memoranda and commercial notes used by the Koryak traders are curious specimens of a primitive writing of a somewhat pictographic nature. The Koryak traders in Kamenskoye and in northern Kamchatska purchase from Russian merchants pencils and paper or memorandum-books, in which they score their purchases and sales, denoting the articles by means of realistic or conventionalized reproductions.

Figs. 248-250 represent three specimens of such records of Qαči’lqut, a Koryak trader of Kamenskoye. Fig. 248 represents a record in his memorandum-book of goods received at a fair from the clerk of a Gishiginsk merchant with whom he keeps an open account. Fig. 249 is a copy of a letter containing a list of furs forwarded by Qαči’lqut to the merchant. Fig. 250 represents a list of goods which he furnished me for our ethnographical collection.

The system of records used by Qαči’lqut consists of a representation of the articles, in real or conventionalized form, on one side of a long line, and of special numeral signs on the other. Qαči’lqut, however, does not adhere to one particular side in representing the articles or their number. The bill which he presented to me (Fig. 250) differs somewhat from his ordinary notes. His system of sign-figures puzzled me somewhat at first. To my question as to who invented them, Qαči’lqut replied, “I know myself.” Later on I found in the archives of the natives on the Kolyma River receipts of Russian officials of the eighteenth and the beginning of the nineteenth centuries. The receipts testified as to the payment of tribute in furs by the native chiefs, and the number of fur skins or rubles received as tax was indicated by Russian letters and also by means of the system used by Qαči’lqut, evidently for the benefit of the illiterate natives. It consisted of a simplification of the Roman system of numeration, being reduced to three signs only, — I (one), X (ten), and X enclosed in a circle (one hundred), as in Fig. 249, \(\sigma\). Such receipts were found also in the archives by Mr. Bogoras. In one, dated 1823, given

\(^1\) See Part I, Fig. 1, p. 20.

\(^2\) Ibid., Figs. 40, 41, p. 95.

\(^3\) It is of interest to remember that the ancient Egyptian numeration consisted of only four signs; namely, for 1, 10, 100, and 1000. In composing large numbers, they were used in the same manner as Qαči’lqut uses his three signs, — by means of repetition (see Tylor, Anthropology, London, 1904, p. 313).
to the elder of the Omotski Yukaghir Clan by the chief of the Kolyma district, the following signs were used: X (one ruble), □ (ten rubles), ☐ (a hundred rubles), and I (kopeks). The use of the three signs by Qači’lqut can be explained as an imitation of the old Russian signs by Qači’lqut’s ancestors. At present Russian officials do not use these signs in their receipts. Following is a more detailed explanation of the use of the three signs, based on the statements of Qači’lqut himself.

_Record from Memorandum-Book (Fig. 248)._  
1. One iron pot. The pot is represented by a circle.  
2. Two tea-kettles. The tea-kettle is represented by a circle with a beak, the latter representing the spout. A little arc on the top stands for the handle.  
3. Twenty-five pounds and a half of leaf-tobacco. The tobacco is represented by a bunch of leaves, and the fraction one-half is indicated by a dot. This arithmetical sign I have not found in the receipts of the tax-gatherers of the eighteenth century. It is Qači’lqut’s own invention.  
4. One large knife. The knife is represented by a long vertical line.  
5. Two small belt-knives. The knife is represented by a vertical line smaller than the preceding one. In this memorandum, Qači’lqut has departed somewhat from his system by denoting the number 2 twice,—once graphically, and again by numerical signs.  
6. Twenty pounds of wheat-flour. The flour is indicated by a black ring, which stands for a full bag of flour.  
7. Six papers of needles. The paper is indicated by a rectangle, which stands for a paper filled with needles.  
8. Fifty large needles. The place for indicating the object is left blank, which is equivalent to “ditto;” but under the numeral signs there is a long horizontal line, which signifies that the needles are of a larger size.  
9. Calico prints for one shirt. The calico is represented by a horizontal line, which stands for a strip of cloth cut off from a bolt of goods.  
10. One woollen shawl. The shawl is represented by a rectangle with fringe on the sides.  
11. One tablecloth. The tablecloth is indicated in the same way as the shawl.  
12. One scarf. The scarf is represented by a horizontal line with a fringe at the end.  
13. Three arshins of red cloth for a shirt. The cloth, like the calico (No. 9), is represented by a horizontal but longer line. The color of the cloth is left to be implied, since the outside shirt is made by rich Koryak only of red cloth.  
14. Two plates. The plate is indicated by a ring, but of a smaller size than that for the pot (see No. 1).  

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1 An arshin is equivalent to two feet and a third.  
2 See p. 593.
15. Three woollen shawls (see No. 10).

16. Four strings of beads. The string of beads is represented by a thread strung with beads, with the ends tied together; but the beads in the drawing have a rather strange form.

17. Two brass chains for women's hair-dressing. It is interesting that the links are represented by rings which do not pass through one another, but are joined by a line.

18. Nine little bells. The bell is represented by a ring with a little tag above, which stands for the handle of the bell.

19. Three iron dog-chains. The chain is represented as in No. 17, only of a larger size.

20. One belt.

21. Three large belts. The belt is represented by a horizontal line like the piece of calico (No. 9) or of cloth (No. 13).

22. Twenty bricks of tea. The brick of tea is indicated by a black rectangle.

23. Six cups and saucers. Of two concentric circles, the one inside represents the cup, and the outside the saucer.

24. Sixteen buttons. Strangely, the buttons are represented, not by round dots, but by dashes. I suppose that the eye of the writer of the bill did not distinguish clearly their difference.

25. One axe. The axe is represented rather conventionally by a sign resembling the letter P.

26. Three combs. The comb is indicated by a rhomboidal figure, with dashes under the base representing the teeth.

27. Eleven pounds of sugar. A little figure, which is neither a square nor a ring, represents a sawed piece of sugar.

28. One frying-pan. The frying-pan is indicated by a ring and a dash, the latter representing the handle.

Copy of a Letter (Fig. 249).

1. Five sables. Why a sable is represented only by its hind-legs is not clear.

2. Twenty spring fawn-skins. The drawing represents a skin taken from a new-born fawn. The side-lines represent the head and the feet.

3. Five fox-skins. The middle line represents the skin, and the side-lines the four legs.

4. A hundred and fifty reindeer-fawn skins. The whole reindeer-skin is represented by a rectangular figure, and the skin from the legs by four dashes. The difference in the representation of the reindeer-skin and the fox-skin is due to the fact that the fox-skin is taken off entire, and is round; while the skin of the reindeer, before being taken off, is first cut, beginning at the lower lip, the entire length of the animal. The reindeer-skin is therefore shown opened.

5. Five bear-skins. The bear-skin is taken off in the same manner as the skin of a reindeer, and it is therefore shown opened out. The paws are not indicated, being inma-

Fig. 249. Koryak Account.
terial; but a more characteristic feature of that animal is indicated on the skin, namely, thick black hair.

6. Ten wolf-skins. The wolf-skin is taken off in the same manner as the reindeer-skin, and its representation differs from that of the reindeer only by the addition of a long tail.

7. Two wolverene-skins. The skin of the wolverene is taken off like that of the fox. Accidentally it is represented as smaller in size than the fox. Wolverenes in general are larger than foxes; but the characteristic feature of that animal — a large body and short legs — is brought out.

8. Three skins of polar foxes. The skin of the polar fox is represented in the same way as that of the other fox (No. 3).

9. Ten skins of polar foxes for thirty rubles. This memorandum, with a double meaning, — since it indicates both the number of skins and their cost, — is put by Qač’lqut in parentheses (two lines). Of the number-signs, the former (ten) indicates the number of skins, and the latter (thirty) their value. The repetition of the fox-skin signifies that both numbers relate to the same article.

10. Three coats of reindeer-skin. The illustration of the coat differs from that of the reindeer-skin (No. 4) by having only two side-lines for sleeves, and also by indicating the hood of the coat in the upper part.

11. Five pairs of fur boots. Only one boot is shown.

List of Goods (Fig. 250).

1. A boy’s summer and winter suit and travelling-overcoat (separately). The suits are drawn, like the coats, with the addition of boots (under the line). In Fig. 250 Qač’lqut did not use the numeral sign in cases of single articles.

2. A man’s winter and summer suit and overcoat. Drawn as in No. 1.

3. A girl’s summer and winter combination-garment and two overcoats. In the drawing of the suit, the woman’s wide trousers are indicated.

4. A woman’s summer and winter suit and two overcoats. Made as in No. 3, only of a larger size. The lines between the first four numbers have no significance, and merely serve to separate one from the other.

5. One combination-dress of a child. The peculiarity about this dress is that it has a flap sewed on behind in the shape of a tail, which is placed between the legs.

6. Two collars for reindeer-harness.

7. Two reindeer bridles and reins. The drawing of the bridle differs from that of the collar in having inside the ring an indication of the hitching-strap; and on the side, of the bone piece.

8, 9. One reindeer-lasso, and a coil of seal-skin thong.

10–12. A pair of boots, two reindeer-skins, one whip.

Fig. 250. Koryak Account.

After an examination of Qač’lqut’s writing, the interesting conclusion may be drawn that the conventional representation of animals and other objects of nature is not always a perversion of the original realistic representation. Conventionalism in this case constitutes the primary phase. The primary conventionalization of natural objects may be the result of inability
Fig. 251. Koryak Map.

1. Itkana Cape.
2. Paren River.
6. Tilqai River.
7. Tilqai winter settlement.
8. Mikino River.
10. Shestokova Village.
11. Shestokova or Ega’č River.
17. Oklan River.
18. Talovka River.
20. Ma’méč Village.
21. Ma’méč Cape.
to give a realistic representation of objects, or, when the presentation is for practical ends only, a lack of care in execution. In the present case, for instance, it was important only that the illustration should serve to recall the objects. With the exception of the illustrations of dress (Fig. 250), in which any one would recognize human figures, we could not tell the meaning of the other primitive illustrations in these writings without explanation. Even other Koryak to whom I showed the letter seldom recognized all of them. Not all Koryak traders who keep written memoranda are familiar with the number-signs used by Qač'ılqut. One of them, for instance, used only one sign, the line. He used only units, in the same manner as the Koryak and Chukchee make use of counters in verifying accounts.\(^1\)

I did not see among the Koryak notched sticks like those used by the Yakut, the Tungus, and the Yakaghir, in recording accounts. However, the trader mentioned employed some devices to avoid the necessity of writing an interminable row of lines in enumerating large numbers; for instance, to indicate a pud (40 Russian pounds, or 36 pounds Avoirdupois), he drew a balance with loaded scale in equilibrium. This signified full weight.

Nelson\(^2\) speaks of the trading-records of the Alaskan Eskimo, which, judging by his account, are quite similar to those of the Koryak. Unfortunately he does not give any illustrations which would make it possible to compare the records of the Eskimo and the Koryak.

**Geographical Maps.** — Among the Koryak pencil-drawings, there are also geographical maps of the sea and the coast of Penshina Bay. The Koryak display in their charts quite a true perception of the relative disposition of the seacoast, rivers, mountains, and settlements. On the whole, their charts resemble very much the illustrations of Eskimo charts published by other travellers. The settlements are indicated on Koryak charts by rings, dots, or small dashes, which represent houses; small rivers are represented by one line, large ones by two parallel lines; mountains are represented by parallel shadings of different degrees. One chart made by a lad of seventeen in Kamenskoye, and representing the northern part of Penshina Bay, is especially well made (see Fig. 251). Itkana and Ma'meč Capes protrude into the bay, making it appear very narrow. As a matter of fact, this part of the bay is very narrow (see Part I, map). In calm weather the passage from the Itkana settlements to the Ma'meč can be made in a skin boat in from eight to ten hours. The mouth of the Penshina and Talovka Rivers, which empty into one inlet, the Kamenskoye and the Talovka settlements, the mountain-ridge between Talovka and Penshina, and a few other features, are also well drawn. The three Itkana villages are not indicated. In the bay are shown some hunting-scenes of floating ice-fields with seals on them, of spouting whales in pursuit of sea-mammals, and hunters in kayaks and skin boats.

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1 See p. 427.  
2 See Nelson, p. 198.
XII. — FAMILY LIFE.

Relations of the Sexes. — The relations of the sexes among the Koryak present a striking contrast to those prevailing among the surrounding tribes. Among the Kamchadal, Chukchee, Yukaghir, and Tungus, unchastity has been more or less common as well in the case of girls before marriage as of women after marriage, the lack of wifely fidelity being based (at least, among the Chukchee) on a certain form of polyandry intermixed with polygamy. Among the Koryak, on the other hand, we see a striking example of moral purity (in the sense in which modern civilized nations understand it) in regard to sexual relations, if for the moment we leave out of consideration the Koryak custom of polygamy. I speak of sexual purity because the Koryak adhere to standards which among civilized nations are too often violated. Of particular interest also, in the question of sexual relations, is the total absence of the Russian influence upon the Koryak. I speak of the Koryak who have been not at all or but little Russianized. In general, the Russian conquerors have exercised a disintegrating influence on the family life of the Arctic Siberian tribes. The first Cossacks and Russian traders had no Russian women, or few only, in their expeditions. The native women given by the conquered tribes of their own free will, or oftener taken by force, were passed from hand to hand as slaves or hostages. These circumstances did not help to develop family virtues in the mixed bloods born of these casual unions, from which has mainly sprung the present population of the Russian hamlets in northeastern Siberia. The Russian conquerors have of course treated the primitive norms of sexual and marital relations of the northeastern tribes of Siberia not as definite institutions, involving domestic obligations and rights, but as convenient light morals. Thus the Russians made extensive use of the Yukaghir custom of allotting to guests a place on the bed of unmarried women, and of the Chukchee right of certain men to the wives of others. Add to this the violence which was resorted to in many cases, and the process can easily be imagined whereby the primitive forms of marital and sexual relations were destroyed and replaced by mere dissoluteness. Sociologists who think that all mankind, without exception, have passed through the so-called period of promiscuity as a necessary stage in the evolution of marital relations, might find this stage in the free morals prevalent in the hamlets of the Russians or Russianized natives of northeastern

1 See pp. 755, 756.

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Siberia. It is difficult to find a girl that has reached or even approached the age of sexual maturity that is innocent; and the attitude of married women to conjugal fidelity is fully characterized by the proverb, "Woman is not a loaf, can't be eaten by one (man)" (Баба не хлебъ, однимъ не съешь). On the Kolyma, where often several families live together in one house, it is difficult to say who is whose wife. Likewise, cases of incestuous cohabitation of the nearest blood-relations are nowhere more frequent than here.

In bringing about the degeneration and final extinction of many Russianized Siberian tribes, sexual dissoluteness, combined with the spread of syphilis, have played by no means the least important rôle.

I have here expatiated upon the unchastity of the Russian settlers and Russianized natives of the extreme northeast of Siberia, in order to show that the special position which the Koryak occupy among the neighboring tribes regarding the interrelation of the sexes cannot be due to the influence of the morals of the few representatives of a civilized people who have settled among them. On the contrary, the Koryak have waged an active struggle against the Russian influence which threatened to destroy their family life.¹

To what, then, is due the fact that the sexual relations of the Koryak stand, according to our notions, above those of the tribes which are related to them by descent, — tribes that live under the same economic conditions, and under the influence of the same external circumstances? The explanation lies probably in the peculiar mental attitude of the Koryak.

POSITION OF GIRLS PRIOR TO MARRIAGE. — Girls, before marriage, must have no intercourse with men. This rule is pretty strictly observed by Koryak girls. Young men will not "serve"² for a dissolute girl. He who would undertake to serve for such a girl would expose himself to ridicule on the part of the other youths. On the other hand, the girl's father and elder brothers "are angry," the Koryak say, if they notice that their daughter or sister is intimate with young men. All investigators familiar with the life of primitive tribes know that the anger of the elders has more influence upon the conduct of the younger members of a family than preaching in the higher classes or blows in the lower classes of civilized nations, for the wrath of the elders may do harm to those against whom it is directed.

In two myths³ we have characteristic episodes telling how a girl's brothers forced a young man to marry her when she complained that the young man had touched her or had addressed to her a request to give him water to drink.

Should a girl become pregnant before marriage, it is considered shameful, and her parents scold her. She goes off into the wilderness to be deliv-

¹ See Chapter XIV.
² See p. 739.
ered of her child. She kills and buries it in the ground or in the snow. If the girl points out the father of her child, her father or brothers endeavor to pommel him. In olden times cohabitation out of wedlock with a girl sometimes led to wars between the families to which the young people belonged. After reaching maturity, the girl sleeps in her combination-suit, the make of which prevents unexpected violence. When strangers sleep in the house over night, girls do not undress at all, and sleep together in one bed. As we shall see later on, the bride also resists the bridegroom at the beginning of their married life, symbolizing her innocence and inaccessibility.

The girl is as inaccessible to the bridegroom while he serves for her as to a stranger. Intercourse of a bride with her bridegroom before the termination of his service is deemed a sin. Oftentimes, during the period of a young man's service, the girl goes away from her parental home to live with her relatives. In one myth it is told that the sister of Cloud-Man was let down to earth pending her bridegroom's service.

Different rules for a girl's conduct are found among the tribes nearest to the Koryak. Maidenly chastity is valued very little among the Chukchee, says Bogoras. Krasheninnikoff says of the ancient Kamchadal, "Though fond of women, this tribe is not so jealous as the Koryak. In marriages the signs of virginity are not considered, and some claim that the young men find fault with their mothers-in-law when they discover their wives to be virgin, but this I cannot assert to be authentic." In my work on the Yukaghir I shall speak more fully of their custom of placing guests on the beds of the girls.

Dittmar states that a Koryak girl who had intercourse with a man was severely punished, and that her own father shot her; but Krasheninnikoff asserts, in a passage which I shall touch upon again farther on, that the Maritime Koryak offered their wives and daughters to their guests. In another passage he says that among the Reindeer Koryak the bridegroom sleeps with his bride during the period of service. I think that these data were recorded by Krasheninnikoff on the authority of the Cossacks, who might have confused the Chukchee customs with those of the Koryak, or simply invented this statement. This seems the more probable, since not even the Chukchee offer their daughters to their guests.

In the myths of the Koryak we do not find a single allusion to such an order of things. On the contrary, we find episodes of an opposite character. The girls are generally kept in a secret place, or they are hidden during

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1 See p. 589.
2 See Part I, p. 131.
3 See Bogoras, Brief Report on the Investigations among the Chukchee of the Kolyma District, p. 36.
4 See Krasheninnikoff, II, p. 169.
5 See Dittmar, Die Koryak, p. 32.
7 Ibid., II, p. 22.
8 See Part I, pp. 125, 176, 291, 302.

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the sojourn of the bridegroom when fulfilling the period of service.1 In one
myth,2 Yiñea-ñeut, daughter of Big-Raven, bears a child by Earth-Maker in
a miraculous manner, not having seen him personally. Afterwards Earth-
Maker comes to Big-Raven, owns up to being the child's father, and rides
off to his own parents with Yiñea-ñeut as his wife, taken with her father's
consent. But Earth-Maker's parents, on meeting them, express surprise that
Yiñea-ñeut already has a child. Yiñea-ñeut turns into a stone for shame. This
episode illustrates to a certain degree the attitude of the Koryak towards
extra-marital relations of the sexes.

The character of these relations is confirmed not only by the tales and
assertions of the Koryak themselves and from my impressions obtained in
Koryak homes, but also by the testimony of such experts in love affairs as
the Gishiga Cossacks. I often inquired of Cossacks with whom I chanced to
drive, or whom I met on my journeys, about their relations with Koryak women;
and they confirmed the Koryak statements as to their inaccessibility. Accord-
ing to them, there are exceptions, but these are rare. Thus, in the village
Kamenskoye, consisting of thirty houses, the Cossacks pointed out to me but
one girl of loose conduct, but none of the Koryak men would serve her.

In conclusion, I shall give one more proof of what I have said. I made
registers of the families of the Maritime and Reindeer Koryak, in order to
form a clearer idea of the number of family members and their marital relations.
In making the census, I did not find a single child whose father was not
known as the mother's lawful husband, according to Koryak customs. But
among the Yukaghir, Tungus, northern Yakut, and Russian settlers of north-
ern Siberia, it is hard to find a single family in which there are no children
born out of wedlock or of entirely unknown parentage. Such children are
called by the Russians "maiden children," — a term adopted from the Yuka-
ghir ma'rixid-u'o; i. e., a child (born) by a maiden, and belonging to the clan
or family of the latter, even if she should eventually marry into another family.

Prohibitions applying to Marriages between Relatives. — Relatives
between whom intermarriages are prohibited are quite numerous, and may
be divided into relatives by blood and relatives by affinity.

Blood Relatives. — A man is forbidden to marry (1) his mother, (2)
daughter, (3) own sister, (4) cousin, (5) father's sister, (6) mother's sister, (7)
brother's daughter, and (8) own sister's daughter. Between all other blood-
relations, marriages are permitted. In answer to my questions covering second-
cousins, some Koryak replied that they did not consider them relatives. From
this the conclusion may be drawn that beyond that degree, no blood-rela-
tionship is recognized; but, on the other hand, in direct ascending and descending
line, even very distant degrees, such as great-grandfathers, great-grandmothers,
and great-grandchildren, are recognized as relatives.

1 See Part I, pp. 131, 163, 198. 2 See Part I, p. 300.
Relatives by Affinity. — A man cannot marry the following relatives by affinity: (1) stepmother; (2) sister of living wife (i.e., simultaneously two sisters); (3) cousin of living wife (i.e., simultaneously two cousins); (4) younger brother's widow; (5) deceased wife's elder sister; (6) nephew's widow; (7) sister of brother's wife (i.e., two brothers cannot marry two sisters); (8) cousin of brother's wife (i.e., two brothers cannot marry two cousins); (9) simultaneously an aunt and her niece; (10) two brothers cannot marry, one an aunt, and the other her niece; (11) two male cousins cannot marry, one an aunt, and the other her niece; (12) an uncle and nephew cannot marry two sisters, two cousins, or two women of whom one is an aunt and the other her niece; (13) a step-daughter.

The aversion to cohabitation between relatives in the first two degrees of blood-relationship — such as the cohabitation with a mother, daughter, or sister, which, with very rare exceptions, we find among the most primitive tribes — hardly requires explanation. As regards the prohibition of marriages among the other above-mentioned relatives, the Koryak replied to my questions on this point, that relatives of the categories mentioned would die soon if they should enter into cohabitation with one another. Unfortunately this answer gives no clue to the above-mentioned taboos. However, certain marital taboos between relatives by affinity are, as we shall see later, closely connected with the peculiarities of the Koryak levirate.

Krasheninnikoff states that among the Kamchadal "the forbidden kinds of marriage are with one's own mother and daughter only; while marriages between step-son and step-mother, step-father and step-daughter, and between cousins, are permissible."

Steller says² that if a Kamchadal married a widow who had a daughter, he lived with both as his wives. According to him, the Kamchadal allowed a man to marry his step-mother, or to have two sisters for wives simultaneously. It seems to me hardly credible that the Kamchadal should differ so sharply in their marriage-taboos from the modern Koryak. It is regrettable that what has been said by Steller and Krasheninnikoff cannot now be verified, since the modern Kamchadal, having become Christians and been completely Russianized, observe the rules of the Orthodox Catholic Church in the matter of marriages, as far as their formal side is concerned. However, Krasheninnikoff asserts even, with reference to the Reindeer Koryak, that they used to marry cousins, aunts, and step-mothers. It is hard to admit that in the brief period (about a hundred and fifty years) which has elapsed since Krasheninnikoff's time, the marriage-laws of the Koryak should have changed to such an extent.

It must nevertheless be added, that, if we are to judge from the myths,

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1 See Krasheninnikoff, II, p. 169. 2 See Steller, p. 347. 3 See Krasheninnikoff, II, p. 221.
certain of the marriage-prohibitions among relatives by blood or affinity were unknown in ancient times. Accepting the evolutionary theory in the development of marriage and family relations, we may view the data contained in myths as reflections of the customs which were prevalent in earlier times; i.e., as historical material.

Among the legendary tales of incestuous marriages, we find no episodes of cohabitation with a mother or daughter; i.e., with the first degree of blood-relationship. In one myth it is related how Ilha', wishing to find the sleeping-tent of his former wife, in order to prevent her cohabitation with another husband, first came across his sister’s bed, then across that of his mother; and they cried out, “See what he is doing, he comes to his sister and to his mother!”

In the myths we find the episode of the marriage of Eme’mqut and his own sister, but the narrative censures such cohabitation. From the course of the narrative it is clear that the incest had not been premeditated. The sister had grown up separately, and Eme’mqut finds her by chance. But, even after having learned that she is his sister, he insists on continuing the union; while his sister Yĩnea-ñeút is ashamed of it, and finds a way out of the unnatural marriage by persuading another woman to exchange husbands with her.

On the other hand, marriages among male and female cousins occur quite frequently in the tales. These marriages meet with no reproaches from anybody. In only one story does Creator explain his decision to make his children marry the children of his sister by the absence of other people near by. This is, as it were, an excuse for his violation of taboos.

Of other cases of cohabitation between relatives which are now adays forbidden, we find further, in the myths, the marriage of two brothers with two cousins. Thus the two brothers Kalat marry, one a sister of Eme’mqut, the other Kilu’s sister; and two brothers from the Bear-People marry, one Yĩnea-ñeút; and the other, her cousin Kilu’. It may therefore be supposed that certain marriage-prohibitions are of later origin than the myths, and that formerly these prohibitions were limited to a smaller group of relations by blood and affinity than they are now. Similar contradictions might result if these traditions had been borrowed and were told without those changes which correspond to the local customs.

Even now, in distant localities, the same prohibitions are not observed throughout. In some localities, cases are met with in which individual persons act contrary to public opinion and custom. Thus, in the village Kamenskoye

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1 In speaking of the evolution of marriage, I do not mean to say that all tribes have passed through the same successive stages in this development.


3 Ibid., pp. 155, 160, 225.

4 Ibid., 1, p. 139.

5 Ibid., 1, p. 150.

6 Ibid., 1, pp. 150, 294, 297.
I was told that the marriage of a nephew with his uncle's wife, or that of a widower with the elder sister of his deceased wife, is countenanced. It is possible that these deviations should be ascribed to the decline in the force of traditions, under the influence of the Russians, or, better still, of the Russianized Koryak of northern Kamchatka.

In the village Itkana a Koryak (E'igexmit by name) who was married to two cousins was pointed out to me; while among the Reindeer Koryak of the Taigonos Peninsula, I knew an elderly Koryak (Xot'tto by name) who had married the widow of his deceased younger cousin. The old people told Xot'tto that he should not do it, that it was a sin; but he would not listen to them. These cases, too, may perhaps be ascribed to the weakening of the taboo.

**Courting and Serving for a Bride.** — The custom of having the parents or other elder relatives of a young man go to the bride's parents as match-makers for him, was evidently practised in antiquity too. In the myths we meet with this custom. The match-maker is called paññò'ëtelà'n (i.e., "the asking one"), since the essence of match-making consists in the bridegroom's father, mother, or other elder kinsman, asking permission for the bridegroom to serve for the girl. The customary formula of match-making is as follows: On entering the house, the match-maker says, "Here I've come." — "What for?" the girl's father asks. "I am looking for a wife," the match-maker replies. "For whom?" the match-maker is asked. "For so and so," he answers. "Well," says the father, after meditating a while, "we have girls, but they are bad; later on you may yet scold us." — "No, it is all right," the match-maker will say. "Then let him come, I will not harm him," the host will return.

It is curious to note the modesty with which the father speaks of the bride, not only without attempting to praise her, but even speaking disparagingly of her qualities. In this is partly expressed the desire of the bride's father to disclaim all responsibility for misunderstandings that may arise in the future between the young couple.

Very often the young people get along without match-makers. This is the case particularly when parents disapprove of a son's choice, and if he does not want to submit to their disapproval. Frequently a young man does not tell anybody of his intentions. He goes to the house in which the girl lives whom he desires to marry, and, without saying a word, remains there, performing all house-work becoming to a man. The house-owner receives the suitor's services with the same silence as he renders them. If the bridegroom pleases him, the bride's father begins to intrust him with commissions. The Reindeer Koryak send the bridegroom to take care of the herd; and, in general, the future father-in-law tries to tire him out, and is over-exacting.

If the bride's parents do not want the bridegroom, they suggest that he

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1 See Part I p. 281.
leave their house. In such cases the Reindeer people catch the reindeer on which the undesirable suitor had come, harness the sledge, carry his belongings out, and place him on the sledge, saying simply, "Depart!" In such cases it happens that the young man goes off a short distance, and, coming back, stops at the tent, and patiently and silently sits on his hitched-up sledge without unharnessing his reindeer, which he starves until he is called back into the tent. By such stubbornness persistent suitors have often obtained the consent of the bride's parents.

The term of the bridegroom's service varies from six months to three years. In Kamenskoye, for instance, the bridegroom is kept for a long time before the bride is given to him. This depends on the pleasure of the bride's father or elder brother. Often the mother says to the father, or in his absence to the elder son, that the young man has been tortured long enough.

What is the character of the Koryak custom of serving for a bride? By ethnologists a bridegroom's service is generally considered as payment for the bride; i.e., as a reward to the bride's father for his loss of a working-woman. In the present case this explanation seems inapplicable. Among the Reindeer Koryak, the wealthy reindeer-breeders would prefer to pay with reindeer, were service a payment for the bride; but this does not occur. Besides, the son-in-law, along with his wife, receives her reindeer, the value of which is not in any way equalled by the value of the bridegroom's services. As we shall see later on, in those cases in which the son-in-law remains in his father-in-law's house, he must still pass through a certain preliminary term of service as a bridegroom. This service can in no wise be considered payment for the bride, as her father not only does not lose a worker when she marries, but even acquires an additional one in his son-in-law. Finally, if the suit is pressed by an elderly or wealthy man, the service is reduced to a minimum, and is performed in a formal manner only. In my opinion, the service for a bride among the Koryak is of the nature of a test of the bridegroom. A serving bridegroom is not an ordinary workman. The principal thought is not his usefulness, but the hard and humiliating trials to which he is subjected. The bridegroom is given a poor bed, he is ill-fed, he is not allowed to sleep late, he is sent on exhausting errands. As a herdsman he must pass his nights without sleep, while the proprietor of the herd and the bride's brothers are resting. In a word, during his term of service, his endurance, patience, and meekness, his adroitness as a hunter, and his zeal and frugality as a herdsman, are tested. The bride's father gives his assent to the marriage only after the bridegroom has stood the probation well.

This view of the trial of a bridegroom, who must perform tests dangerous to his life, and win contests, is also found in Koryak tales.¹

¹ See Part I, pp. 153, 198, 250.
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In antiquity, as the Koryak relate, the match-maker, too, had to do all manner of house-work during the bridegroom’s sojourn in the house of the bride’s parents. This evidently was considered a test of the bridegroom’s relatives. The custom of having the match-maker perform the duties of a servant in the house of the bride’s parents is still widespread among many Chukchee.1

A very characteristic story of match-making among the Indighirka Chukchee was related to me by a Reindeer Yukaghir who sued for the hand of a Chukchee girl in behalf of his brother. His brother had fallen in love with a Chukchee girl; but her father, a wealthy reindeer-breeder, did not want the bridegroom, not because the latter was a poor Yukaghir, but because he thought him a bad herdsman. Then the girl herself went to the Yukaghir family, and engaged there in household duties with the other women. By virtue of the custom of hospitality, she was not asked what she had come for. Thus three days had passed. The kinsman of the Yukaghir would have had no objection to this marriage, if they had not feared, that, owing to the girl’s wilful leaving of her parental home, her father would refuse to give up her share of reindeer. On the third day the young man’s elder brother said to the Chukchee girl, “We do not act the way you do. Go with me to your father’s house, and I shall press the suit for your hand.” The Chukchee girl went with him in silence. On the way he broke a quantity of dry twigs, placed them by the hearth, took the buckets, fetched water, and did other household work. “In vain do you, old man, do that which women can do,” said the Chukchee host to the Yukaghir. — “I have come to press suit for your daughter’s hand,” the Yukaghir replied. “Why should you sue for it? She ran away to your house of her own accord,” the Chukchee said, railing at the Yukaghir. After that the Yukaghir stubbornly persisted in doing all tasks about the house, and the Chukchee spoke to him no more. A few days later the Chukchee somehow said aloud to his house-fellows, as is their habit, “I am going out to stool.” The Yukaghir went out after him; and, while the Chukchee was satisfying nature’s demands, the Yukaghir tore up a quantity of soft grass and handed it to him. This humiliation at last touched the Chukchee. He put the bundle of grass to use. Then he entered the house and told the Yukaghir that he might send his brother to serve for his daughter.

MARRIAGE. — When the bride’s father has decided that it is time to end the probation service, he tells the bridegroom that he may seize the bride; i.e., marry her. There are no marriage rites or festivities whatever. Marriage proper is performed by the first cohabitation; but even prior to this, the marriage becomes legalized by means of a symbolic action. The

1 See Jochelson, Wandering Tribes, p. 25.
mother warns the bride that the bridegroom has obtained the right to take her. Custom requires that the bride shall not surrender without a struggle, even if she love her bridegroom. Should the bridegroom find his bride undressed in the separate sleeping-tent which she is given before marriage, he would not touch her, considering this accessibility as an offence to himself. The bride's resistance is a test of her chastity.¹

Accordingly, with the aid of her friends, the bride ties up with thongs the sleeves and trousers of her combination-suit, so that it cannot be taken off without untying or cutting the thongs. On the day when the bridegroom obtains the right to seize the bride, the latter goes about thus tied up, and tries to run away when her bridegroom approaches her. The bridegroom seizes an opportunity to attack her unawares, to tear or cut the garments with a knife, and touch her sexual organs with his hand. When he has succeeded in doing so, the bride ceases to resist, and submissively leads the bridegroom to her tent. If the bride loves her bridegroom, she runs straight to her sleeping-tent, where the young man, who follows her, can more easily manage her and tear her clothes. If she dislikes him, however, she endeavors to run out of the house, and hides in a neighboring house; but the parents, if the bridegroom is desirable, hinder her from running out. Being a symbol of copulation, the act of touching the bride's sexual organs makes her the man's wife. In one of the myths² we also meet with this custom. When Moon-Woman does not trust Eme'mqut's promise to marry her, he touches her sexual organs with his hand, and says that thenceforth he will not deceive her, for this contact is the same as marriage. A similar symbolic act was performed also among the ancient Kamchadal.³

Sometimes the bride is aided by her friends and other women in the act of resistance. In this struggle a good thrashing often falls to the lot of the bridegroom. If unsuccessful, he repeats his attacks several times. If the bride does not want the bridegroom, it is hard to take possession of her; and at times the groom has to give up all further attempts, and let his service go for nought.

It is related that in former times, not women alone, but the bride's male relatives as well, used to defend her, and beat the groom when he tried to seize the bride. In this conduct of the bride's kinsfolk, some ethnologists might see a symbol of the ancient practice of capturing wives. Without undertaking here to inquire into the question whether capture was at any period the exclusive or prevalent form of contracting marriages, I can

¹ I think it is of interest to quote here Steller's curious explanation of the origin of the Kamchadal custom (similar to that of the Koryak), in accordance with which the bride does not at once yield to the bridegroom. He thinks that it is done in imitation of animals: a bitch, too, does not at once yield to the dog (Steller, p. 345).

² See Part I, p. 176.

³ See Krasheninnikoff, II, p. 195; and Steller, p. 344. According to Steller's statement, the bridegroom had to put his finger into the bride's vagina.
only remark that I consider the thrashing of the groom as the final act in testing his adroitness, bravery, and endurance, and not as a symbolic remnant of marriage by capture.

Of course, along with the other methods of obtaining wives, the Koryak, in former times, resorted to carrying away women, or taking away by force both girls and married women, I have spoken of the "wife-snatcher-strong-men." In Koryak mythology we find some tales of girls being carried away by force. In one tale Big-Raven, the ancestor of the Koryak, carries off a girl from the kamak for his son Eme'mqut; and in another Eme'mqut himself steals the daughter of the kamak. But if we take into consideration that among the Koryak marriage is rather endogamic than exogamic, and that in war the conquerors usually slew the children of the vanquished lest they should grow up to become avengers, and their women lest they should bear avengers, it seems plausible that the custom of capturing wives from foreign tribes or clans never prevailed among the Koryak to any extent.

Marriage is accompanied by neither feast nor shamanistic ceremonies. The daughter and the son-in-law either leave at once for the young man's house, or they remain for some time in her father's house. In some localities, after a successful "bride-seizing," the bridegroom goes home and sends his parents, or other elder relatives, to fetch the bride. When the bride approaches the house of her bridegroom's parents, the latter come out with fire-brands taken from the hearth to meet her. This reception symbolizes the acceptance of the bride into the family cult which the hearth represents. Beyond her clothes and appurtenances for woman's work, the bride brings almost nothing into her father-in-law's house. The bed and sleeping-tent for the couple are prepared by the bridegroom's family. However, the bride brings along presents of clothing, meat, and other things, for the bridegroom's mother and sisters, and her own reinder if she be a Reindeer Koryak. If the bride is the first daughter-in-law in the house, the mother-in-law usually hands the whole household over to her care, and interferes only if the daughter-in-law proves to be an inexperienced housewife. On entering the house, the bride immediately sets out to prepare the meal. The Maritime Koryak do not invite any guests, and the meal has purely a family character. Among the Reindeer Koryak, at the meeting of the bride, one or several reindeer are sacrificed to The-Master-on-High and his son, Cloud-Man, protector of married couples. From one myth it appears that non-performance of this duty brings punishment from the deity. In former times the bridegroom's mother or elder brother used to anoint the bride's forehead and abdomen with the blood of the sacrificial reindeer. This, too, evidently meant the adoption of the bride into the new family, and her introduction to the new hearth, by means of sacrificial

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blood. This rite was called “dying red,” and, as I was told, it has been preserved among the Reindeer Koryak on the Palpal until now.

Although, as a rule, the bride goes to the house of her husband’s parents, there are also cases where the son-in-law settles in his father-in-law’s house; namely, when there are no sons in the bride’s family. In such a case the future father-in-law says to the young man, “If you care to come to stay with me altogether in the place of a son, come; but if you intend to take the wife away with you afterwards, you need not come.”

In order to determine the relative number of cases where the bridegroom goes over to his father-in-law’s house, I registered 181 marriages; and among these, in 11 cases only (6%) did the son-in-law settle in his father-in-law’s house.

After the bride has lived for some time in her father-in-law’s house, she and her husband go to visit her parents, where they are also met with fire-brands from the hearth; and the bridegroom, on his part, brings presents, so that the two families exchange gifts. A similar exchange of presents and visiting of the bridegroom’s parents by the young couple, take place when the young man settles in the bride’s house.

Position of Women in the Family. — The family organization of the Koryak is of patriarchal character. The father is the head of the family, though his power over wife and children is not absolute. The mutual relations of the other members of the family rest on the principle of seniority. If the father grows feeble or dies, his brother or eldest son, or, in the absence of these, his adopted son-in-law who is married to the eldest daughter, becomes the head of the family. The principle of seniority influences also the interrelations of the female members of the family. The authority over household affairs belongs to the mother, to the eldest sister if married to the adopted son-in-law, or, if any brothers, to the wife of the eldest brother.

Though nominally the father can marry off his daughter on his own authority, he nevertheless not only consults his wife and eldest son, but often takes into consideration even the likes or dislikes of his daughter. Cases occur where the daughter does not submit to the father’s or elder relative’s authority in the choice of a bridegroom. Their will is not forced upon her. This attitude is also mirrored in the myths. Thus, Root-Man wanted to give his daughter in marriage to Eme’mqut; but she would not yield, and the bridegroom had to give up service.1 Young men often go to serve for a bride, in spite of the non-approval of the “elder” or “elders” of their own families. Should a girl run away to her lover’s house against the will of her kindred, her parents would not demand her return, as she went of her own accord. When asked what their guiding principle is, in their choice of a bride or a bridegroom, the Koryak answer that they pay no attention to looks; what is

1 See Part I, pp. 135, 218.
expected of the bridegroom is that he should be a good hunter or herdsman, and the bride must be a good housekeeper and skilled in handiwork. Nevertheless, sexual attraction based on aesthetic sense, or physical attraction, undoubtedly plays an important rôle in the mutual inclination between young men and girls. This shows itself in the relation between husband and wife.

As in the relations of the members of the family the principle of seniority plays its part, so in the relation between the male and female members of a family the principle of the supremacy of men's authority undoubtedly dominates. Thus, at the bidding of the family's elder (father, uncle, or eldest brother), the Reindeer camp is removed to another locality, or, among the Maritime Koryak, the place of hunting or fishing is changed. The men get the best pieces of food, the women receive what is left over. Thus, among the Reindeer Koryak, only the men sit around the food which is served in the inner tent; and, besides the children, only the mother or the eldest wife is present, who distributes the food or treats the guests. The other women and girls receive the leavings, which they eat in the outer tent. Among the Maritime Koryak, too, the women and girls eat separately, by the hearth, after the men have eaten. Nevertheless the attitude of men towards women is protective rather than severe. Cases of wife-beating are very rare. On the other hand, it happens that the wife not only returns in kind to her husband, but often appears to be the aggressive party. In general, complete accord reigns in families. I even had occasion to witness touching displays of devotion between husband and wife. Thus, I saw a smith from Kuel, somewhat tipsy with whiskey, leaning his head on the shoulder of his wife, who supported him by the waist. When my attention was attracted to this scene, the smith said to me with a smile, "This is my kind wife." I was still more impressed with the treatment which the Koryak Qomya' from Kamenskoye accorded to his blind wife. When making a trip anywhere, he takes her along, and even takes care of her most tenderly; he takes her down into the underground house, takes her out, hands her the food, and sits by her side all the time. Such relations are possible only in cases of deep attachment.

In former times, men not infrequently killed themselves upon the death of a beloved wife. On the Taigonos Peninsula I saw a Reindeer Koryak who had attempted suicide after the death of his wife. Entering the tent after the cremation of his deceased wife, he sharpened his belt-knife, told his relatives to divide his property among them, and went out of doors. There he buried the knife in his breast, but missed the heart. He came into the house groaning, and then the people learned that he had attempted to stab himself. He recovered, and did not attempt suicide again; but his relatives afterwards railed him, saying that he had not seriously meant to kill himself.

Though in following her husband the young woman becomes a member of his family, and subject to the authority of her father-in-law or other senior
member of the family, and although she becomes affiliated to the hearth and joins her husband in the cult of his family ancestors, nevertheless she continues to dwell under the protection of her blood-relatives. It is told in one myth that Eme'mqut drives off with his sister, who is being tortured by her husband the Ringed-Seal, and his relatives; so, also nowadays, the young woman's relatives still have the right to take her away from her husband if he treats her cruelly. This proves that woman is not considered to be her husband's property. If a woman flees of her own accord to her relatives, they will not surrender her. Sometimes the husband comes to ask her to come back, promising better treatment. On the other hand, the husband may cast out his wife without any explanation, if he dislikes her for one reason or another; but by this act he forever breaks up the union which marriage had established between the two families. Henceforth he cannot court any relative of his disowned wife. No girl relative of the latter will be given to him in marriage.

A Koryak widower on the Taigonos Peninsula, soon after his marriage, sent his second wife back to her relatives. I asked him why he had turned her out. He replied that she had not attended him when he had been ill, and did not take care of his children by his first wife.

In this simple manner, Koryak divorce is performed. If there are children at the separation of the spouses, the girls remain with the mother, the boys with their father. Disputes concerning the children do occur, but they are settled without anybody's intervention.

**Form of Property.** — Despite the fact that the proprietary right to clothing, household effects, houses, and domestic animals, has already become strongly lodged in the tribal consciousness, we still meet remnants of communal ideas in this sphere. These chiefly concern articles of hunting and fishing. The principle of property in the produce of labor is not as yet completely applied to the food procured by the hunter and fisherman. People in need of food may lay claim, as we shall see in the next chapter, to the game obtained by the successful hunter or fisherman. The social union among separate families is based on this.

Among the Maritime Koryak, clothing and ornaments alone are considered personal property. Wooden guardians and other amulets, household appurtenances, the house, nets, and skin boats, are family property. I have already said that the boat, being a "guardian" of the family, cannot belong to two different families. All these things pass on by inheritance from father to son, and, in their absence, to brothers. Daughters or sisters who have not been married into other families remain with their brothers or uncles. If one of the brothers sets up a separate house, he receives a part of the movable property, dishes and implements, and may continue to share with his brothers.

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1 See Part I, p. 153.
2 Ibid., p. 41.
in the common use of the skin boat, if he remains in the same village. In case of the death of the father or of a childless brother, the brother who keeps house for himself receives a portion of the inheritance, even if his brother’s widow passes on to another, younger brother. I have already said that girls, on marrying into other families, take with them nothing but their clothes. The reindeer which the bride takes along are often delivered by her kinsfolk to her father-in-law, not immediately after the wedding, but according to the most convenient moment, considering what season is most favorable for the welfare of the herd.

The reindeer are the property of all the members of the family, but the movements of the herd are directed by the father. According to custom, each newly born child, irrespective of sex, receives one reindeer-heifer or more with a special mark on the ear. This gives each member of the family a share in the herd later on. Under favorable conditions, a whole herd may be formed by the yearly increase of the herd of these heifers, before the child is ready to marry. Of course, the original herd belongs to the father; but considering that each child has its own reindeer, and that the wife and daughters-in-law retain as their property the reindeer which they brought in marriage, the whole herd of a large family belongs to a group of interrelated proprietors, under the direction of the eldest male. This elder may be the eldest brother or paternal uncle. On the father’s death, the original herd is divided up among the sons, and, in the absence of children, among the brothers of the deceased. At marriage, daughters usually receive a share of the original herd from their father, in addition to their own reindeer. Some Koryak divide their deer equally among their sons and daughters, and give a proportionate part to the daughter at the time of her marriage; but then the daughter is no longer entitled to inherit part of the herd on her father’s death. If an unmarried girl is at home when her father dies, her brothers give her the reindeer at the time of her marriage. If a wife leaves her husband or is cast out by him, her relatives take back her reindeer. I have already said that divorces are very rare. After the birth of children, who are heirs to both their mother’s and father’s reindeer, the husband manages his wife’s reindeer more independently. In general, the eldest member of the family manages the common herd of the family entirely without control. He designates which reindeer are to be killed for meat, clothing, sacrifices, and sale. He oversees the pasture and herdsman, and picks out the reindeer to be trained for harness. Of course, he often consults his wife or eldest son.

The parting of brothers, or the separation of a married son from the

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1 See p. 492.
2 In Tale 86 Yiñes-ñeun marries Maggie-Man. They eat up all the reindeer which Big-Raven had given them. Yiñes-ñeun comes to her father to ask for food; and Big-Raven says, “You ate your share of reindeer, I have nothing else to give you” (Part I, p. 259).
paternal family, rarely occurs. This happens, in the first place, among people very rich in reindeer. The division of too large a herd may become a necessity for the care of the reindeer. The widow's reindeer pass over to her brother-in-law with whom she lives; but if she has children, her brother-in-law manages the reindeer only temporarily. A widow who does not re-marry remains with her sons, together with her reindeer; but if she has no sons, she joins her brothers, or manages the herd herself, with the help of herdsmen. The lately widowed sister of the Taigonos elder figured on Plate xxxii, Fig. 2, has remained single; and, with her two adult daughters, she personally directs a herd of eight hundred reindeer. For this purpose she keeps two herdsmen, of whom one was in the position of a bridegroom doing service for her eldest daughter.

Levirate. — The institutions known under the general term of "levirate" embrace marriage-customs which, though similar but not wholly uniform, are found among various tribes. I retain this name also for the Koryak institution of this category, although it is not quite broad enough in its strict sense. The word "levirate" denotes the custom by virtue of which a brother (or other relative) marries the widow of his elder brother (or relative). Among the Koryak an analogous custom extends also to the widower. The younger sister or relative of the defunct wife must become his wife. Thus the Koryak levirate may be summed up as follows: —

1. The widow must be married to the younger brother, younger cousin or nephew (son of sister or brother), of her deceased husband.

2. The widower must marry the younger sister, younger cousin or niece (daughter of sister or brother), of his deceased wife.

I have recorded twelve cases of marriage through levirate. Of these, the widower was married to his deceased wife's sister in one case, to her cousin in two cases, and to her niece in two; the widow married her deceased husband's younger brother in two cases, his younger cousin in four cases, and his nephew in one case.

From the relations of levirate marriage, it becomes clear why two brothers or male cousins, or an uncle and nephew, cannot be married to two sisters, two cousins, or an aunt and her niece. In case of the death of the elder brother, cousin, or uncle, the younger brother, cousin, or nephew would be unable to take the widows of the first three for wives, unless one man might be married to two sisters, cousins, or aunt and niece. As stated before, such a polygynous marriage is not permitted by custom.1

The latter custom must be supposed to be of less ancient origin than other marriage taboos, and I think is the foundation for woman's increased modesty. A Koryak who has two or more wives sleeps in one sleeping-tent

See p. 738.
with all of them, and shares his bed, now with one, and then with another. The sense of shame forbids a woman to be present at the acts of the intimate life of her sister. What, then, is the origin of this, which I should call "two-sided Koryak levirate"?

McLennan and his followers consider the custom of levirate among other tribes as a survival of polyandry. Westermarck demolishes this view with great conclusiveness. But if we admit that McLennan is right, whatever he says applies to the one-sided levirate usually spoken of by the ethnologists and sociologists; i.e., when the younger brother marries the elder brother’s widow. But, of course, nobody considers the marriage of a widower with the younger sister of his deceased wife a survival of polyandry.

Lubbock’s and Spencer’s explanation of levirate is, that woman is viewed as a property which the brother-in-law inherits along with other possessions. Possibly the explanation may apply to the levirate custom of some tribes; but in cases where the widower takes the younger sister of his deceased wife, there can be no question of proprietary title to her; also in the passing of the widow to her deceased husband’s younger brother, the family right does not always coincide with the right of property, as it appears from the Koryak order of inheritance. Besides, according to the customs of the Koryak, the elder brother, although he receives part of the inheritance left by his younger brother, cannot marry his widow.

The view that levirate is connected with the cult of ancestors — such as prevailed among the ancient Hindoos and Hebrews, through the necessity of having an heir in the interests of salvation and bliss in heaven — does not apply to the Koryak levirate either, not only because it is two-sided, but also because among the Koryak any widow of the elder brother, and not alone one without any offspring, or without male offspring, passes over to the younger brother.

Nevertheless I do think that Koryak levirate, though from another point of view, is connected with the cult of ancestors, or rather with the cult of the family hearth. I have pointed out before that each Koryak family has its guardians and its incantations. The family hearth, the chief family guardian, is averse to admitting strangers. Since primitive man views every stranger as a possible foe, the family guardians are inimically disposed toward every stranger, and are ready to guard the family against the evil eye, word, and other magic acts of strangers. Access to the family hearth is had with difficulty only. Besides, the family hearth is connected with the deceased relatives whose souls return in new-born children. Marriages between two

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3 See Part I, pp. 46, 59.
families give free access to the hearth, not only to the members of strange families, but also to the souls of their deceased members. The soul of a deceased relative, both on the father's and on the mother's side, may enter the new-born child; and each child borne by the daughter-in-law or engendered by the son-in-law may become the possessor of the soul of a deceased relative of a strange family. Thus a marriage contracted between two families brings nearer not only the living, but also the souls of the dead members, and the guardians of both families. The Koryak like to strengthen the union by new marriages. Thus the brother of a married woman will court her husband's sister, if there be such. These are favorite unions. We meet such cases, not only in every-day life, but also in myths. In my opinion, the Koryak levirate has for its object the maintenance of the union between two families: a widower marries the sister or relative of his deceased wife, and a widow is married to the relative of her deceased husband, in order to maintain the family union which has been interrupted by death.

As marriage, with the exception of the above-mentioned degrees of kinship, may be contracted between parties of the same village or family even, — for instance, any second-cousins, — it happens very rarely that the match-maker or bridegroom goes to a remote village or nomad camp in search of a bride. Most frequently marriages are contracted between inhabitants of neighboring villages. On the Palpal I once met an elderly Koryak from the village Mikino driving to the Opuka River, and asked him why he was going there. He replied that he was going to get some relative of his deceased wife to marry him. "Can't you find a wife for yourself anywhere nearer?" I asked. "I can," he replied; "but the union between my family and the family of my children's mother must not be interrupted. Besides, the relatives of my deceased wife know me and won't make me serve for a bride."

As I look at it, the Koryak levirate is an institution having for its object the continuation of the union between families related by affinity. This union is necessary in order that the spirits of the ancestors, the hearth and other family guardians, of the two families entering into relationship, may abide in peace and unity. In former times, when separate groups of a tribe waged war with one another on the slightest occasion, families united by marriage formed defensive and offensive alliances. Often the marrying-off of a girl into a family with which there had been war, made peace between the spirits of the deceased of both families, and put an end to blood-vengeance.

In certain cases, an extensive league of families may be formed through intermarriage. If there are several sons in one family, and several daughters in another, these two families cannot confine themselves to intermarrying with each other, for brothers of one family cannot marry sisters of another. Some

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1 See Part I, pp. 149, 157, 164, 226, 250, 252, 254, 257, 267, 305, 308.
must seek brides in different families, and daughters must be married into different families. Only in the case of the death of a married son or of a married daughter of one family or the other is a second marriage, through levirate, possible.

Of course, if the nature of the Koryak levirate has for its purpose the strengthening of family alliances, it may be asked why a widower cannot marry his deceased wife's elder sister, or why a widow cannot become the wife of her deceased husband's elder brother. I have put the question, but to my regret I have received no satisfactory answer from the Koryak. Personally I think that in this case the legal position of the elder brother in the family supersedes the considerations of blood-relationship. When father or mother die or become too old, the eldest brother and eldest sister take their places. By force of this position, sexual intercourse of the eldest brother (who enjoys the right of agnate) with his sister-in-law, or of the eldest sister with her brother-in-law, seems to be imagined to be the same kind of incest as the cohabitation of a father with his daughter-in-law or of a mother with her son-in-law.

I will add here a few details illustrating the application of the levirate in the every-day life of the modern Koryak. From these it appears that in several places this custom is coming to lose vigor and to assume the form of a right instead of involving an obligation. Attention must also be drawn to the subjection of woman in this custom. In Kamenskoye I was told that a younger brother may marry his eldest brother's widow, or a widower the younger sister of his deceased wife, while in other places they must do it. On the other hand, if disinclined, the relatives may not give a widow or deceased wife's younger sister to her brother-in-law in marriage. From this it is evident that in Kamenskoye the custom leaves to either side, if such be desired, the choice of not renewing the family union by a new marriage.

But if the nearest relatives of a woman have died, and she has thus lost her natural protectors, the widower or brother-in-law can enforce the observance of the levirate against her will. However, men rarely make use of this right. Shortly before my arrival, an elder in Kamenskoye (Opilli by name) had lost his wife and eldest brother. The wife of the latter, with her children, went to his home to live; but when asked whether he had married her, he answered that as yet she was not ready to do so. I know of another case from the village Kamenskoye, where a Koryak, married to a young woman, received into his house two old widows, the wives of his deceased elder brother, but he did not live with them because they were too old.

I met with a similar case on the Paren River. A Koryak, Ewpicö, who had a young wife, had taken his uncle's widow into his house, but did not live with her, as she was sickly.

In his preliminary report on the Chukchee, Bogoras speaks of the exist-
ence of levirate among them, but a more detailed discussion of their customs may be expected in his description of the social organization of the Chukchee in this series. From certain passages in Steller's book on the Kamchadal, the conclusion may be drawn that among them a levirate similar to that of the Koryak existed; i.e., that it was two-sided. It is a matter of great regret that he does not dwell in detail on this institution. An interesting feature of the marriage customs of the Kamchadal is mentioned by both Steller and Krasheninnikoff. It is evidently connected with the levirate, and is quite similar to the Jewish rite of khaliche, which is a substitute for actual marriage with a relative's widow. According to these travellers, nobody would marry a widow before an outsider had had sexual intercourse with her, which was called "removing the sin from her." By that intercourse a woman was evidently freed from the union with her deceased husband's family; and her new husband could take her to his own family hearth without incurring vengeance on the part of her first husband's spirit. This explanation is favored by another passage in Steller, in which he states that a man may take his deceased brother's widow without any ceremonies. The person who would undertake to "remove sin" from a woman was paid for this service; and prior to the coming of the Cossacks, it was difficult to find among the Kamchadal men who would volunteer for this undertaking, which, according to their belief, was fraught with danger.

POLYGAMY. — In some myths the heroes have two wives, and in two of them they have three; but the majority of marriages recorded in the myths are monogamous. The Supreme Deity and Big-Raven have each but one wife. In contemporary Koryak life as well, we find that monogamous marriages prevail, although custom places no limits on the number of wives.

Among the Maritime Koryak, I questioned 95 married men. Of these, 13 (i.e., 13.6%) had two wives each, and not a single one had more than two. Among the Reindeer Koryak I recorded the family conditions of 65 married men; and of them, but 3 had two wives each, and 1 had three wives; i.e., the percentage of men having more than one wife was but 6%, or but half as much as among the Maritime Koryak. Some of the men with two wives had taken a second wife because the first one was barren; others had married a second time because their first wife, who was obtained

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1 See Bogoras, Brief Report, p. 33.  
2 See Steller, pp. 346, 347.  
3 Customs similar to what I call "two-sided levirate" are known also among other tribes. Some of them are enumerated by Kohler (Urgeschichte der Ehe, p. 144), who regards this custom as a survival of former "group-marriages." The same custom is also met with among North American tribes. For instance, of the Ojibwas, W. Jones says (Central Algouskin, Annual Archeological Report, Toronto, 1906, p. 126). "It was usual for a man to marry the widow of his brother, and a widower might marry the sister of his dead wife." The same is stated by Teit with reference to the Thompson Indians (see Teit, p. 325), and by Dorsey to the Skidi Pawnees (Congrès International des Américanistes, XV Session, Québec, 1907, Vol II, p. 73). No explanation, however, is given by the last three authors as to the origin of this custom.  
5 See Steller, p. 347.
through levirate, was too old. In some cases the second wife, who was obtained through levirate, is the younger of the two. Only in two cases did I find that both wives had children, and in neither of these cases were levirate customs involved. On the other hand, in three cases of men having two wives, neither wife had children. Their barrenness, accordingly, must be attributed to the husband. The only man with three wives whom I saw was the elder of the Taigonos Reindeer Koryak.\(^1\) He had children by his first wife; but she became ill, evidently with hereditary syphilis, and her face is so deformed that she covers it up whenever an outsider enters the tent. His second wife is barren; and from the youngest, the third wife, he has offspring. In one case, a young man who married an old woman, his uncle's widow, through levirate, took into his house a little girl, and began to live with her after she had grown older. She seemed about sixteen years old when I saw her, and she was pregnant at the time. Such marriages with minors were more common in former times. Generally speaking, girls marry when twenty years old, or even older.

It is interesting to note that the greater number of monogamous marriages among the Reindeer Koryak coincides with the greater number of men as compared with women among them.

The statistics of the official census for 1897 have been discussed before (p. 445). I myself made a detailed census of the Maritime Koryak from the village of Kamenskoye to the three Itkana villages, inclusive, and of the Reindeer Koryak on the Taigonos Peninsula and along the Tilqai River. According to my count, there were 102 women to every 100 men among the Maritime Koryak, and but 89 women to every 100 men among the Reindeer Koryak. The ratio of women to men which I obtained among the Maritime Koryak was identical with the one I found in the official census of all the Maritime Koryak. But the percentage of women among the Reindeer Koryak which I obtained was even below the census of 1897, which gives 90.8 females for each 100 males. This may possibly be explained by the fact that I took the census after an epidemic of measles which had carried off more women than men, and left many widowers.

Judging from both myths and actual observation, it seems that the prevailing form of marriage among the Koryak is monogamic, and that polygyny kept up by the custom of levirate and the desire of having an offspring when the first wife is barren. However, in certain traditions which I heard, relating to a past by no means remote, stories are told of strong men, who were good warriors and skilful hunters, and who had harems of women taken by force from their fellow-tribesmen. A cavern on the rocky coast of Penshina Bay was pointed out to me as the dwelling-place of such

\(^1\) According to Dittmar, when he visited the Taigonos Peninsula, the elder had four wives (Dittmar, Die Koryak, p. 25).
a “woman-snatcher.” He would lie in wait for Koryak boats passing by, and would take away the wives of the oarsmen. A similar tale is found among the myths. Worm-Man, who carried away many women after slaying their husbands and brothers, takes away the wife of Eme’mqut. He is slain by the latter. Eme’mqut brings back to life the husbands and brothers of the women whom Worm-Man had captured, and restores to their families the wives and sisters, whom he sets free. Many of the brothers give their sisters to Eme’mqut. He retains only three of them: the others he distributes among his brothers and his cousin Illa’.

In a household with more than one wife, the first is considered the mistress of the house. The second wife consults the first in everything, and carries out her instructions. In the majority of cases the wives live in harmony. When intending to take a second wife, the husband usually consults with the first one. An old woman who has grown-up daughters to help her in housekeeping, often asks her husband to take a second, younger wife. But some women are jealous, especially if the second marriage was contracted against their will, and quarrel with the second wife. In myths, too, we find cases of hostile relations between wives, and even of the murder of one wife by another. In one case the first wife cuts off the second wife’s nose. Here I will relate a characteristic case from the life of a man who had two wives. A Koryak from Kamenskoye, Qačilqut by name, whom I have mentioned several times, and whose first wife was childless, courted the young widow of a deceased distant relative of his. For a long time he could not take her to his house, as his first wife was opposed to their marriage. Finally, despite the objections of the first wife, he brought his second wife to his house. During the husband’s absence, the first wife often beat and tortured the second one. Sometimes she would prick her face with a needle. The second wife bore everything in silence, and did not complain to her husband. This finally appeased the jealousy of the first wife, and they now live in peace. All this was told me by Qačilqut’s first wife herself. She is a very bright, energetic woman, and still young. Her husband is a merchant. When he goes on a business trip to the Reindeer Koryak, she accompanies him as his clerk, and always brings some present for her friend, the second wife. Like the other polygynous Koryak, they all sleep in one sleeping-tent, — the husband in the middle, the first wife to his right, the second to his left.

In connection with this subject should be mentioned the cases of men transformed into women, which in former times were not uncommon, and were called qava’u or qeve’u. Like the ancient Kamchadal koe’kčuč and

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1 See Part I, p. 145.  
2 Ibid., pp. 209, 208, 294.  
3 Ibid., p. 32.  
4 See Krasheninnikoff, II, pp. 114, 222; Steller, p. 212.
the present Chukchee irka'la'ul, Koryak "transformed men" contracted marriage with men, or, when there was another real wife, would be kept as concubines, and lived with the so-called husband in improper intimacy. This, of course, cannot be treated as a normal institution of marriage. Such cases were few in number. Bogoras states that among three thousand Kolyma Chukchee he registered five cases of men who were believed to be transformed into women; but of these, only two were "married" to other men. I think abnormal sexual relations have developed under the influence of the ideas concerning shamanistic power, which the "metamorphosed" men obtain from the spirits at whose bidding and with whose help the change of sex is accomplished. These beliefs have found fertile soil in individuals of abnormal physical and psychical development. With the decadence of shamanism among the Koryak, and the Russianization of the Kamchadal, these practices have disappeared in both tribes.

POLYANDRY. — I had occasion to observe among the Reindeer Chukchee of the Kolyma tundra that they would exchange wives for the night, or that the wife would be placed at the disposal of the transient guest, while the husband would go off to his herd. Mr. Bogoras, who has studied this question more closely, considers thiswife-exchange among the Chukchee as a form of group-marriage. The right of two men to each other's wife is stipulated by the mutual agreement of the husbands. This marriage-union is contracted mainly among kinsmen (excepting brothers), such as cousins and second-cousins. A union like this may be contracted among unrelated men as well. Not infrequently this contract is entered into by a married man and a bachelor, who thus pledges his future wife to his friend. Each Chukchee may contract such a union with several persons, who are called "friends in wives." The result of such a union is a polygynic-polyandric group-marriage. The families participating in such a marriage-union retain, nevertheless, their own economic independence, and the children are considered as belonging to the head of the family in which they are born.

In Steller's description of Kamchatka we find a passage in which it is stated that friends sometimes agree to exchange wives. It is to be regretted that Steller gives no detailed information concerning the character of such agreements.

Krasheninnikoff says that the Reindeer Koryak are jealous beyond measure, and may kill their wives on the mere suspicion of faithlessness. On the other hand, he compares the Maritime Koryak with the Chukchee, and alleges that among them the host's wives and daughters are given over to

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1 See Bogoras, Brief Report, p. 31.
2 For the same marriage-customs among the western Eskimo, see Nelson, p. 292.
3 See Steller, p. 347.
4 See Krasheninnikoff, II, p. 201.
the guests, and that the host feels deeply offended should the guest not accept them.\(^1\)

I think that his statement is based on a misunderstanding, or on reports of Cossacks who confounded the Maritime Koryak and the Chukchee. I should find difficulty in deciding who is more jealous, the Maritime or the Reindeer Koryak. If exchange of wives existed among the Koryak in former times, as it did among the Kamchadal, Chukchee, and the northwest Americans, like the Aleut, Eskimo, and Athapascan\(^2\) tribes, I have found no traces of such a custom. True, in one myth two kalat have one wife,\(^3\) but such actions, which men deem evil, are always attributed to evil spirits. In another myth\(^4\) Yiñe-a-neut strikes her husband’s younger brother with a cutting-board because he wooed her in his brothers absence. The Koryak themselves deny ever having had the custom of exchanging wives. They assert that a married woman had to go in a dirty dress and with unwashed face, that she might not attract the attention of strange men. Once I asked the elder of the Taigonos Reindeer Koryak, who has three wives, what he thought of the Chukchee custom of exchanging wives. He replied that he would gladly avail himself of the Chukchee hospitality in this regard, but would never consent to reciprocity in the matter. Krasheninnikoff says\(^5\) that the Reindeer Koryak have two and three wives each, and keep them in different places, giving them separate herds and separate herdsmen, as do the reindeer-breeding Chukchee. The above-mentioned elder asserted that neither at present nor in earlier times did any such custom prevail. He says that he would not leave his wife alone with the herd for other men to come and avail themselves of her. If there are two or more wives, they always live in one tent with the husband, as they live in the same house, among the Maritime Koryak. Among the Reindeer Koryak, the senior wife sometimes has a separate sleeping-tent; for instance, that of the Taigonos elder. On the northern side of the Palpal Ridge, where the Reindeer Koryak come into contact with the Reindeer Chukchee, with whom they enter into marriage-relations, the Chukchee marriage-customs may have been adopted to some extent by the Koryak; but, on the other hand, the Chukchee, who roam at present among the Koryak of the Parapol Dol, and whom I had occasion to see, exchange their wives with neither relatives nor neighbors, having adopted the Koryak views on this subject.

Of course, even among the Koryak, adultery is met with, though less frequently than among civilized peoples, but never with connivance of the husband. In former times, a wife’s faithlessness would often lead to bloody retribution. Nowadays the husband casts out or thrashes the faithless wife without mercy, but he does not touch her lover. I know of one case in

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3 See Part I, p. 154.
4 Ibid., I, p. 248.
5 See Krasheninnikoff, II, p. 221.
which the husband shut his eyes to his wife's liaison with their herdsman; but the husband was a sickly man, and, besides, the herd belonged to his wife. I learned of another curious case on the Taigono Peninsula. A man, being informed that his wife was visited by his neighbor while he himself was absent, said to the offender, "If you like my wife, don't visit her secretly, but take her altogether, only give me your daughter in exchange." The neighbor complied with so wise a proposal, and they exchanged the women; the neighbor, as luck would have it, having a grown-up daughter.

TREATMENT OF CHILDREN. — The birth of a child is a joyous event, and marked by a feast, to which guests are invited from other houses, or, among the Reindeer Koryak, from other camps. This festivity is called Añanavis-xatin ("woman's feast"). Among the Maritime Koryak, all women and girls of the village are invited in. Men are not admitted at all; even the master of the house leaves his home. The main dish consists of gruel or pudding made of flour, blood, meat, and fat. This pudding is called ta'knahoiika ("bearing-blessing"), symbolizing the future welfare of the child. The Reindeer Koryak, on the occasion of the birth of a child, kill one or more reindeer, and invite men and women to the feast; but the women eat apart from the men, in the sleeping-tent of the young mother, while the house-master entertains the men in the outer tent. The Reindeer Koryak make the same kind of pudding as the Maritime Koryak, and call it by the same name.

I have already spoken of the taboos to which the young mother is subjected, of the care taken to guard the child against evil spirits, and of the divination ceremony while giving a name to the new-born. According to the statements of Koryak women, confinement is easy. In each settlement there is an experienced woman who acts as a midwife. The navel-string is cut with an ordinary iron knife. This knife is not used again until the child is able to walk. The new-born child is rubbed with moss, and immediately placed in a combination-suit, which takes the place of a cradle. The child is rocked by the mother in her arms, or placed in bed by her own side. On the flap between the child's legs moss is laid, which is frequently changed. The child is nursed up to the age of two or three years, unless a second pregnancy of the mother prevents her from doing so. At a very early age the child is given pieces of fat of reindeer or seal to suck. I was told that, if the mother dies during or soon after confinement, the child is killed and cremated with the mother, as artificial feeding is impossible with the Koryak's means of existence.

The Koryak are very fond of children. They take good care of them and fondle them. Children are beaten very rarely, and yet they are meek and obedient. I have often marvelled at the authority exercised by the elders over the children. I related the case of a girl of about nine who consented

1 See Part 1, pp. 100, 101. 2 See p. 601. 3 See p. 602. 4 See p. 591.
to be photographed by my wife without the upper coat, but immediately refused the presents when her aunt shouted to her, "Don't take your coat off, your uncles will be angry." The girl was an orphan, and lived with her father's brothers.

From the age of ten to twelve, children begin to work, and boys join their father in his daily pursuits. They assist him in fishing, carrying wood for the hearth, and, among the Reindeer Koryak, tending the herd. Boys in their teens are made to go through a rigorous training to accustom them to withstand privations, cold, and fatigue. Lads usually wear the clothing cast off by the old people. Girls, beginning at the same age, help in household duties, skin-dressing, and the sewing of clothing.

When grown up, the attachment of children to their parents becomes weaker, and they become more independent, particularly so in the case of sons. Girls are more subjected than boys to the regime of the older members of the family. Young men at times engage in disputes with their fathers.

Treatment of Old People. — The power of the old people rests to a considerable degree on their strength and energy. If an old man can no longer perform the duties of a herdsman or direct the hunt, he ceases to be an authority. In the majority of cases, children treat their elders with respect and listen to their advice, even when they no longer manage the household. Thus I have seen an old man of from seventy to eighty years, who could no longer hold the reins in his hands, and was carried in a special sledge driven by his nephew. The latter would take him off and put him on the sledge, would tuck him up warmly, etc. In another case I saw the cruel treatment of an old father by his son, a wealthy reindeer-breeder. The father had had a small herd, and the son married a rich girl, who brought in a large herd. The two lived together. Once they were with the herd near the village Itkana, and the old man began to press his suit for the hand of a girl of the Maritime Koryak, who consented to marry him. The son objected to his father's marrying a Maritime woman; and when the father would not listen to his son, the latter separated from him.

In passing, I should like to mention here that marriages between the Maritime and Reindeer Koryak are very rare.¹ This is a consequence of the different forms of housekeeping carried on by the two groups of the Koryak. A daughter-in-law from a Maritime village will be a poor housekeeper in a Reindeer camp, and a son-in-law from the coast will be a poor herdsman. However, the pastoral life of the reindeer-breeders has not led to any changes concerning the customs relating to the bridegroom's service, marriage, levirate, etc.; but the new form of household economy has developed the principle of personal property more sharply, and has made woman more subject to man.

¹ Excepting the Reindeer Koryak who constitute one group with the inhabitants of the villages about Bering Sea (see p. 434).
This latter circumstance is explained by the influence of the severe life which the herdsman leads. While the Maritime Koryak does almost nothing during the winter, living as he does in a comparatively warm house, the Reindeer Koryak must undergo all the hardships of winter while tending the herd.

But to return to the old man of whom I spoke before. Having entered into relationship with the Maritime Koryak, he remained near the coast, wandering about near their village. One year happened to be a poor one; no sea-animals were caught, the Maritime Koryak were starving during the winter, and the Reindeer Koryak killed his reindeer for food for the coast people. When all his reindeer were gone, he left his wife and returned to the Reindeer Koryak; but his son would not have him, advising him to go and live with the Maritime Koryak. The old man was finally taken in by a very poor kinsman, where I saw him in a pitiful condition. He was assisting the women in drying fish in the sun, and was dressed in tatters.

The Killing of Old People. — The custom of having the nearest of kin kill an old person at the latter's desire, which is still extant among the Chukchee, 1 is no longer met with among the Koryak; but in some localities the memory of this custom has been preserved. In the district-commander's report for 1886 2 to the Governor of the Maritime Province, mention is still made of such murders, though it does not clearly appear whether Chukchee or Koryak are referred to. For details of this custom I refer to Bogoras. 3 Generally speaking, however, the motives of the old people in desiring to be killed were decline of strength, disease, or simply dissatisfaction with life. The executors of the old people's desire were their sons or other nearest of kin. The killing was done either by strangling with a thong or by stabbing the heart with a spear.

Terms of Relationship. — From the list of terms of relationship given below, it appears that the system corresponds to the regulation of marriages, described before.

Consanguinity.

<table>
<thead>
<tr>
<th>Term</th>
<th>Relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ači'čě (Paren), a'pa (Kamenskoye), apa'pel (Reindeer Koryak)</td>
<td>Grandfather and great-uncle, paternal and maternal.</td>
</tr>
<tr>
<td>Yi'ly-či'čě, yi'ly-apa &quot;linked grandfather&quot;</td>
<td>Great-grandfather.</td>
</tr>
<tr>
<td>A'ma, a'n'a</td>
<td>Grandmother and great-aunt, paternal and maternal.</td>
</tr>
<tr>
<td>Yi'ly-a'n'a &quot;linked grandmother&quot;</td>
<td>Great-grandmother.</td>
</tr>
<tr>
<td>Enni'w (Chukchee, Endi'w)</td>
<td>Uncle, paternal and maternal.</td>
</tr>
<tr>
<td>nčeri'</td>
<td>Aunt, paternal and maternal.</td>
</tr>
<tr>
<td>A'pa (Paren), ta'ta (Kamenskoye), E'nptě (Reindeer Koryak) 3</td>
<td>Father.</td>
</tr>
</tbody>
</table>

1 See Bogoras, Brief Report, p. 38.  
2 Gishiga Archive Records, File No. 404, 1886.  
3 E'nptě is used also at Kamenskoye. Literally it means "eldest." E'nptě (plural) denotes "fathers" and "old men."
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The nomenclature of the Koryak relationship is nearer to our own system, called by Morgan the descriptive, than to the classificatory one. Father and uncle, mother and aunt, son and nephew, daughter and niece, brother or sister and cousins, have different names. Only the brothers and sisters of grandparents are termed "grandparents."

It is also of interest that the Koryak terms for grandson, grand-daughter, great-grandfather, and great-grandmother, are formed by a combination of the word "linked" with primary terms for son, daughter, etc., just as ours.

The distinct denomination of the elder brother and sister shows their position in the family.

The name mata'la'n, which embraces a whole group of relatives by affinity (with the prefix ha'u for females), must be regarded as a classifying term. The word mata'la'n is derived from the verb mata'ik'in, meaning "to take" and also "to marry," and therefore designates a certain group of relatives by marriage.

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1 Qaikmîtn signifis "boy."

2 Illa', the name of Big-Raven's nephew, is evidently illawa' abridged.
XIII. — SOCIAL LIFE.

Ancient Forms of Social Life. — Social units, in the sense of organized tribal or gentile groups, do not exist among the Koryak. The agnatic family is the social unit. We do, however, find certain facts which seem to indicate the incipient formation of social groups exceeding the limits of a large patriarchal family. One such element, as I have stated before, is the relationship through marriage. Families which enter into such relationships thereby assume certain reciprocal material and moral obligations.

In those customs of the Koryak which refer to social relations, two antithetical tendencies are clearly discernible. One of these tendencies, which we might call anti-social, furthers the isolation of family groups of blood-relatives. The other tendency, on the contrary, develops the germs of a broader social organization. This antagonism in the social life of the Koryak was more marked before the advent of the Russians. Natural evolution would undoubtedly have led to an increasing predominance of the social element. Under the influence of the Russians, however, the social structure of the Koryak has degenerated. All antagonism having become obliterated, their present social life is colorless, and an independent development of social forms can no longer be expected.

I shall attempt to reconstruct the ancient social life of the Koryak from traditions as well as from still discernible survivals of the past. Constant wars, not only with other peoples, but between the separate groups of the Koryak themselves, and the ravages of blood-revenge between the families, rendered life insecure. Every stranger was regarded as a possible enemy. If an unknown man appeared in the settlement or the camp, he was at once asked where he came from, his weapons were inspected, and he was forced into a contest in order that his strength and agility might be ascertained. Then only was he admitted to the house. I was told of an ancient Koryak brave who, before attacking a man, would appear before him in disguise, in a miserable condition, his clothes in rags, and carrying a poor bow. In the ensuing contest he would defend himself but feebly, trying meanwhile to find out the strength of his adversary. During the contests at feasts, the warriors of the various settlements would carefully note each other’s strength and methods, in order to profit by the knowledge thus obtained when real feuds would arise.

The attitude towards an outsider as an enemy or ill-wisher found expression not only in the fear of physical injury, but also in the fear of the evil
influence of his ill-wishing eye, wicked tongue or word. To prevent such magical influences, the stranger was not admitted to the family hearth, or the inmates would guard themselves against him by invoking the aid of protectors. These were either special idols or any other objects of the household.1

The hearth, as the chief protector of the family, was tabooed to the outsider. Equally inaccessible to all but relatives were the family drum and the sacred fire-drill. A kettle from a strange house could not be placed on the fire of the hearth, nor could the kettle be taken out of the house to another's fire. The drum and the fires of the hearth were never taken to a strange house, and only members of the family were allowed to touch the fire-drill. At present, as we shall see later, all these taboos have lost much of their force, but when strictly observed they must have exercised a hampering influence on the development of social life.

These anti-social customs have to be attributed partly to the sense of insecurity, and partly to religious beliefs; but I am also able to indicate certain incipient tendencies towards a higher social status than the one represented by the family organization.

In the first place, the tradition of Big-Raven as a common ancestor generates the idea of ethnic unity. True, this idea exists but dimly in the consciousness of the Koryak. The partitive terms "the Reindeer Man," "the Maritime Man," the inhabitant of this or that settlement or camp, are more congenial to his mind than the collective term "Koryak,"2 as a member of a unified people; but when I invited comparisons between the Koryak and the Tungus or the Yakut, the former drew the conclusion that the Koryak were of one blood, while the Tungus and the Yakut were foreigners. On the other hand, the Maritime Koryak considers himself more closely related to the Maritime Koryak than to the Reindeer Koryak, and vice versa. This separation of the two groups of Koryak is fostered by the different forms of the household.

In ancient times the settlements of the Maritime Koryak were not mere territorial groups, but associations of households, the inmates of which were united by ties of common rights and obligations. New settlements were habitually founded by men who had left the original villages,—men of independent character who had gained equal prominence as good warriors and as clever hunters. Around these leaders groups of men of ordinary abilities would settle, mostly relatives by blood or marriage, but occasionally also strangers seeking the protection of the founder of the settlement. Thus the settlement had no tendency to develop into a gens whose members traced their descent to a common ancestor, but presented a union of related or friendly families with an elder at the head. Neither in traditions nor in other

1 See Part I, p. 32.
2 See p. 407.
tales do we find any trace of the representative principle before the advent of the Russians. The principle of seniority dominated in the settlement as well as in the family. By seniority we must not understand greater age alone, but also greater physical strength. Aged weaklings were not considered. As long as no stronger man appeared, the founder of the settlement was the elder. The sacred post\textsuperscript{1} erected by him was regarded as the guardian of the entire settlement. The strong man always had several wives and many children, and after his death his family continued to dominate in the settlement. In the reports of the Cossacks who fought the Koryak, mention is made of the elders of settlements. There the Yakut name Toyon is given them, which name in Yakut also means the representative of a clan or gens. The Koryak called them E’yem, which means “the strong one.” What the power of these leaders was cannot be gathered from these reports; but they relate that the settlements would at times combine into defensive and offensive unions, as was the case during the uprisings of the Koryak against the Russian conquerors. What part was played in the formation of these unions by the E’yems, what part by the mass of the Koryak, we do not know. During battles the extreme authority was vested in the “strong men” and the good warriors, but leadership in war was not always accorded to the elder in times of peace.

The family shamans and the professional shamans, who regulated the family cult and the general religious life of the people, enjoyed a position of a certain prominence in social affairs. Often the “elders” and “braves” themselves possessed shamanistic powers, or they kept shaman helpers, whose magic assisted them in their combats with enemies.

The fortification of a settlement\textsuperscript{2} was the concern of all its inhabitants. I have spoken before of the guardians of settlements and of the communal character of the whale festival.\textsuperscript{3} It is very probable that in ancient times special houses were set apart in the villages for gatherings and feasts. In describing the whale festival\textsuperscript{4} I pointed out that the celebrations took place in the largest house of the village, that the fire of the hearth was kept alive by wood supplied by each and every one of the participating families, the beds and sleeping-tents having previously been carried out of doors. Thus the dwelling was temporarily transformed into a public house, the family hearth became a communal hearth, and all the inhabitants of the settlement cooked their meals at its fire. I saw another public house at the fair in the Palpal. This house was a large skin tent built by all the Reindeer Koryak who had come to the fair.\textsuperscript{5} In one myth\textsuperscript{6} we are told that in the centre of the kalau settlement a large house was situated, where the kalau were gathered for a council.

We find another manifestation of social tendencies in the still surviving

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\textsuperscript{1} See Part I, Fig. 4, p. 37.  
\textsuperscript{2} See Part I, p. 563.  
\textsuperscript{3} See Part I, p. 67.  
\textsuperscript{4} Ibid., p. 71.  
\textsuperscript{5} See p. 451; also Plate xix, Fig. 2.  
\textsuperscript{6} See Part I, p. 344, No. 114.
custom of making friends and fraternizing with members of an unrelated family. No formal rites accompany the formation of such friendships; at least, not at the present time; on the suggestion of the visitor or of the host, the two simply decide to be friends. It is customary among the Koryak to give some present to a man who enters the house for the first time. This is evidently the first step towards gaining the friendship or good-will of the stranger. In ancient times such friendships imposed on the members of a fraternity the duty of mutual protection against enemies; at present, however, their obligations are limited to mutual material support. In principle, this support must be regarded as an exchange on credit. It appears as if friends did not count favors, yet one or the other of them was always considered in debt. Friendships are concluded among the Maritime as well as among the Reindeer Koryak; but the friendships of the Reindeer Koryak on the one hand, and of the Maritime Koryak on the other, are of greater significance. Without a fixed system of exchange, these two sections of the people could not exist. The Reindeer Koryak needs seal-skin thongs and entire skins of sea-animals; he also wants seal-blubber, and enjoys an occasional meal of sea-animals and fishes. The Maritime Koryak, on the other hand, needs reindeer-meat for food, and particularly reindeer-skin for clothing. With the first snowfall, in October or November, communication between the two groups is established. Parties of Reindeer Koryak at once start out for the settlements of their friends on the coast, who, in their turn, visit the Reindeer Koryak during the winter months. Generally the host asks his newly arrived friend what he needs, and informs him of the extent of his own possessions and the amount laid aside for barter. The host, on such occasions, frequently understates the amount in store. The visitor will often ask for any object in the house or storeroom of his friend which happens to strike his fancy, and he seldom meets with refusal.

The Koryak, in general, are afraid to disregard the wishes of any man, for refusal might arouse his anger or displeasure; and the ill-will of a man, whether shaman or not, may result in misfortune. The visitor, on his part, tries to be moderate in his demands; for if the host fulfills them reluctantly, and conceives an ill-feeling against his visitor, the object received will not bring any luck. However, in spite of all this, inequitable exchanges of services between friends do occasionally result in displeasure or misunderstanding.

Friendships are also formed between women, who then call each other ña’ul. In exchanging goods, the Maritime Koryak women provide chiefly embroidered and other ornamented parts for clothes, bags of seal-skin, grass baskets, and decorated boots; while the Reindeer Koryak women contribute sinew-thread, reindeer-skins, and clothes.

The Koryak extend their friendship also to the Russians, whose presents
generally consist of tea, tobacco, baked bread, biscuits, flour, and other imported articles.

A Koryak, on his arrival in a settlement or camp, makes his headquarters in the house or tent of a friend, and while there partakes of the meals as a member of the family. The lads feed his dogs or guard his reindeer. Among the Maritime Koryak a place is reserved for his bed on the platform in the front part of the subterranean house, while among the Reindeer Koryak he passes the night in the host's own sleeping-tent or in a separate sleeping-tent. In ancient times the "friends" were met with fire from the hearth, obviously in demonstration of the amicable feelings of the hearth as the family protector, and of the host. At the present time, these friends, as all other visitors, are met with the greeting "Eh, ye'ti!" which means simply "Ah, thou hast come!" to which the visitor answers, "Ye'ti."

Clearly, the fraternities as a social institution have a utilitarian basis; but we also find certain manifestations of a social feeling of altruistic character. Thus the announcement of the death of a member of the family, made by the relatives to all the inhabitants of the settlement or of the surrounding camps, is obviously intended as a warning of the danger from evil spirits, which caused the death. The neighbors thus informed at once take protective measures.1

As a rule, material support is offered by the more prosperous only to relatives. In times of famine, however, the provisions are divided indiscriminately among all the inhabitants of the settlement who are in need.

If we disregard for a moment the influence of the Russians on the social life of the Koryak, it can, I think, be asserted that the independent development of social forms among the Maritime Koryak could hardly have reached the stage at which the nobility and the common people would appear as two sharply defined hereditary classes. The brave warrior and the clever hunter, who, as a rule, ranked above the masses as protectors and providers of the group, lost their influential positions during famines in years when hunting and fishing had been unsuccessful. Not so with the Reindeer Koryak.

The concentration of fortunes in the form of large herds in the hands of single individuals, and the perpetuation of these fortunes through inheritance, might have furthered social differentiation, and led to the formation of aristocratic families. In ancient times the possessor of a large herd had to be not merely a good shepherd, but a warrior well able to protect his herds against the attacks of enemies. Around him as a natural protector would cluster, first of all, groups of relatives, but also neighbors (na'mtumgn, "neighbor in camp") possessing but small herds or no herds at all. These people would become herdsmen subordinate in position, while it devolved on

1 See Part I, p. 104.
the master to provide them with food and with skins for clothes. Able herdsmen would receive reindeer as presents from the master. In the further progress of these relations, the rich possessors of herds might have consolidated into an hereditary ruling class. This was prevented solely by the low character of the reindeer-culture. Frequent reindeer-pests, against which these primitive reindeer-breeders were and still are powerless, suddenly transformed rich herdsmen into beggars.

The life of the masters was in no way different from the life of the poor herdsmen. The latter were not considered a lower class. Good herdsmen could expect not only to marry the master's daughter, as they do up to the present time, but to receive from the master a part of his herd. In one myth we are told that Big-Raven handed over to his son-in-law the larger half of his herd, the latter having proved himself a good herdsmen. In another tale Big-Raven presents a part of his herd to the herdsmen simply on account of his being a faithful worker.

The Koryak say that in ancient times the rich and the strong men held slaves. These remained at home, and were employed for different kinds of housework, and under the supervision of the women. It is difficult to ascertain in how far they were the property of the conquerors, and whether they could be bought and sold. In my opinion, slavery as a regulated institution could hardly have existed to any great extent; for, as intimated above, the Koryak had little faith in their captives, and generally put them to death, fearing their vengeance.

In this connection, a myth in which it is related that parents gave to their married daughter one woman for cooking and one for sewing, is of interest. These women, of course, could not have been hired servants in the modern sense, but must have been slaves with whom the masters could do as they pleased.

Present Forms of Social Life. — I have already referred to the deteriorating influence which contact with the Russians has had on the development of the social relations of the Koryak. Relative security, with the cessation of wars and the waning of superstitions, weakened or eliminated the anti-social tendency towards the isolation of individual families. Such customs as the guarding of the family hearth against contact with objects belonging to other families, are now, under Russian influence, either but partly observed or they have been completely abandoned.

In the settlement Itkana, for instance, the only time when the family fire cannot be taken to another house is while fishing is going on, as this might turn the luck of the fishermen; but it may be carried in other seasons of the year. Kettles and teapots, on the other hand, are carried to other houses and back again at any season.

1 See Part I, p. 269.  
2 Ibid., p. 268.  
3 Ibid., p. 209, No. 52.
In Kuel the only season when fire, as well as the drum, cannot be taken to another house, is the winter, obviously for the reason that the fire and the drum as family protectors are most needed in winter, when the kalau most frequently visit human habitations. The Reindeer Koryak on the T'ylqal have abandoned all taboos referring to the fire and to the drum. The Reindeer Koryak on the Palpal have no interdict against taking the drum to another house; the fire, however, they allow to be carried to the houses of relatives only. On the Taigonos, ordinary fire may be taken to another house, but not the sacred fire obtained by drilling.

The skin boat, in all non-Russianized villages, still forms part of the family cult, and it can belong to but one family. The sacrificial grass and the alder-branches which are hung on the frame of the skin boat when it is put away for the winter, must not be taken to another house. In spring, when the seal-skin cover is again put on the boat-frame, and the skin boat is made ready for the sea, the possessor of the boat burns the sacrificial grass and the branches at his hearth.

Russian influence has, on the other hand, also hampered the development of some social factors, or has given them a new direction. Owing to increased security, the tendency to form unions between settlements, camps, and other groups, for the purpose of protection against enemies, has disappeared.

In the concluding chapter I shall give a short history of the conquest and final subjection of the Koryak by the Russians. Here I will speak of the present social standing of the so-called "elders" (Russian, starosta [староста]). The obligations of the non-Russianized Koryak to the Russian Administration consist in the payment of a tribute called yasak, and in free transportation given by them to Russian officials. Mail also used to be carried without pay, but recently the Government has fixed a fee for its transportation. To enforce the duties imposed on the natives, men responsible for them had to be appointed. For this purpose the Koryak were divided into "clans" (Russian, ro'dy [роды, sing. родь]). These were purely territorial groups, lacking the ties of common origin; and the name "clans" given to them is quite artificial. For instance, some settlement of the Maritime Koryak, or a group of Reindeer Koryak camping within the limits of a certain locality, were called clans. At the present time these clans have ceased to be even territorial groups; for, since the lists of families belonging to this or that group were first compiled, many families have moved to another settlement or migrated to another locality. The officials mistook the loose social structure of the Koryak for a fully developed social organization, like that of other Siberian peoples (the Yakut or Tungus, for instance), whose elders were elected by the members of the clan or occupied hereditary positions. The territorial groups of the

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1 See Part I, p. 41; p. 747. 2 See Part I, p. 78; and Plate VII, Fig. 1, opp. p. 80. 3 See pp. 433—443.
Koryak consisted of families bound together by ties of blood or marriage or by economic relations,—the poor and weak were vassals of the rich and strong,—but these ties were based only in part on consanguinity; and the elders, elected as directed by the Russian Government, were not the natural heads of their communities. The representative principle itself has been accepted very superficially. Among the Maritime Koryak a few old men of the settlement meet, and, if any one points out a man of executive ability, the others give him their support. The results of these elections are communicated to the chief of the district, either directly or through the Cossacks. The district chief reports to the Governor of the Maritime Province residing in Vladivostok, who confirms the elder in his office. The elder generally remains in office for a number of years, and then resigns. Among the Reindeer Koryak these so-called "elections" of elders are still simpler. The elder is always one of the richest men, and is elected according to the instructions of the old men, possessors of herds, who decide the matter at a meeting.

The elder gathers the yasak, and delivers it at the Russian headquarters; he supervises the delivery of dogs by the families in his district, and supervises the people during the passing of Cossacks or the mail, and the visits of the officials, doctor, or minister; and he divides among the inhabitants of the settlement the pay for the transportation of mails. Those Koryak who live away from the main route have no mail to transport, and but seldom furnish free dog or reindeer sledges for the officials.

The elders of the Reindeer Koryak often simplify the fulfilment of the duties above enumerated. Possessing great numbers of reindeer, they furnish their own animals for the transportation of officials, and frequently pay out in their own fur or reindeer-skins the yasak for the entire group. The Taigonos elder, however, exacts the yasak from the members of his group.

During the summer, when communication with the Russians is temporarily suspended, the functions of elders also come to an end, for in no other phase of the family or social life are the elders of any account. Quarrels within the family do not spread beyond its limits, and friction between strangers is checked in one way or another by the parties concerned, without the interference of a recognized authoritative power.

Custom and religious taboos regulate the mutual relations of individuals and families. Frequently the opinions of old men exert a moral pressure on the conduct of the interested parties. All this does not, of course, exclude occasional violence on the part of the stronger man. On the whole, however, the general softening of manners, under the influence of Russian proximity, and possibly to a certain extent the weakening pulse of the primitive vital energy, have of late rendered violence a rare phenomenon.

It must, I think, be admitted that the imposed institution of elders is not devoid of all importance; for, though in a limited degree, it leads to the
practice of the principle of representation, and develops to some extent the authority of representative persons. In Itkana, for instance, the elder, besides paying the yasak of the "clan," makes purchases of flour, powder, and other articles in the official stores, and divides them among the families, whose faith in his impartiality is implicit.

I settled with individual drivers for the transportation of freight or of myself and my associates; but whenever a greater number of sledges was required, I always resorted to the elder of the settlement, who directed me to the men willing to be hired. The details were arranged with the men individually. Once when I had hired skin boats in Penshina Bay, I handed over to the elder the entire pay, consisting of bricks of tea, and he divided them among the owners of the boats and the oarsmen. On one occasion I saw an elder in the Paren settlement take by force the dogs of an old man for the transportation of Cossacks. This quarrelsome old man was dissatisfied with his share of the pay for the transportation of mail allotted to him by the elder, and refused to furnish dogs, as required by the free transportation obligation; whereupon the elder untied by force two dogs of his pack, and harnessed them to one of the sledges. Of course, he could not have done this if the other members of the settlement had not been on his side. On various occasions the elders complained to me of the disobedience of the people. The elder of the Reindeer Koryak of the Taigonos Peninsula, whose personality and riches in reindeer had made him very influential, expressed to me his wish that the Czar might allow lazy herdsmen to be punished. He claimed that young men nowadays were worth nothing. This shows that the elder himself saw the source of his power in the Russian Government, and not in the customs of his people. Russian laws regarding the natives of Siberia, by the way, do authorize the elders to inflict punishment for trivial offences. Of course, the elder did not know this, and, had he known it, could not have acted according to this law, it being opposed to the usages of the Koryak.

In reference to food, Russian influence shows itself in favor of individualistic tendencies as against the tendencies of primitive communism in this matter.

In ancient traditions the ideal hunter is represented as follows. He heaps the results of the chase on the shore, and bids the inhabitants of the settlement divide them among themselves, and he takes for himself only what is left. He sits at a distance and watches how his catch is divided. At the present time this principle is followed to a certain extent in hunting the whale, and even the white whale. When their meat is divided, the entire settlement is invited. In regard to the white whale, however, this custom is not everywhere observed. I think that in reference to the products of hunting and fishing, indications of the principle of work could from the earliest times be

1 See, for instance, Part I, Tale 94, p. 275.  
2 See Part I, p. 66.
found side by side with the communistic principle, but that at the present time the principle of work has become predominant. As I have said before,¹ not all among the Maritime Koryak are owners of skin boats. For the hunting of sea-animals in boats, many men are required, and the owners of boats are eager to accept the services of those who do not own any. The relations of these helpers to the owner of the boat are not those of hirelings and master, but of associates with equal rights. The catch is divided into equal parts. In order to obtain more men for his boat, the owner at times takes for himself less than his just share. The participants in his chase, on their part, contribute their own harpoons, and supply the owner with thongs and skins for repairing the boat. When fish and seals are caught with nets, the owners of the latter form groups of several families at each net, among whom the haul of the net is equitably divided. Some individuals prefer to hunt and fish by themselves. Needed assistance is offered mostly to relatives through blood or marriage. Workmen hired for a certain yearly compensation can be found only in the Russianized settlements. Men serving for their brides occupy the position of free workmen; if, however, they have to support aged parents, a share in the products of hunting and fishing is accorded to them. During the exchanges with tradesmen it becomes evident that the hunter's right or ownership is more sharply defined in reference to products of fur-hunting than in reference to objects of consumption. At home the hunter deals with the skins of the fur-animals he has killed more independently than does the fisherman with the fish he has caught, exchanging them frequently for articles he personally needs.

The position of herdsmen among reindeer-owners is now essentially the same as before;² but, if a herdsmen lives with his family in a separate tent, the number of reindeer he will receive during the year to kill is often agreed upon in advance.

Russian influence has further manifested itself in the tendency of large families to split up into smaller ones. The Koryak assert that in ancient times the houses were more spacious, and that all relatives, to the number of forty or more individuals, lived together in one dwelling. In houses of the Maritime Koryak I have never seen more than fifteen individuals. Among the Reindeer Koryak I found twenty-five individuals in one tent, thirteen of whom, however, were herdsmen and their families. Besides, the sisters and daughters of the master had married into other families, which is of common occurrence, although in ancient times families related by marriage not infrequently lived together. In this case, however, the elder brother, with his family and herds, had also separated from the group, which in ancient times happened very seldom. But nowadays I have frequently met cousins or brothers

¹ See p. 538. ² See p. 766.
living apart. In connection with the separation of brothers, the custom of minority succession has become established. The mother, the aged father, and the unmarried sisters, remain with the younger brother, who also retains the house, all family protectors and amulets, and the boat. The reindeer of the remaining members of the family are under his general supervision.

Vendetta. — Blood-revenge does not seem to occur at present. This is one of the late results of Russian influence, for the archives record cases of blood-vengeance reported by district officials to the Province Administration up to very recent times. The disappearance of this custom, however, must be ascribed solely to the cultural influence of Russian manners, and not to the stringency of the Russian laws.

The Administration is powerless to enforce respect for the Russian laws in the desolate tundras. In distant localities beyond the easy reach of Russian settlers, murders in the name of revenge for blood or insult probably still continue to occur.

With the Koryak, as with all primitive peoples, the practice of taking blood-revenge has arisen as a re-action to lawless violence. Within certain limits this object has been attained; but no sooner did one murder occurred than it would be followed by an entire series of other murders, and the feud between two family groups would not infrequently be kept alive through several generations.

The duty of avenging the murder of a relative fell upon the male members of the consanguineous group. According to the accounts of the Koryak, the immediate avengers were the brothers; then followed cousins, nephews, and the more remote relatives on the father's or mother's side. In case there were no brothers, the father or uncle, unless impeded by age, would take their place. On the whole, however, vengeance for blood was considered by the Koryak to be the duty of all blood-relatives, and not of single individuals. A consanguineous group consisting of one or several families was also jointly responsible for a murder committed by one of its members, and in so far must be regarded as one juridical personality. We know that the old men often attempted to check the spread of blood-revenge. For this purpose, ransom was resorted to. The Reindeer people would give reindeer to the family of the victim; while the ransom of the Maritime people would consist of skins, embroidered clothes, arms, and other articles.

In one of his reports to the Governor in 1885, the chief of the Gishiga district refers to one case of murder committed at a fair on the Palpal. The relatives of the murderer entered into negotiations with the relatives of the victim in regard to a ransom; but when the latter proved too exacting, the former cut short the negotiations, hurriedly broke camp under cover of night, and, accompanied by distant relatives, migrated northward, leaving the family of the victim free to act in accordance with custom. It is further
stated in the report, that on the following day the family of the victim started out in pursuit of the offenders. Here the report of the case ends.

In blood-revenge the Koryak did not insist on the punishment of the culprit himself. Any one or a number of his relatives might fall in his stead, blood for blood being the only principle followed. The interpretation of the usage of revenge is corroborated by the circumstances under which reconciliation is occasionally effected between the family of the culprit and that of the victim. The family of the former cedes to the family of the latter a young man as a son-in-law, or a girl as a daughter-in-law. The essential element in this method of reconciliation is obviously, not the ceding of a member of the family in compensation for the murderer’s victim, but the fact that through these marriages ties of affinity are established between the hostile families, in consequence of which the blood-revenge lapses, for no compensation is required for the murder of a relative. Murder within the family is the shedding of one’s own blood; vengeance here would mean perpetual bloodshed. I was told that in the past, murders of vicious, cruel, or tiresome people remained unpunished. Even when strangers would kill a member of the group whose conduct was anti-social or otherwise objectionable, relatives would not seek compensation for him.

Cases have occurred where relatives of the murderer, in order to escape vengeance, have abandoned him to his fate at the hands of the avenger. On the Taigonos Peninsula I met a Koryak named Xotï’to, whose father had come from the Oklan River. His father’s brother killed, in a quarrel, a rich and influential Koryak; and his father, in order to prevent the victim’s family from taking vengeance, killed the culprit with his own hands. Even after this he did not feel safe, and finally migrated with his family and herds to the Taigonos Peninsula. On the same peninsula I met another fugitive from the Opuka River who had killed his friend, a herdsman. His flight was successful; for the relatives of the victim were poor people, who could not pursue him for a long distance. This murder was not avenged.

The incidents recorded in some of the myths are interesting, in that they show that even in ancient times the old men strove to check the feuds of the younger people. Thus it is told that Big-Raven conceals from his son the fact that their relatives were killed by the neighboring Chukchee, fearing that this revelation might lead to vengeance.1 The son, having learned of the truth, goes to the neighbors at night, and, finding their elder son asleep, decapitates him. On the following day, the Chukchee come to Big-Raven’s house, and say, “You have not taught your son not to kill people. Now come out: we will kill you all.” Hearing this, Big-Raven turns to his elder son, and says, “You did not mind me. Go out alone. Let them kill you first, then perhaps they will spare the others.”

1 See Part I, p. 137, No. 6.
In another myth\(^1\) Big-Raven's elder son, Eme'mqut, bids his younger brother Big-Light to bring back to life a girl of the kamak whom he had killed, that they might live in peace with their neighbors.

A terrible case of blood-revenge is narrated in the district chief's report to the Governor, of Dec. 31, 1882.\(^2\) An Alutor had killed another while sharing the catch of a seal-hunt. With the help of relatives and friends, the culprit succeeded in taking such elaborate precautions for his personal safety, that the attempts of the hostile group to avenge themselves repeatedly failed. At last the relatives of the victim succeeded, under cover of darkness, in creeping up to the house of the murderer. They barricaded the entrance and set fire to the house. The entire family of the culprit and one strange woman perished in the flames. This cruel procedure was not considered excessive by the Koryak. Only the relatives of the strange woman considered vengeance justifiable, and demanded a ransom.

During wars, the victors would put the children of the vanquished to death to prevent vengeance. In one of the myths cited above, Eme'mqut, having annihilated the warriors of the Chukchee, says to his people, "Let us go to their camp and kill their women and children. If we leave them alive, the sons of the killed men will make war upon us when they grow up."\(^3\)

The Koryak are very rancorous, and try to avenge every insult. At the Koryak fair on the Palpal I witnessed a fight which I consider characteristic. On the third day of the fair, reindeer-races and other contests took place. Among the combatants were two young Koryak from the Opuka River, A'inqo and Xata'učnin. The former was the older and weaker, but succeeded by a clever twist in throwing his adversary. Xata'učnin soon found himself on top of A'inqo, but the combat was pronounced undecided. In the evening of the same day, Xata'učnin quietly approached A'inqo and struck him. A fight ensued, in which Xata'učnin soon gained the upper hand. Nobody interfered. Suddenly A'inqo, whose face was all battered, ceased to defend himself, and squatted down on his heels. Xata'učnin kept on striking him on the head, while A'inqo sat helplessly, his head drooping, his face covered with blood. Thus the beaten Koryak expresses his submission and pleads for his life. Xata'učnin raged like a wild beast, and would probably have killed A'inqo but for the interference of the old men. As A'inqo's relatives were expected to arrive at the fair the next day, the old men forced Xata'učnin to leave the same night in order that further fighting might be avoided. Before Xata'učnin's departure I invited him to my tent for a glass of tea, and asked him to explain to me the cause of the fight. It appeared that his enmity toward A'inqo was of old standing. When he (Xata'učnin) was a boy, the elder A'inqo used to beat him. Their fathers, too, had had

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1 See Part I, p. 239.
2 See Case of the Archives of the Gishiga District, 1882, No. 404.
3 See Part I, p. 138.
quarrels. Shortly before the fair, A'inqo took by force two reindeer belonging to Xata'uččin's brother. On their way to the fair, Xata'uččin called at A'inqo's tent, put on his new boots, which were drying outside, and left his old pair in their place. A'inqo said nothing, but Xata'uččin finally decided to settle accounts with him at the fair. The undecided contest of strength with A'inqo, from which Xata'uččin was sure to come off victorious, merely gave a fresh edge to his intentions. Such encounters sometimes end very sadly.

Trade. — I have already spoken of the character which the exchange traffic of the Koryak has assumed at the present time. Here I shall give data on the amount of the export and import trade of this region for the year 1899. These data I obtained from the merchants themselves, who that year were four in number. Three of the firms were situated in Gishiginsk, and the fourth in Baron Korf's Bay. During the winter these firms send their assistants with goods to the settlements and camps of the Koryak, or the assistants arrange purchasing-parties to one of the above localities. Some Russians and Koryak take goods from the merchants on credit, and trade independently in the interior.

The imports for the year 1899, calculated from the selling-prices of the above-mentioned trading-firms, amounted to 47,000 rubles.1

The imports consisted of American, Chinese, Japanese, and Russian goods. The American goods were wheat-flour, biscuits, drilling, and axes, to the amount of 5833 rubles. From China came tea (mostly bricks and some black leaf-tea) amounting to 12,489 rubles. The only Japanese importation was rice, 140 rubles. The remaining sum (29,000 rubles) represents Russian goods.

Among the Russian goods, the first place belongs to tobacco (9710 rubles); the second, to manufactured articles, — calico, fustian, cloth, scarfs, tow-ropes, and thread for nets (6503 rubles); the third to sugar (5258 rubles); the fourth to iron and brass ware (4317 rubles). The remaining sum (about 3500 rubles) covers ornaments, matches, candles, and articles of luxury, such as butter, soap, ready-made clothes, sweets, petroleum, and other articles consumed by the Russians themselves.

To the total amount of the imports must be added the articles sold by the Government store, — flour, rice, weight iron, powder, and lead, — amounting, during the year, to about 10,000 rubles. A certain sum must also be counted for the contraband trade in alcohol, the sale of which is prohibited.

Barter, to a small extent, is carried on by the Koryak with American whalers of Peshina Bay and Bering Sea.

Exports. — In 1899 the following goods were exported to Vladivostok from Gishiginsk and Baron Korf's Bay.

1 A ruble is equivalent to about fifty cents.
JOCHELSON, THE KORYAK.

EXPORTS FROM GISHIGINSK AND BARON KORFF’S BAY.

<table>
<thead>
<tr>
<th>Description</th>
<th>Total Cost</th>
<th>Average Cost</th>
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<tr>
<td></td>
<td>Rubles</td>
<td>Rubles, Kopeks</td>
</tr>
<tr>
<td>1. Sables (85 skins)</td>
<td>1825</td>
<td>21, 47</td>
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<td>2. Red foxes (1743 skins)</td>
<td>8460</td>
<td>4, 86</td>
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<td>1524</td>
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<td>347</td>
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<td>48</td>
<td>12</td>
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<td>7. Fox-paws (1350 pieces)</td>
<td>338</td>
<td>21</td>
</tr>
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<td>8. Squirrels (25,230 skins)</td>
<td>5635</td>
<td>20</td>
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<td>18</td>
<td>3</td>
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<td>10. Black bears (380 skins)</td>
<td>4848</td>
<td>12, 76</td>
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<tr>
<td>11. White bears (4 skins)</td>
<td>200</td>
<td>50</td>
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<tr>
<td>17. Spring fawn-skins (1810)</td>
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<td>19. Summer skins (1350)</td>
<td>930</td>
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<td>20. Winter skins of adult reindeer (650)</td>
<td>456</td>
<td>70</td>
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<td>21. Dressed reindeer-skins (1555)</td>
<td>1555</td>
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</tr>
<tr>
<td>22. Reindeer-feet skins (3000 pieces)</td>
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<td>5</td>
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<tr>
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<td>140</td>
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<tr>
<td>29. Thong-seal thongs (1450 sashen 3)</td>
<td>145</td>
<td>10</td>
</tr>
<tr>
<td>30. Whalebone (82 puds 4)</td>
<td>328</td>
<td>4</td>
</tr>
<tr>
<td>31. Walrus-tusks (25 puds 4)</td>
<td>620</td>
<td>24, 80</td>
</tr>
<tr>
<td>32. Mammoth-bone (25 puds)</td>
<td>500</td>
<td>20</td>
</tr>
</tbody>
</table>

Total exports: 56,831 rubles.

1 A kopek is equivalent to about half a cent.
2 Beavers are not found in northeastern Siberia. Those exported were skins of Castor canadensis, and of American origin. The Chukchee near Bering Strait acquire them from the American Eskimo through barter, and sell them to the Russian traders of the Kolyms, Anadyr, and Gishiga districts.
3 Sashen (sasenn) is equivalent to 7 feet.
4 A pud is equivalent to 40 Russian or 36 English pounds.
Fairs. — I have stated before that during the winter months representatives of firms and petty traders make the round of the settlements and camps of the Koryak, but in two localities veritable fairs are organized. Both take place on the Palpal in localities about one day's journey apart. The more southern one is known as the Koryak Fair; the other, as the Chukchee Fair, on account of the prominent participation in it of the Chukchee from the Palpal. Both fairs are held in March, the Chukchee fair coming first, and the Koryak immediately after. The locality selected is not always the same. It is determined by the Reindeer Koryak from the Palpal, who take into consideration the convenience of the reindeer-owners. The participants in the fair, while on the way, receive intelligence as to the locality decided upon. The same agents and petty traders visit both fairs, which last from three to five days. Among the traders, the ironsmiths from the western shore of Penshina Bay, carrying their iron products, may always be seen. The buyers at the two fairs are different. These fairs are arranged particularly for the benefit of the Palpal Reindeer people, who follow their herds far away from the main routes. Other prominent participants in the fairs are the northeastern Maritime Koryak from the Poqač and the Opuka Rivers, and some Kerek. These fairs are not very crowded. The people assembled number from two hundred to four hundred, and the transactions sum up to a few thousand rubles. The fairs are attended by a Gishiginisk official accompanied by three or four Cossacks, who receive the tribute from the Palpal Koryak, and preserve order. The Cossacks, however, are utterly unable to fulfil this latter duty unless assisted by the Koryak themselves. The Russian Administration prohibits the merchants from opening the fair until the tribute from the Palpal elders has been gathered in.

I witnessed one of these fairs, — the Koryak one. It took place in the valley of the Väinnetat River. The Reindeer Koryak were stationed on an open treeless plain on one bank of the river. They erected one spacious common tent, excepting two Chukchee families, which had tents by themselves. Not far away from the large tent the Russian traders took their stand. The goods were placed on exhibition on sledges and boxes. Two of the Russians had canvas tents in which they slept wrapped in furs. On the opposite bank the Maritime Koryak from Penshina Bay and Bering Sea could be seen. Here numerous fires were burning, at which tea was boiled and reindeer-meat cooked, and around which the Maritime Koryak slept at night in the open. The temperature at night fell to — 35° C. The poplars and aspens scattered over the grounds were used for fuel. Close to the fires stood the dog-sledges of the Maritime Koryak, on which bags with goods and other articles were heaped. The dogs were tied to trees to keep them from attacking the

1 See Part I, map.  2 See Plate xix, Fig. 2, and pp. 451, 763.
reindeer which were roaming near the tents of the Reindeer Koryak on the other bank. Early in the morning the Maritime Koryak would start crossing the river to the Reindeer Koryak and the Russian merchants, and back to their own camp. The skins of foxes and other animals were procured from the bosom, or brought in bundles, and offered to the merchants in exchange for goods. The merchants sold knives and spears. During the first two days the Reindeer Koryak made offerings of reindeer to the owner of the place and to other deities. On the last day, when the camp was deserted, all that was left were heaps of antlers of the killed reindeer, and traces of the numerous fires. Plate xxiv, Fig. 2, represents the train of a Reindeer Koryak after the close of the fair, ready to leave the deserted camp.

Units and Prices. — The average prices which I gave for the export goods in the above list are the prices made by the merchants for the trading-companies in Vladivostok, to which place the goods were sent. The actual cost of these goods to the merchants is determined by the value attached to the articles received in exchange. These values, as will be seen later, vary greatly. When the petty traders sell fur skins to the merchants for cash, the skins are rated at approximately the prices given in the list. Thus, for example, a red fox varies in price between 4 and 5 rubles; a gray fox, between 12 and 13 rubles. Squirrels, the exchange units of the Tungus, are rated at 20 kopeks apiece; a reindeer-skin, at 1 ruble; and a dressed skin of a grown reindeer-calf, at 1 ruble 50 kopeks; and so on. Koryak who come to Gishiginsk in the winter also sell fur skins for cash, to pay the tribute, and to make purchases at the official store. As a rule, however, trade is still carried on by barter; and the valuation of the import articles by the merchants depends on the locality where the exchange is expected to take place. The farther from Gishiginsk it is, the higher become the prices of the articles. A brick of tea, for instance, — which is one of the most common units, and weighs about 1.5 pounds, — represents at Gishiginsk the value of 50 kopeks; but, as one proceeds away from Gishiginsk to the interior, its price gradually increases up to 2 rubles. At Vladivostok, on the other hand, a brick cost, during my stay there, 30 kopeks. Another important exchange unit, a package of tobacco-leaves, weighing 2 pounds or slightly above that, and rated in Gishiginsk at 60 kopeks, also reaches the price of 2 rubles. Besides, the merchants do some cheating. For instance, special orders are placed with Chinese plantations for bricks of smaller weight than the normal, and tobacco-packages are untied and three are made out of two; the stems of the tobacco-leaves are soaked in water, which is absorbed by the tobacco, thus increasing the weight of the package. Iron and brass ware is sold by the pound, and is rated, iron at from 30 kopeks to 1 ruble; brass,

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1 See Part I, p. 96.
at from 50 kopeks to 2 rubles. The result of this system is, that for a brick of tea one can get one reindeer-skin in some localities, and four reindeer-skins in others.

For 5 arshin\(^1\) of calico for a shirt, one can get one or two reindeer-skins. Some Cossack traders, profiting by the love of the Reindeer Koryak for gay colors, manufacture small wooden boxes, paint them with colors, or cover them with red cloth, and exchange them for foxes or other furs. Of course, only Reindeer Koryak of distant localities can be caught by such devices. Koryak women give reindeer-skins, bags of seal-skin, small rugs, and other products, in exchange for glass beads, ear-rings, bracelets, brass buttons, and other ornaments. Sugar is the favorite exchange article. During the winter the Reindeer Koryak store away the tongues of killed reindeer, and in spring deliver them to the merchants in exchange for sugar, one tongue being given for each piece. In general, sugar is the most mobile exchange article next to tea and tobacco.

Many Reindeer Koryak, as well as the trading Maritime Koryak, enjoy credit with the merchants, and settle their accounts semi-annually or annually with furs or reindeer-skins. On the whole, however, trade on credit is much less common with the Koryak than it is with the Tungus or the Yakut.

Notwithstanding the exchange character of their trade, the Koryak, even in the remotest regions, know Russian money. In the places nearest to Russian settlements the Koryak prefer money to exchange articles in trading-transactions, and also as compensation for services rendered, for with money they can make purchases at the Government store.

Curiously enough, the Russian monetary unit, the ruble, has among the Koryak the same name as iron, polou’nto; a paper ruble is called keli’tul polou’nto (that is, “painted iron”); while a silver ruble, as well as silver itself, is called naña-polou’nto (“current iron”).

**Routes.** — I have spoken of the means of transportation in several chapters. As to routes, there are none in those localities where the Reindeer Koryak wander with their herds. The Reindeer Koryak, in their wanderings, follow the currents of rivers or streams. From the valleys of the rivers they ascend to the pasture-land of the elevated treeless tundras, or cross over the mountain-ranges to other valleys.

The Maritime Koryak, in their winter travels with dogs, follow definite routes. From Itkana one route leads to Gishiginsk, another to Paren. From Gishiginsk the route leads over Paren, Kuel. Mikino, and Shestakovo (Egač), to Kamenskoye. Between Shestakovo and Kamenskoye, the route branches off to the north, by way of the Penshinsk settlement, to Markova on the Anadyr; and from Kamenskoye one route leads to Palpal, another to Talovka. From

\(^1\) An arshin is equivalent to 0.778 of an English yard.
Talovka one route leads by way of Rekinnok to Kamchatka, another by way of Vetvey to Qayilin. From Qayilin one route leads to the Opuka River, and another by way of Vivntk to Kamchatka. Along the most of these courses lies the official route over which the mail is transported. From Gishiga the mails are sent to three places and back again, — to Yakutsk by way of Okhotsk, to Petropavlovsk by way of Kamenskoye, and to Markova on the Anadyr by way of Shestakovo and the Russian settlement Penshinsk. Three mails are sent during the year from Gishiginsk to each of these three points, and as many return mails are received in Gishiginsk. The mails are sent in November, January, and April respectively. They are despatched on two or three sledges, one of which is occupied by the Cossack letter-carrier. As a rule, the mail is carried by dog-sledge; but over the Parapol Dol to North Kamchatka it is often carried by the reindeer of the local Koryak. In each settlement, Russian or Koryak, lying on the route, the dog-teams are changed. Some time ago the inhabitants of villages had to transport the mails free of charge; but of late the Government has fixed a fee of three kopeks per verst\(^1\) for each sledge. The elder of each village gathers the dogs contributed by the villagers, receives the official fees and distributes them among the inhabitants. The elders come for their pay to Gishiginsk, or receive it from the district chief or his assistant when one of them makes the round of the district. The distance from Gishiginsk to Yakutsk is equal to 2975 verst; from Gishiginsk to Petropavlovsk, 2061 verst; and from Gishiginsk to Markova on the Anadyr, 700 verst.

In summer, communication between Gishiginsk and the interior ceases almost completely. Neighboring settlements or camps are reached by walking. The Maritime Koryak use skin boats, in addition. Until the year 1900, there arrived at the mouth of the Gishiga River during the summer one Government steamer from Vladivostok, not counting two trading-steamers. The Government hired a steamer of the voluntary fleet. In 1900 the Government entered into an agreement with the steamship company of the East Chinese Railway, calling for four cruisers to northern waters up to the mouth of the Anadyr. All the steamers had to stop at the mouth of the Gishiga River; and the steamer of the second cruise, at Baron Korff's Bay in addition. During the period 1900–02 these cruises were made regularly; but with the opening of the Japanese war, they were stopped entirely, and I do not know in what form they were renewed after the conclusion of peace.

There is no direct winter route from Okhotsk south to the Amur River and to Vladivostok. This almost precludes all winter communication between Gishiginsk, Markova, and Petropavlovsk, with Vladivostok, the last-named place being the seat of the Governor, to whom the Gishiga, Anadyr, and Kamchatka districts are subject. The only practical winter route between these places

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\(^1\) A verst is equivalent to 0.663 of an English mile.
and Vladivostok is by way of Irkutsk, Yakutsk, and Okhotsk. Thus a message from the Governor to the chief of the district of Petropavlovsk, for instance, if sent in autumn, can reach its destination only in spring.

RACING AND GAMES. — Reindeer and dog racing, as well as walking-contests, are popular pastimes with the Koryak. As I have mentioned above, reindeer-racing among the Reindeer Koryak assumes a religious character, which walking and dog-racing do not possess. Reindeer-races, with or without prizes, take place very frequently; dog-racing, on the contrary, is of rare occurrence; while walking-contests are equally popular with the Reindeer and the Maritime Koryak.

On Plate xxxviii, Fig. 1, is represented a walking-contest of the Reindeer Koryak which took place on the Topolovka River towards the close of the winter. At the start the contestants formed a transverse line; but, as the stronger members gradually gained headway, the line became longitudinal. Thus they walked for a distance of about two miles to a marked goal, and back again to the starting-point, where the first to arrive tore down a package of tobacco from a pole erected in the snow. The participants in the race not only pay attention to the rapidity of their motion, but also attempt to take long steps, jumping occasionally, and throwing their feet up out of the soft snow.

I also witnessed the following games played, some by adults, others by children.

The raven-game (we'le-či'tukin), is represented on Plate xxxviii, Fig. 2, where the mother-raven, and the young ravens standing behind her, may be seen. The raven that stands facing the mother-raven tries to catch the young ones and eat them, while the mother exerts herself to the utmost to prevent it from doing so. In spite of her efforts, it catches them one by one and drags them to its side. In this game, men and women alike take part promiscuously. In some games men and women separate into two mutually antagonistic groups. Such is the case in the game of "playing house," or koyayačelañin (see Plate xl, Fig. 2). The men join hands and form an inner circle, which stands for the house; while the women surrounding it on all sides try to destroy the house by pulling apart the hands of the men. An animated fight ensues, during which the women, kicked by the men, fly off in all directions, and many fall to the ground, but presently pick themselves up and return to their task with renewed vigor. If the women are more numerous than the men, they always succeed in destroying the house.

A variation of the "raven-game" is the game wta'yočañn ("a sack] filled with moss"). The participants sit down on the ground in such a way that each one finds himself between the legs of the one behind him. The first in this row represents the mother, the rest are the children. Then Ka'la (the cannibal) approaches, saying, "Give me a child or I will eat you." —
FIG. 1. FOOT-RACE.

FIG. 2. RAVEN-GAME.

The Koryak.
CHILDREN PLAYING WITH SLEDGES.

The Koryak.
Fig. 1. Dance of the Reindeer Koryak.

Fig. 2. Game of Playing House.

The Koryak.
These are not children," she answers, "but sacks filled with moss." — "Let it be moss," replies Ka'la, and grabs the hindmost child. He does the same with all the other children; but when he gets to the mother, she kills him and takes back all her children. The designation of children as "sacks filled with moss" recalls an episode of the Koryak-Eskimo tales, where the people save themselves from a cannibal through flight, leaving in their stead clothes stuffed with moss.

In the "marmot game" the participants join hands and form a circle; while two individuals represent a dog pursuing a marmot, which keeps on leaving and entering the circle.

A very common game, or rather physical exercise, is that of running around a circle. In the villages of the Maritime as well as in the camps of the Reindeer Koryak, when the day's work is done, and before supper is served, youths may be seen running around in a circle, while the old people sit on the snow not far away from the players. From the running, a firm circle is trodden down in the snow. The evening games are discontinued with the approach of spring, when frosts no longer occur.

Besides racing, various kinds of contests are arranged. Before a fight the young men strip themselves to the belt and rub their bodies with snow. Various forms of combats are represented in the carvings in Figs. 166 and 167 (pp. 650, 651). Among the Reindeer Koryak a common form of contest is jumping over a reindeer. Ball-playing is as popular with the Koryak as it is with the Chukchee. In olden times the Koryak, like the Eskimo, used to have a ball-game with strangers before entertaining them. Small children play with dolls, represented in Figs. 186 and 187 (pp. 669, 670); also with animals carved of wood or bone, and toy vessels, drums, and tents. The older children play dog and reindeer driving. Some put on the harness, others sit on the sledge (Plate xxxix). Children have races and contests similar to those of adults.

A favorite game of boys of the Reindeer Koryak is the following. A long thong is fastened to an inclined pole sticking out of the snow. To the lower end of the thong a piece of wood or a bone is attached. The thong is swung to and fro, and the players try to lasso the stone. Thus the boys acquire practice in the skilful handling of the lasso, presently to be used in catching running reindeer (see Plate xxi, Fig. 2). Of similar character are the target-shooting contests of the boys, in which toy boys are used. An old mitten suspended on a stick in the snow serves as a target.

Among other toys, the spinning-top must be mentioned. There is also a kind of cup-and-ball game called oxxa'ttn, in which a hollow piece of wood is thrown up and caught on a peg provided with a cross-piece. The Chukchee have a somewhat similar game called o'kkal.

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1 See Part I, pp. 181, 212, 331, 364, 365.
3 Ibid., p. 272.
The dramatic dances of children and adults, consisting in the imitation of the movements and sounds of animals, are the same with the Koryak as with the Chukchee. Plate xl., Fig. 1, illustrates a dance of the Reindeer Koryak which I saw on the Taigonos Peninsula. Men standing in a row face a row of women, and men and women produce in turn guttural rattling sounds in imitation of seals, trample on one spot, bend and unbend their knees, and move their shoulders.

XIV. — HISTORY OF THE CONTACT OF THE KORYAK WITH
RUSSIANS, AMERICANS, AND NEIGHBORING PEOPLES.¹

First Encounters of the Koryak with the Russians. — In 1632 the
Russian conquerors of Siberia settled on the Lena River, and built a fortified
town, Yakutsk, which they used as a central base for further expeditions.
In the course of these expeditions they reached Okhotsk and Bering Seas
on the east, the Arctic Ocean on the north, and the Amur River on the south.

In their progress eastward the Russians met the Koryak. Rumors of
the abundance of furs in the district of Okhotsk began to reach Yakutsk in
1636, and in 1639 a party in command of the Cossack Moskvitin ascended
the river Aldan, its tributary the Maya, and the Yudoma, an affluent of the
latter, and, after crossing the Stanovoi Mountains, reached the upper course
of the Ulya River. Following the course of this river, they reached the
Sea of Okhotsk. The next year a number of these Russians advanced along
the coast to Tauysk, which lies about four hundred miles northeast of the
mouth of the Ulya River. Here they first met the Koryak; but the conquest
of this region did not immediately follow. On the southern shores of the
Sea of Okhotsk the Russians had to break the violent opposition of the
Tungus. A fortified settlement built by the Russians in 1644 at the mouth
of the Okhota River — a settlement which has now become the district
town Okhotsk — was repeatedly attacked by the Tungus. At other places
the Tungus annihilated parties of Russians.

The land-route from Okhotsk to the mouth of the Gishiga River led
over Tauysk, Yamsk, Tovatama, and other villages of the Koryak territory.
On this route, which ran along a narrow strip of coast between the Stanovoi
Mountains and the Sea of Okhotsk, the Russians met violent and prolonged
resistance on the part of the Maritime Koryak of the Sea of Okhotsk. At
times the Russians succeeded in breaking up a village or settlement, and
forced the Koryak to pay tribute; but until the year 1712 the Koryak between
Tauysk and the Penshina River absolutely refused to recognize Russian

¹ The historical sketch contained in this chapter is based on data collected by the author in the Archives of
Gishiginsk, and, besides the sources enumerated in the list of authorities (pp. 3–11), — like Knaheinikoff, Slov-
troff, Maydell, Slutin, and others, — on the following works: T. E. Fischers, Sibirische Geschichte (St. Petersburg,
1768), Parts I, 2; SEMEYKIN, Newest Interesting and Authentic Narrative of East Siberia (Russian), St. Petersburg,
1817; P'YGIN, History of Russian Ethnography (Russian), St. Petersburg, 1892, Vol. IV, Siberia; ANDRIEVICH, The His-
tory of Siberia (St. Petersburg, 1889), Parts I, II (Russian); ANDRIEVICH, Historical Sketches of Siberia, based on the
Russian Code (St. Petersburg, 1887); P'ERLOVSKY, Bibliography of Siberia (Russian); STCHEGLOFF, Chronological List of
the Most Important Data of the History of Siberia, Irkutsk, 1883 (Russian); SOLOVEFF, Russian History, St. Peters-
burg, Vols. I—XXI (Russian). The characterization and interpretation of the historical facts belong to the author.
sovereignty. In the course of that year a party led by the Cossack Gutoroff, after an unsuccessful attempt to reach Kamchatka by sea\(^1\) from Okhotsk, advanced along the coast to the mouth of the Iglylan River.\(^2\) Here, according to Cossack accounts, they found the Koryak from several villages gathered; and in a hot fight which ensued,\(^3\) seventy adult Koryak and two hundred youths and children were killed. Gutoroff could not advance farther north on account of the refusal of the Tungus to accompany them any farther. It appears from the Government records, that between 1730 and 1750 — that is, after the expedition of Pavlutsky, which will be described later on — the entire Okhotsk coast was still in the hands of the Koryak, and Okhotsk could communicate with Anadyr only by way of Kamchatka. Not until 1757, when a fortified settlement was built at the mouth of the Gishiga River, and after the fortress Anadyrsk was abandoned by the Russians in 1764, can it be said that Koryak resistance ceased, and some groups of Koryak began to pay tribute (yasak) of their own accord.

Most of the fighting with the Koryak was directed by the commanders of the fortress Anadyrsk, and not by the Administration of Okhotsk.

In their northeastern advance from Yakutsk, the Russians reached the mouth of the Kolyma River, where, in 1644, the Cossack Stadukhin founded the settlement Nishne-Kolymsk. From that spot the Russians proceeded farther east; and in 1649 the fortress Anadyrsk, on the river of the same name, was founded by the Cossack Desheff, who had travelled in boats from the mouth of the Kolyma through Bering Strait to the mouth of the Anadyr.

The fortress Anadyrsk played a prominent part in the Russian conquest of the extreme northeast of Siberia; for, from Anadyr as a base, military expeditions were undertaken which led to the conquest of the Koryak, and later to that of the Kamchadal.

On the Anadyr River the Russians had to deal with the Chukchee, whose subjection cost the conquerors a hard struggle. The location of the movable Chukchee camps was seldom known to the Russians. In their search for these camps in the open tundra, the comparatively insignificant Russian parties always ran the risk of being surrounded by a numerous enemy, and the journeys of the expeditions through the desert polar tundras presented all but insurmountable difficulties. Besides, a detached band of Chukchee would prefer to die and kill their wives and children rather than consent to pay tribute or deliver hostages, whom the Russian conquerors always demanded from Siberian peoples as a guaranty of their submission. At last, after a

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\(^1\) For this purpose the Cossacks made a raft of boats, but high winds prevented them from reaching the open sea.

\(^2\) This must be a river north of Yamsk.

\(^3\) In the Russian chronicles the expression is "fiery and bow fight," which indicates that guns and bows were used, in distinction from a "bow fight," where bows and arrows are the only weapons.
fruitless and expensive campaign, which lasted over a century, the Russian Government gave up the idea of subjecting the Chukchee by force of arms. In 1764 the fortress Anadyrsk was destroyed, and the garrison was transferred to Gishiga and to the Kolyma.

The cause of these Russian failures lay, not so much in the warlike spirit, the love of freedom, and the fearlessness of the Chukchee, as in the fact that the Russians had come in contact almost exclusively with Reindeer Chukchee; that is, not with hunters, but with reindeer-breeders, whose territory was very poor in valuable furs, and who could not satisfy the greed of the conquerors for expensive furs, even had they been willing to do so. These conditions account for the shifting of the Russians from the Anadyr River southward into regions abounding in sable.

In their advance southward, the Russians had their first dealings with the Koryak, whose fate for a long period depended upon the strength of the fortress Anadyrsk.

Since 1649, when the fortress Anadyrsk was founded, Cossack parties starting out from that fortified place attempted to impose tribute on the greater part of the Gishiga Koryak, — the villages Oklansk, Kamenskoye, Talovka, and Ma'meč, — and also on some Alutor villages. Naturally, the tribute of these Koryak could not be relied upon. It was paid when the Russians were strong enough to collect it by force.

The Cossacks learned from the Alutor and Gishiga Koryak that the best pelties, such as sables, sea-otters (*Enhydris marina*), and sea-bears (*Otaria ursina*), were obtained by the Koryak themselves through exchange from Kamchatka. This discovery led to an expedition to Kamchatka, and to the conquest of the Kamchadal and the Koryak in the northern part of the Kamchatka Peninsula.

In 1696, Atlassov, the commandant of the fortress Anadyrsk, sent a detachment of sixteen men, under the command of the Cossack Morozko, to the Peninsula of Kamchatka, to verify the reports of its wealth in peltries. The following year Atlassov undertook the journey himself. He sent Morozko with a detachment to Bering Sea, while he himself advanced along the coast of the Bay of Penshina, gathering tribute from the inhabitants of Oklansk, Kamenskoye, and Talovka, and seized the settlement Pallan and some others. In Tighil he met Morozko, who had gathered tribute from the Alutor Koryak and from others living on the coast of Bering Sea. Then they advanced together, reached the Kamchatka River, received tribute from the Kamchadal who were living along that river, and founded the Verkhne-Kamchatsk fortress. Thus the conquest of Kamchatka was begun.

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1 Even now the Maritime Chukchee come little into contact with Russians.

2 The Koryak village Oklansk was destroyed by Cossacks in 1673, and a fort was built in its place. Oklansk was situated at the mouth of the river Oklan, a tributary of the Penshina, about 20 miles from its mouth.
In the following historical account I shall mention Kamchatka and the Kamchadal only in so far as necessary for the proper understanding of events relating to the Koryak. The uprisings of the Kamchadal and of the Koryak, and their subjection by the Russians, are too closely connected to be completely separated in an historical sketch.

When the Russians had settled in Kamchatka, the peninsula and the entire Koryak territory became dependent upon the fortress Anadyrsk. The sea-route from Okhotsk to Kamchatka was at that time unknown, and the land-journey through the territory of the turbulent Koryak was considered impossible. In those days Kamchatka was the most valuable acquisition of the Russian Government in the Far East, and yet communication of the Yakutsk Administration with Kamchatka had to be maintained over a long and dangerous route. The way from Kamchatka to Yakutsk lay through the entire Koryak country, to the Anadyr and Kolyma Rivers, and over the Verkhoyansk range of mountains. A great number of the Cossack parties who started out from Kamchatka with tribute of furs never reached the fortress Anadyrsk. The Koryak killed the Cossacks from ambushes, and kept the furs. Transports that had safely reached Anadyrsk would arrive in Yakutsk three years after they had left Kamchatka. Cossack detachments carrying provisions, gunpowder, arms, and cannons, from Yakutsk to Kamchatka, were also harassed by Koryak attacks. To put an end to such conditions, a direct sea-route from Okhotsk to Kamchatka had to be discovered; and the Koryak had to be finally subdued in order that the winter route might be rendered safe.

Until the sea-route from Okhotsk was discovered, the Cossacks of the peninsula tried to utilize the Pacific Ocean route to shorten the dangerous trip from Kamchatka to Anadyrsk. They would build large boats of boards, and, starting from the mouth of the Kamchatka River, would travel northward to the mouth of the Alut River. In 1712, in order to facilitate these expeditions, the Cossacks built a settlement, protected by a wall, at the mouth of the Alut River, where Cossack parties could find shelter against the attacks of the Alutor Koryak. During the winter, Cossacks traversed the tundra from the fortified settlement Alut to the mouth of the Oklan River, a tributary of the Penshina, and to the fortress Oklansk, which was mentioned above; from Oklansk they travelled northward along the valley of the Penshina, and, having traversed the Nalginsk Mountains, arrived at the Anadyr River. That part of the way from Kamchatka to the Anadyr which lay between Alut and Oklansk was of course not safe from unexpected attacks of the Koryak, who were forever searching for Cossack detachments.

The unsuccessful attempt of 1712 to reach Kamchatka by sea from Okhotsk was followed in 1713 by a special ukaz of Peter I, ordering that a sea-route to Kamchatka be found. All attempts, however, failed until 1716, when a successful journey was made from Okhotsk to Tighil in a large boat.
Thus the dependence of Kamchatka on the Anadyr route was brought to a close, and communication between the peninsula and Yakutsk was henceforth carried on directly by way of Okhotsk.

The discovery of a sea-route to Kamchatka gave an impetus to geographical explorations in Bering Sea. In 1726 the first expedition of Bering was undertaken, followed by a second in 1737–45. In the interval between these expeditions, which were scientific in character and had no direct relation to the Administration of Kamchatka, the Kamchadal were finally subdued.

During the same period, military operations were carried on against the Koryak and Chukchee. Thus, in 1720, Kharitonov, a boyar-son,1 started out from Kamchatka with sixty Cossacks and cannons to punish the people of Pallan, who had refused to pay the tribute. The Pallantsi did not offer resistance, and received the Cossacks with pretended humility. During the night, however, they fell upon the sleeping Cossacks, killed Kharitonov and nine Cossacks with their spears, and wounded fourteen. The survivors gained the upper hand of their assailants, and avenged the death of their comrades by annihilating the entire village. At about the same time another chief official in Kamchatka, Trifonov, was subjugating the Koryak villages Poqač, Ovlansk, and Kamenskoye; but the most important military expedition was formed in 1727, in accordance with an imperial ukaz, the Cossack chief Afanasy Shestakoff being in command. He had for his first-lieutenant Captain Pavlutsky, who was famous for his courage and administrative ability. Having left Yakutsk, they divided into two parties. One of them, with Pavlutsky in command, proceeded northward by way of Nishne-Kolymsk to the Anadyr; the other, under Shestakoff himself, moved eastward to Okhotsk. Shestakoff had about four hundred Cossacks and a number of sailors, and carried materials for the construction of ships.

In the autumn of 1729, Shestakoff boarded his two ships and started out from Okhotsk northward, without awaiting the arrival of all his men. As the season was advanced, he could travel by sea only to Tauysk. From there he continued his course northward on sledges. He successfully traversed the thinly populated strip of coast between Tauysk and the Gishiga River, inflicting inhuman atrocities on the Koryak, who refused, or rather were not able, to pay their tribute in furs. On penetrating farther northeastward, however, he soon discovered that he would not be able to cope with the large villages along the shore of the Bay of Penshina, and the numerous bands of Reindeer Koryak. His original plan was to subdue the Maritime Koryak of the Bay of Penshina and the Reindeer Koryak of the interior; then to operate against the Alutor Koryak; and from there to proceed to

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1 The "boyar" (Sing, boyarin) constituted the highest class of the Russian aristocracy forming the council of the Czars of the period before Peter the Great. "Boyar-sons" or "boyar-children" formed a lower class of the nobility. They were chiefly descendants of the "boyar," who had not attained the rank of the boyar class.
the Anadyr, where he expected to meet Pavlutsky. This plan, however, was not carried out. After crossing the Paren River, Shestakoff received word from the Koryak that a large band of Chukchee was marching against him. He deliberated for a while, and then continued his advance, resolved to give battle to the Chukchee. The encounter took place on the Egač River, since called Shestakovka, in memory of Shestakoff's death on March 14, 1730. In the battle which ensued, Shestakoff, as well as the majority of the Russian warriors, met their death. Shestakoff's defeat was due to the relative insignificance of his force. His arrogance and self-reliance equalled his ignorance of local conditions and his cruelty. When leaving Okhotsk, he had with him about thirty Cossacks, as many Reindeer Tungus, and ten Yakut. In Tauysk he was joined by thirty Koryak. Having thus, outside of the small number of Russian warriors, only unreliable allies to fall back upon, he dared to set fire to the villages and to burn alive those Koryak who refused to pay tribute or to deliver hostages. Thus he burned the entire village Tavatoma, having first ordered that the exits from the subterranean houses be barricaded. Through such appalling cruelty he aroused against himself even the most peaceable Koryak. At the first encounter with a superior force, his untrustworthy allies — the Tungus, Yakut, and Koryak — left the battle-field; and, although many enemies fell from the Russian bullets, the Cossacks were soon overpowered by the overwhelming numbers of the attacking tribesmen.

To this day it has not been positively ascertained to what people the attacking party belonged. The Cossack reports give them as the Chukchee. Maydell controverts this statement. In his opinion, they were Koryak who had posed as Chukchee in order to escape the vengeance of the Russians. Maydell seems to have undertaken the ungrateful task of representing the Chukchee as a straightforward and peaceable people, with whom it was useless to fight; the Koryak, on the other hand, he believes to have been cunning traitors, who did infinite harm to the Russians. The Koryak, writes Maydell, would constantly appeal to the Russians for help against the pretended attacks of the Chukchee. Meanwhile they themselves would attack Cossack detachments from ambush and murder single Cossacks, and throw the blame for these acts on the Chukchee.

There is of course nothing remarkable in the fact that the Koryak, in their fight against the Russians, had recourse to tricky and perfidious methods, which are made such excellent use of in the contests of other than primitive peoples. Nor did the Chukchee in this respect differ from the Koryak. The Koryak, especially the Maritime Koryak, suffered more from the Russian conquest than did the Chukchee. At first the Russians had dealings only with the nomadic Reindeer Chukchee, who fled to the tundra whenever they wanted to avoid an encounter with the Cossacks, and also made unexpected attacks on Russian settlements. The Maritime Koryak, on the contrary, who
lived along the bays of the Sea of Okhotsk and of Bering Sea, although they could take refuge during the summer on the islands, from the attacks of the Russians, were bound in winter to their shore villages, and cut off from all ways of escape. It is natural, therefore, that whenever they could not protect themselves by force, and would not or could not comply with the demands of the conquerors, they should have recourse to trickery. It is not impossible that they would occasionally charge their sins to the Chukchee in trying to divert the attention of the Russians towards the latter. But in the battle which was fatal to Shestakoff the Chukchee certainly took part, for subsequently Pavlutsky found among the Chukchee living on the Lower Anadyr the banner of Shestakoff's detachment and his arms. It is not improbable that the Chukchee were not alone in that battle, for the Chukchee and the Koryak might have united against their common enemy; but at other times the Chukchee appeared in the Koryak settlements as enemies, not as allies; and the complaints of the Koryak that the Chukchee attacked and plundered them were, on the whole, not unfounded.

The news of Shestakoff's defeat rapidly spread over the Koryak territory and to Kamchatka. The Koryak rose in a body. The garrisons left by Shestakoff in Tauysk and Yamsk were annihilated. Other settlements fortified by the Russians met a similar fate. The eastern Koryak from the Alut to the Tighil soon joined in the uprising, and presently Kamchatka revolted.

Pavlutsky received word of Shestakoff's fate as early as April, 1730, while he was still in Nishne-Kolymsk. He did not reach Anadyrsk (now Markova) until September, 1730. The last months of that year and the year 1731 he spent fighting the Chukchee. At last, in 1732, he determined to open a campaign against the Koryak, in order to punish them for the destruction of the Russian fortifications and the annihilation of garrisons. Maydell\(^1\) sees the reason for Pavlutsky's delay in chastising the revolting Koryak in their cunning. When Pavlutsky arrived in Anadyr, relates Maydell, he was met by Koryak deputies, who represented the battle in which Shestakoff perished as an attack of the Chukchee, and begged for protection against the latter. Thus Pavlutsky was deceived by the Koryak, and, leaving them unmolested, turned against the Chukchee. This account, however, can hardly be credited, for Pavlutsy knew perfectly well that the Koryak had risen all over the country and were killing the Russians. Pavlutsy postponed his advance against the Koryak for two reasons. In the first place, he wanted to be sure of the Chukchee. The second reason lay in the condition of the country. During the summer months, the transportation of a great number of people is impossible in these regions. The beginning of the winter is the season of violent winds, followed by severe colds. The time most propitious for military expeditions is the end of the winter, — the polar spring it might be called, —

\(^{1}\) See Maydell, I, p. 546.
which lasts from the end of February to the end of May. Then the winds subside and the frost is moderate. Thus it happened that Pavlutsky spent the winter of 1730-31 in persecuting the Chukchee. The more or less successful battles, however, which he had with the nomadic hordes of the Chukchee, did not yield any positive results in the way of subjugating the country.

On Feb. 10, 1732, Pavlutsky began his march against the Koryak. His force consisted of two hundred and twenty-five Cossacks and a certain number of Yukaghir and Koryak volunteers. The latter had to furnish the party with reindeer for transportation and food. On the march he learned that a considerable number of insurgents had gathered in a fortified village at the mouth of the Paren River, and he turned to go there.

On March 25 he reached the Koryak fortification and ordered a siege. Attempts to induce a voluntary surrender remained futile. The fortification was built on a high steep rock rising directly from the sea and protected from land by a strong stockade and an earth wall. In order not to expose his men to the action of Koryak arrows, Pavlutsky ordered large shields to be made of driftwood. Thus protected, the Russians advanced close to the stockade. The Koryak made a gallant defence, and retreated from the parapet only when the enemy succeeded in throwing hand-grenades over the stockade. Then the stockade was broken, and the Russians penetrated the fortifications, where a desperate fight ensued. When the Koryak saw themselves defeated, they killed their wives and children with the intention of killing themselves also. Before the Russians succeeded in putting a stop to their self-destruction, over two hundred persons were slain. Pavlutsky took many of the surviving Koryak with him as prisoners, leaving in the village only ten young men and five women, in order (so say the chronicles) to give the population a chance to multiply.

After that victory, Pavlutsky returned to Anadyrsk. While on the way, he sent a detachment to Alutorsk with an order to destroy the fortification erected by the Koryak in that settlement.

On the whole, the entire campaign was nothing but a punitive expedition, which was as aimless as its execution was cruel; for after Pavlutsky’s departure the Koryak territory relapsed into the old conditions. The fate of the Paren Koryak, of course, greatly impressed the other sections of that people; but no sooner had the immediate danger passed, than they resumed their attacks on the Cossacks, and again refused to pay the tribute, although it was precisely that refusal which had previously led to the fight. We shall see later on, after a detailed treatment of the tribute question, how this policy of military conquest, setting aside its inhuman cruelty, was senseless so far as it was an attempt to win for the State a new colony. If we suppose for a moment that the Russians were able to send against all Koryak settlements
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detachments equal to the one led by Pavlutsky against Paren, the result of such expeditions, considering the national character of the Koryak, would have been a complete depopulation of the country. Fortunately the Russians were not in a position to do that. To equip and send a party of a few hundred men to the extreme northeast of Siberia, as was occasionally done by the Government in expeditions like Shestakoff’s and Pavlutsky’s, was an enterprise connected with great difficulties; and if the men had to be transported from European Russia, the expense was very great. Besides arms and ammunition, the Cossacks had to carry with them large transports of provisions and clothing. The provisions had to be renewed every year, and were transported on horses, dogs, and reindeer across absolutely desert and almost inaccessible localities. The peoples of the Yakut territory through which the soldiers and transports passed were ruined by these expeditions; their animals would die from exhaustion, and the men would succumb to diseases. When the soldiers, after a hard journey of two or three years, at last reached their destination, they had to face a rough climate and innumerable privations and dangers. The provisions for the garrisons of remote fortresses, which had to be supplied from Yakutsk, were often not sent at all, or arrived in insufficient quantities or imperfect condition. The Cossacks were forced to hunt and fish for food, and not infrequently suffered hunger; when not under cover of the fortifications, they were always in danger of sudden attacks; and the results attained at the cost of such exertion were that an army which had to conquer a people resisting Russia’s power was limited in its military operations to a period of from three to four months a year. During that period one or another detachment would attack a village or infuse terror into several villages, only to retreat for an entire year to its fortress, leaving the state of the country unchanged. We have seen that such was the case in Pavlutsky’s expedition against Paren. His position in regard to the attainment of his end — the subjection of the Chukchee and Koryak — was especially hopeless; for, after the death of Shestakoff, he had to fight both peoples, each of whom it was hard enough to keep in check to the degree prescribed by the Government in accordance with the recommendations of the Siberian rulers. Another impediment to Pavlutsky’s military operations against the Koryak was the fact that he had his headquarters at the fortress Anadyrk, which was about four hundred miles distant from the Bay of Penshina, the nearest bay of the Sea of Okhotsk. In Pavlutsky’s time Kamchatka no longer depended on Anadyrk, and had its own administrators; for at that time direct communication by sea with Okhotsk was maintained.

On his return to Anadyrk, after the Paren victory, Pavlutsky found orders from Yakutsk to treat the aborigines more leniently, and to suspend all military operations pending new orders. Finding his plans for future campaigns checked, Pavlutsky resolved to leave for Yakutsk.

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No changes occurred in the Koryak territory as a result of Pavlutsky's campaign. The Koryak continued to dominate over the Okhotsk coast-line. From time to time, however, one or another of the Koryak bands would pay their tribute and enter into more friendly relations with the garrisons of the Russian fortresses. These relations came to an end when, in 1745, a new general uprising took place, which lasted almost to 1756.

I had occasion before to mention the fortifications erected by the Koryak at the mouth of the Oklansk River, where it empties into the Penshina. That fortified village was destroyed by Cossacks in 1679, and in 1690 they built in its place the fortress Oklansk. During the fights with the Koryak, that fortress was repeatedly destroyed and rebuilt. In 1741 the sergeant Yenisseysky, who was sent from Anadyrsk, entirely renovated the Oklansk fortifications, and occupied them with a garrison of twenty-four Cossacks. He also succeeded in establishing friendly relations with some Koryak chiefs of the Okhotsk coast; and as a consequence his journeys to Yamsk, Tauysk, and Okhotsk, were no longer interfered with. Later he rebuilt the fortifications of Yamsk and Tauysk, which had been destroyed by the Koryak, and established a small garrison in each place. The number of men at his disposal was small, however; and in October, 1745, he left for Okhotsk to ask for re-enforcements. Meanwhile a new uprising took place. The Koryak seemed to have decided to exterminate all the Russians, and to destroy their fortifications. Yenisseysky had not yet reached Okhotsk when the missionary Flavian, with a retinue, left that town for Anadyrsk. The Koryak fell upon him on the Shestakovka River, killing him and all his men. At the same time they annihilated a detachment of Cossacks who were on their way from Kamchatka to the Anadyr, and another detachment in the vicinity of Oklansk. Yenisseysky, on his way back to Oklansk, met a similar fate. The Koryak who furnished him with draught-animals managed to divide his men into small groups, which they attacked separately, and all were killed. To judge by the reports of the Cossacks, the Reindeer and the Maritime Koryak acted jointly. The Russian fortifications were besieged. The fortress Oklansk was one of the first to be surrounded, the Koryak intending to starve the garrison out. They did not dare to take the fortress by storm, knowing that the garrison was in possession of fire-arms and cannons. The besieged succeeded in sending messengers to Anadyrsk, where Pavlutsky, who had risen to the rank of major, was again commander.

A few words must be said as to the activity of Pavlutsky since the time he left Anadyrsk in 1732. I have related before how the Koryak uprising, after Shestakoff's defeat, had spread to Kamchatka. The uprising of the Kamchadal, which had been fomenting for a long time, broke out in 1731. Until then the Kamchadal did not dare to rise. In 1729 Kamchatka was visited by the first scientific expedition of Bering and his companions; while
the ship "Gabriel," with a crew of one hundred men belonging to the military expedition of Shestakov, remained in Nishne-Kamchatka until July, 1731.

As soon as the "Gabriel" had weighed anchor and gained the open sea, the Kamchadal attacked the fortress Nishne-Kamchatsk and took possession of it. Presently a detachment was despatched to take Verkhne-Kamchatsk and Bolshertsk, and everywhere the Russians were slain. It so happened, however, that the "Gabriel" unexpectedly returned on account of an impending storm. The ship was not prepared for a sea-voyage; besides, the crew were not eager to go to the Anadyr. The sudden return of the "Gabriel" saved the Russians on the peninsula. With the assistance of the sailors, Verkhne-Kamchatsk and Bolshertsk were successfully held, Nishne-Kamchatsk was recaptured, and the revolt was suppressed.

When the news of the revolt and its suppression reached Yakutsk, the Administration resolved to send a commission to Kamchatka for the investigation of the causes of the uprising, of the numerous revolts of Cossacks against their chiefs, and of the incessant feuds between the chiefs and their parties, for rumors had been current in Yakutsk of the cruelty, violence, and licentiousness of the Cossack chiefs and soldiers on the peninsula. At the head of the commission were Majors Mekhlin and Pavlutsky. The investigation lasted from 1733 to 1739. Sentences of death were passed by the commissioners on several Kamchadal instigators of the uprising, as well as on Cossacks convicted of criminal actions.

After his mission to Kamchatka, Pavlutsky, in 1740, was made military commander of Yakutsk; but in 1742 the Government again determined to subject the Chukchee and Koryak by force of arms, and Pavlutsky was ordered back to his Anadyrsk post. Pavlutsky travelled from Yakutsk by way of Kolymsk, as before, instead of following the coast of the Sea of Okhotsk, for he was anxious for the time being to avoid encounters with the Koryak. Hurried as his journey was, he did not reach Anadyrsk before November, 1743.

After his arrival, Pavlutsky concentrated all his efforts on the fight with the Chukchee, and left the Koryak undisturbed. When the messengers from Oklansk, in the winter of 1745, brought the news that the fortress was being besieged, Pavlutsky was making preparations for a campaign against the Chukchee, although he knew of the Koryak insurrection. The men whom

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1. According to the original plan of Shestakov's military expedition, the ship "Gabriel," which had left Okhotsk at the same time with Shestakov, was to visit Kamchatka, and from there proceed to the mouth of the Alut River, where the commander of the expedition expected to arrive from the shores of the Okhotsk Sea (see p. 787) in order to subdue the Alutor Koryak; from there it was intended that the ship should sail to the mouth of the Anadyr River, exploring the shores on the way, and continue up the river to the fortification Anadyrsk, which Shestakov intended to reach by land. When the news of Shestakov's end arrived, the "Gabriel" remained in Kamchatka, expecting further orders. In June, 1731, she was ordered to proceed to the Anadyr and to enter the service of Pavlutsky.

2. Among the Russians who were executed was the Cossack officer Shitnikoff. In 1739 a Japanese ship with seventeen Japanese was carried by the winds to the southern shores of Kamchatka. In order to make use of their merchandise, Shitnikoff ordered all the Japanese to be killed. Only two escaped death, — an old man and a boy, who were subsequently taken to St. Petersburg and presented to the Empress Elizabeth.
he had sent to the Reindeer Koryak to demand reindeer for his campaign against the Chukchee were killed or returned empty-handed. Nevertheless, Pavlutsky himself did not attack the Koryak, but sent the officer Proshin with one hundred and twenty soldiers. At his approach, the Koryak raised the siege of Oklansk. Proshin continued his march, the Koryak retreating before him. Finally he opened negotiations with them, and, satisfied by their promise to lay down their arms and to pay tribute in the future, returned to Anadyrsk, having left re-enforcements in Oklansk. Pavlutsky, who returned to Anadyrsk after his Chukchee campaign, towards the close of 1745, put Proshin under arrest for his undetermined mode of action. Further events made it clear how insincere the Koryak had been in their promises. The entire Okhotsk coast remained in the hands of the insurgents, and the Oklansk fortress also fell. To prevent the cannons and the powder from falling into the hands of the Koryak, the garrison interred them. Only four men of the garrison reached Anadyrsk in March, 1747. In the course of the same month Pavlutsky was killed in a battle with the Chukchee.

As indicated above, the Koryak uprising lasted almost until 1757. To illustrate the methods of Koryak warfare and their determination in battle, I will describe two or three more of the leading episodes of that fight.

Pavlutsky's successor, Kekerev, arrived at Anadyrsk in December, 1748, and on the 30th of January, 1749, started out against the Koryak. His party consisted of 236 Cossacks, 88 Yukaghirs, and 146 subjected Koryak, on whom fell the burden of transporting both men and luggage. The Koryak, of course, were unreliable allies in a campaign against their own people. While on the way, Kekerev learned from two captured Koryak that the chief of the Reindeer Koryak, Tekietoga, was camping with a band of his people on the Paren River. Kekerev hurried there. Tekietoga, however, was warned in time, and, abandoning his tents and part of his herds, he fled with his men to the Okhotsk Sea. A snow-storm prevented Kekerev from pursuing him effectively, and he changed his course to the Kamenskoye fortification, where Koryak warriors had gathered in great numbers. On the way he destroyed the fortification Ega'c. The first assault on Kamenskoye failed, and Kekerev himself sustained two arrow-wounds; nevertheless during the night the besieged put their wives and children to death, and under cover of a storm fled to one of the inaccessible rocks which surrounded the fortress. There was only one place where that rock could be reached, which was so steep that it could not be scaled without a rope-ladder and thongs. To take the rock by storm in the face of a stone-shower from the Koryak was hardly possible, and to starve them out would have lasted too long. Hence Kekerev raised the siege and turned back to Anadyrsk, taking the promise from the Koryak through whose territory he passed, that they would pay their tribute in the autumn. As usual, he had taken with him a number of Koryak prisoners,
some of whom were executed in Anadyrsk; others were flogged or tortured to make them tell the names of the instigators of the uprising. The Koryak, of course, did not keep their promise to pay tribute; and in March, 1750, we again find Kekerev engaged in a campaign against the Koryak; namely, on the Talovka River and in the region south of it. He did not succeed any better, however, than in the preceding year.

Captain Shatiloff, who followed Kekerev as the commandant of the fortress Anadyrsk, started out against the Koryak towards the end of March, 1751. He intended to chastise their western branch, and his course accordingly lay towards the Gishiga River. Near the Taigono Peninsula he sent ahead a scouting-party of fifty men in command of the Cossack Lieutenant Katkovsky. The scouts soon discovered a Koryak camp, and a fight ensued; as soon, however, as a few Koryak had fallen from bullets, the rest fled, abandoning the camp. On entering, Katkovsky found heaps of dead bodies of women and children, obviously put to death by their relatives.

From a Koryak prisoner Katkovsky learned that large Koryak forces were concentrated on the peninsula. Shatiloff hurried there, and presently overtook the Koryak, who, hearing of the approach of the Russians, had retreated to a small inaccessible rocky island several hundred feet off the shore. Shatiloff placed his men on the ice around the island and opened negotiations with the besieged, urging them to surrender and to pay the tribute; but the Koryak indignantly rejected all proposals. Then Shatiloff resolved to take the island by storm, but deferred the assault for a few days, during which the adjoining country was scouted. No more Koryak were found, but the scouts succeeded in capturing a herd of reindeer. The island rose steeply from the sea on all sides. There was only one possible way of ascent, which the Koryak protected by thrusting down reindeer-sleds loaded with stones. Besides, they had placed hidden wolf-traps all around the island. The Russians assaulted from five sides simultaneously; and after a desperate struggle the rock was taken, the defence having cost the Koryak one hundred and thirty dead, among them their chief Tykap. About three hundred corpses of women and children were found scattered in the camp, and only three men and five women were taken prisoners. It appears from these accounts how desperately the Koryak fought, and that they preferred to kill their women and children with their own hands rather than see them captured by the enemy. The Russian losses in that battle were five soldiers and four Cossacks killed, and fifty-one wounded, including several officers. The character of the battle left a strong impression on Shatiloff, for at the capture of two other fortified rocks he proceeded with less determination. Having received the tribute and hostages on the rivers of Paren, Gishiga, and on the Taigono Peninsula, Shatiloff returned to Anadyrsk in May, 1751. He had failed to break the Koryak revolt.
Shatiloff's campaign was the last undertaken from the fortress Anadyrsk. The Government had long before come to the conclusion that the subjection of the Koryak required the erecting of a number of fortresses along the Bay of Gishiga, which could be reached from Okhotsk by sea. The fortress Gishiginsk was founded by Okhotsk Cossacks in 1752, but the sea-route to Okhotsk was not opened until 1757. Between the years 1752 and 1756 hostile encounters continued to occur between Cossacks and the Koryak of the Okhotsk coast. The year 1756 is considered to be the last of the Koryak uprising. This, however, is only partly true. The annihilation of entire villages and settlements, the torture of prisoners, the capture of herds from the Reindeer Koryak, had broken their power of resistance only to a certain degree. The main cause of the cessation of wars with the Koryak lay in a change of policy on the part of the Russians. The commandant of the fortress Gishiginsk received orders not to send collectors of tribute to the Koryak villages and camps, but to propose to the Koryak chiefs that they deliver the tribute yearly at the fortress. We shall have occasion to see in how far that measure was conducive to the improvement of Russo-Koryak relations. Naturally there were at first very few Koryak groups who sent tribute voluntarily to Gishiginsk;¹ but experience had shown how futile it was to use force as a means of obtaining tribute.

The other cause of the wars lay in the national pride of the Russian conquerors, who insisted on breaking the stubborn resistance of alien peoples and on subjecting them to Russian rule. But here again experience had made it clear that the submission of these peoples was not worth the sacrifices which it cost. I am here referring only to the Koryak and Chukchee; for the related Kamchadal, being entirely sedentary, were more easily conquered by means of force. In the case of the Koryak, the modified policy of the conquerors finally led to the compromise just described. In regard to the Chukchee, however, it was decided to cease all further attempts to subjugate this people. The fortress Anadyrsk was entirely abolished in 1764 and the Administration transferred to Gishiginsk. Thus the wars of the Russians with the Koryak and Chukchee came to an end when the latter were entirely left to themselves.

The Tribute. — "Yasak" is the term applied to the tribute in furs which the Russians imposed on the conquered Siberian peoples. The historians of Siberia agree that during the early periods of settlement the main factor attracting the Russians to Siberia was its widely heralded wealth in furs. For a time Siberian furs were an important financial item in the budget of the Russian Empire. How enormous the wealth in furs of Siberia was at

¹ As late as 1846 we find from the tribute records of the Gishiga district that the number of Reindeer Koryak who were assessed was 204; in the records of 1894 this number rises to 836; and, according to the census of 1897, the number of Reindeer Koryak in the Gishiga district is 2389.
the beginning of the conquest is demonstrated by the fact that after the
defeat of the Siberian Khan Kuchum, his dominion — i.e. the territory lying in
the basin of the Obi River alone — was forced to pay to the Moscowite Czar
a yearly tribute of 200,000 sables, 10,000 black foxes, and 500,000 squirrels
of the best quality, besides beavers and ermines. Having discovered how
profitable the fur trade was to the Treasury, the State was no longer satisfied
with the tribute of furs, but began to monopolize the fur trade. In the
beginning of the seventeenth century Czar Boris Godunoff decreed that the
hunters and fur-traders deposit their merchandise in the Treasury for a fixed
remuneration. The accumulated furs were placed in the care of a special
department in Moscow, which disposed of them through its agents in Turkey,
Persia, Bokhara, and, later, China. China in time became the largest and
most profitable consumer of Siberian furs, for in exchange for its furs the
Treasury would import from China chiefly gold and silver, with which the
Moscowite empire paid for its wars.

After the Nerchinsk Treaty concluded by Peter the Great with the
Chinese in 1689, the China trade continued to be Government monopoly until
the year 1762. In that year Empress Katerine II abolished the official
caravans to Peking, leaving the trade, which was still based chiefly on furs,
in the hands of private merchants. The free fur trade had a stimulating
effect on the development of commercial relations between Siberia, European
Russia, and the neighboring countries. The Treasury, on the other hand, no
longer insisted that the tribute of Siberia be paid in furs exclusively. They
were now free to pay their tribute in money, the amount being approximately
estimated according to the value of the furs. Thus the field for official abuses
was reduced, and the attitude of the natives towards the Russians began
to improve.

The time of the attempts to subject the Koryak as well as the Kam-
chadal and Chukchee, coincides with the period of the Government monopoly
in furs, when fur tribute was the cause for the sake of which thousands of
men were tortured and killed whenever they refused or were not able to
satisfy the rapaciousness of the foreign invaders. The tragedy of the situation
for the natives lay in the fact that the sable, for whose fur the Russian
demand was greatest, was a rare animal in the Koryak country, and did not
occur at all in the territory of the Chukchee.

The question how tribute was levied, which was put afterwards on a
definite basis by the so-called First Tribute (Yasak) Commission of 1762–66,
is but superficially treated by the historians of Siberia. We do not know
whether there existed before that commission definite and universally applied
standards according to which the tribute to be paid by the hunters of this

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1 The State monopoly of the fur trade was first limited in 1727, but in 1752 the full Government monopoly
was again introduced.
or that people was estimated. From fragmentary bits of information we are justified in assuming that the amount of tribute to be levied was constantly decreased. The lowering of the standard obviously kept pace with the gradually decreasing numbers of fur-bearing animals, which was due to their extermination since the advent of the Russians to Siberia. According to Slovtzoff, in the beginning the tribute amounted to five sables for a single hunter, and ten for a married one: hence the conclusion seems justifiable, that in the beginning the wives of hunters had to pay their share. In some places from ten to twenty sables were required from the hunter; but the Government, says Slovtzoff (II, p. 62), was indulgent, and this rule was not always observed. In the second half of the seventeenth century we find a tribute of seven sables "per bow;" and, according to the Siberian census of 1722, the tribute levied amounted to three sables for each hunter; and finally, after the work of the First Tribute Commission, the amount paid by each hunter was fixed at one sable, or, in case no sable was available, at one fox-skin or one beaver-skin, etc. We know that the Chukchee altogether refused to pay fur tribute. This fact probably accounts for the circumstance, so puzzling to Baron Maydell, that the conquering activity of the Russians was more especially directed against the Chukchee, and not against the Koryak, although the attacks made by the latter on Russian detachments were far more frequent than those made by the Chukchee.

It is certain that one or another group of the Koryak was from time to time forced to pay tribute, although no references can be found as to the standard used in levying it, nor as to the total amount received. It seems, however, that the Koryak tribute was not very large from the start, and consisted rather of foxes than of the more valuable furs. Specific indications of the standard used in levying the tribute from the Kamchadal are also lacking; but, judging from certain available data, the amount collected from the Kamchadal must have been very considerable, the tribute consisting chiefly of expensive furs. Thus, when Atlassoff returned from his first expedition to Kamchatka, — after visiting only the people of the Kamchatka River, — he carried with him thirty-two hundred sables, many hundred foxes, about one hundred sea-otters, for the Treasury, and, as his private provision, four hundred sables and numerous other furs. In time the Kamchadal tribute from the whole peninsula increased in amount. According to the denunciation made by the Cossacks against Petrilofsky, one of the commanders in Kamchatka in the first half of the eighteenth century, the latter had "stolen" in the course of one year 5600 sables, 2000 foxes, 207 sea-otters, and 169 otters. Without any doubt, other commanders of Kamchatka were not far behind Petrilofsky in filling their purses at the expense of the Kamchadal.1

1 Judging from a statement made by Krasheninnikoff, the official tribute of the Kamchadal was fixed at one sable to a hunter, even before the regulations of the First Tribute Commission. Thus, while referring to the begin-
According to historical data referring to Siberia before the First Tribute Commission, the collectors in the native settlements and camps were Cossacks and officials, who received lists of all assessable men; that is, of adults capable of hunting. The details of this method of collecting tribute can no longer be ascertained. All we know is, that the illiterate collectors, who were in the majority, carried little sticks with notches to indicate the number of men assessed. Each hunter had to pay his own share. In addition, however, the collectors expected presents for themselves, for the military commanders, and for other high officials. In some cases presents were sent to the Czar himself. These presents were known as the "gratuitous" or "complimentary" tribute (ПОМНОЧНЫЙ или ПОВОЗНЫЙ ЯСАК), as distinguished from the crown tribute or tribute proper (НАДАТНОЙ ЯСАК).

The collectors were accompanied to unsafe localities by Cossack escorts, who demanded their share of presents. Besides, the collectors carried with them merchandise for barter. Thus it happened that the furs which reached the Treasury were never of the best quality. In Kamchatka these practices were indulged in with exceptional freedom. In a country so far distant from the central Administration, the collectors and their men were in reality bands of robbers whose exploits would rouse the Kamchadal to fury and despair. Thus one of these collectors and his escort of twenty-five Cossacks were burned by the Kamchadal on the Avacha River, the Kamchadal hostages perishing with the rest. When the collector arrived, the Kamchadal greeted him with honors, assigned to him and his Cossacks a separate summer house on piles, and, promising to pay the tribute on the following morning, left hostages selected from among the best men of the village. At night, when the house was set on fire, the Kamchadal called to the hostages to escape; but they answered that they were in chains, and bade their people outside burn the house, leaving them to their fate.

As far as the Koryak are concerned, it may, I think, be asserted, that not only was there no standard for the tribute, but that it was paid only once in a while, under direct compulsion of military parties; and after the foundation of the fortress Gishiginsk, the Koryak tribute became a voluntary contribution, which the representatives of the various Koryak groups themselves delivered at the fortress.

The task of the First Tribute Commission, which was appointed by
Empress Katherine, was to regulate the tribute question and to put an end to the abuses of the collectors. The reforms introduced by the commission were based on the following principles: 1. The tribute is to be paid by a representative for the entire clan or group; the further apportionment of the tribute is left to the natives themselves. 2. The representative of the group is to deliver the tribute in person to the administrative centre; collectors are abolished. 3. Subject to the tribute are native men from sixteen to sixty years of age, who are to be called "workers" or "tax souls." 4. Payment may be made in furs or in money, the amount being calculated in money for each person, and varying, in the case of fur payments, according to locality, the nature of the animals, and the current valuation of the latter.

These principles, with some additions and a general lowering of the amount of tribute to be paid, were accepted by the Second Tribute Commission (1828–35). The age of the "workers" was limited to men from eighteen to fifty. The number of "workers" of every clan was fixed by the census. The last census for this purpose was taken in 1859. The standards then established varied for different localities. Obviously for each locality, and even for each group and clan, it was fixed by mutual agreement of the representatives of the Treasury and of the natives. Even the so-called Koryak clans were until lately differently taxed. Thus, the tax of a "worker" from the Vivnik clan amounted to 2 rubles 86 kopeks, while that of a "worker" from the Alutor clan amounted only to 1 ruble 49 kopeks. At present the Koryak of the Gishiga district are taxed uniformly at the rate of 1 ruble 15 kopeks per "worker." I have not been able to ascertain from the Archives since what date this last method of taxation was adopted. To illustrate the great reduction of the tribute, I will compare the last tax recorded, with the original one of ten sables per hunter. According to the data kept by the Administration of the Gishiga district for the year 1897, there were in that district 241 taxable Reindeer Koryak, and 407 Maritime Koryak. As there are more Reindeer Koryak in the Gishiga district than Maritime people (the census figures for 1897 are 2589 Reindeer and 2045 Maritime Koryak), the data on the taxed population indicate that many of the Reindeer Koryak do not pay tribute, and the number 407 is also lower than the total number of men of the Maritime Koryak between the ages of eighteen and fifty.

According to the official report for 1897, the Koryak tribute for that year was paid, two thirds in furs, and one third in money. The official appraisement of furs is lower than their market price. The appraisement in rubles and kopeks is as follows, the valuation being given in each case for the fur without paws or tail.

1 See Archives of the Administration of the Gishiga District, No. 751, 1867.
2 See p. 445.
The Itkana Koryak, who hunt fur-bearing animals very little, bring to Gishiginsk the skins of ground-seals, and bundles of thongs cut out of skins of ground-seals. Twenty-eight of them are tax-payers, their total tribute amounting to 32 rubles 20 kopeks. To cover that sum, their elder delivers to Gishiginsk ten ground-seal skins and six bundles of thongs. In the open market the skins alone would amount to 60 rubles, 6 rubles apiece.

**The Present Relations of the Russians and the Koryak.** — The military conquest by Russia, of that part of Siberia where agriculture is impossible, could not call forth a voluntary agricultural colonization. The first Russian invaders were all hunters and soldiers. In the course of time they were joined by forced immigrants and exiled criminals. The colonial policy was in the beginning nothing but a means of reaching the Siberian peltry resources. The central Government was in the majority of cases benevolently inclined towards the natives. The local administrations were often instructed to be lenient in gathering tribute, and not to insult the natives; but these benevolent intentions could not be harmonized with the actual situation, where tribute had to be extorted from natives who were often unable to pay it. In order to comply with the requirements of the official agents, the native had to neglect the material needs of his family, and concentrate his entire energy on the hunt for fur-animals. Besides, the agents robbed the natives to their own advantage, committed violence, tortured and enslaved the men, carried away their women and children; and when the natives revolted, the agents claimed that the natives had arisen against the Czar’s power.

Then the Government would send military parties to suppress the revolt and to punish the guilty. Of course, Russia did not act any worse than did many other nations regarding their colonial “possessions.” Even now, the African negroes, for instance, revolt because the white intruders rob them of their land and of the natural products of their country, meanwhile burdening them with taxes to support the same Administration which suppresses them. In one respect the Russians were superior to other European colonizers, for they exhibited only to a moderate degree the consciousness of racial superiority over the natives, which other white peoples possess in a very exaggerated degree. The Siberian natives were not treated with contempt. When the greed of the Russian was satisfied or did not come to the foreground, the conqueror and the conquered would easily come to terms. On the whole,

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1 For the local market-price of the skins here mentioned, see p. 775.

<table>
<thead>
<tr>
<th>Fur Type</th>
<th>Market Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sable (superior quality)</td>
<td>10.00</td>
</tr>
<tr>
<td>Sable (inferior quality)</td>
<td>8.00</td>
</tr>
<tr>
<td>White fox</td>
<td>1.50</td>
</tr>
<tr>
<td>Wolf</td>
<td>2.50</td>
</tr>
<tr>
<td>Red fox</td>
<td>2.00</td>
</tr>
<tr>
<td>Cross-fox</td>
<td>8.00</td>
</tr>
<tr>
<td>Ermine</td>
<td>0.08</td>
</tr>
</tbody>
</table>
however, the system of violent extortion and repression led to the extermination of those people which were not especially numerous or possessed of exceptional vitality. Thus many clans of the Yukaghir entirely disappeared. The Chukchee and the Koryak, on the other hand, although not numerous, but stubborn and full of vital energy, succeeded to a certain extent in preserving their ethnic individuality.

The colonial policy of deriving the maximum possible profits from the natives, for the benefit of the Government and of private individuals, resulted in the extermination of several small peoples, and finally led to the exhaustion of the source of these profits itself. The present yearly export of furs from Kamchatka, for instance, does not reach two thousand skins, while on the Kolyma this valuable animal has entirely disappeared.

The fur trade gradually deteriorated as a source of State revenues, and no other source took its place. Thus, as a result of a barbaric colonial policy, the expenditures of the State for the administration of the remote districts of Siberia became, in the course of time, greater than the revenues derived from these districts. The tribute could no longer be regarded as a source of income, and had to be looked upon as a symbol of the submission of the tribute-paying peoples, — a symbol which flattered a petty national pride, but was paid for by the Government through a costly administration of unprofitable colonies. It is worth noting that the tribute paid by the small Siberian peoples is not sent to the Treasury, but to the household of the Imperial Court. The romantic view of the fur tribute as a concrete proof of the subjection of the natives to the Czar was entertained by the Bureaucracy at the end of the past century, and is still entertained by them. Even the learned official traveller, Baron Maydell, in part held that view. The chief purpose of the so-called "Chukchee Expedition" (1869-70), at the head of which he stood, was the subjection to Russia of the Chukchee, who were not paying tribute. To induce the Chukchee to pay tribute, methods were used, and probably are still used, which are as humorous as they are humiliating to the Russian Empire. The Court Treasury spent a certain sum yearly on presents for those Chukchee who paid their tribute voluntarily. The chief of the Kolyma district, on his way to the Chukchee fair on the Anui River, would carry on special sledges presents consisting of iron kettles, tea-pots, tobacco, etc. In 1892 I witnessed on the Anui River the ceremony of the tribute presentation by the Chukchee. Ten or so Chukchee from various localities came to the official cabin, and in the presence of the district chief were entertained by the Cossacks with tea, sugar, and biscuits. After a speech suitable to the occasion had been made by the chief through an interpreter, to the effect that the Czar loved the Chukchee and was sending them presents, each of the natives made his small contribution to the tribute with a red or arctic fox. Then the imperial presents were inspected and additions begged
for, which were generally granted by the chief, who was anxious to get rid of his tiresome guests. The results of the barter were very favorable to the Chukchee. They had received presents which in value greatly exceeded their tribute; the hides meanwhile were ceremoniously stamped with the official seal and despatched to the Court Treasury in St. Petersburg as a token of Chukchee submissiveness. In other cases, like that of the Yukaghir, — to be treated in Vol. IX of this series, — even a very moderate tribute had a fatal effect on the economic life of the people.

In order to demonstrate to what extent the State expenditures for the northeastern districts exceed the revenues, I shall present the data for the Gishiga district. I have in my possession the official reports on that region for the year 1897. The total tribute for that year amounts to 1,119 rubles (364 rubles in currency, and 755 in furs), of which sum the Koryak paid 745 rubles, and the Tungus 374. The "voluntary contributions" made by the Palpal Chukchee and Koryak at the Chukchee fair amounted to another 73 rubles. The natives regard the tribute as a present to the Czar. As we have seen, it does not go to the State Treasury. The revenues of the Treasury from the district of Gishiginsk consisted of the so-called Zemstvo taxes to the amount of 163 rubles, and taxes of merchants to the amount of 1606 rubles. I have not been able to obtain the exact figures of the expenditures for the administration of the district, but I consider 40,000 rubles a conservative estimate. The maintenance of the district chief, his assistant, the secretary, and their offices, amounts to no less than 12,000 rubles a year. The salary of the chief alone is 4500 rubles. Then follow the salaries of a priest in Gishiginsk, of a missionary, a physician, and two assistant surgeons, who also reside in Gishiginsk, and scarcely ever visit the Koryak camps and villages. The last item is the maintenance of the Cossack detachment, which is the largest single expenditure in the budget for the administration of the district.

A few words should be said regarding the Gishiginsk Cossacks. Although these Cossacks are the descendants of the warriors who conquered Siberia, they are no longer military men, nor are they controlled by the Ministry of War. Since 1822 they have been under the Ministry of the Interior, and are used by the district chief for police and messenger services. This archaic institution of a staff of civil Cossacks still survives in all the district towns of the Province of Yakutsk, and among those of the Maritime Province.

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1 Dr. S. I. Mitskevich, the former physician of the Kolyma district, told me that during his visit to the Anui fair in 1901, the chief of the district did not bring any presents for the Chukchee tribute-payers; and the Chukchee of the Chukchee Peninsula, on being informed of this, requested the return to them of the tribute skins which they had given to the chief. Their request was granted.

2 Since 1893 the Maritime Koryak and other settled peoples had to pay, in addition to the tribute, taxes amounting to 4 kopeks per soul. These taxes were raised to cover local expenses, such as repairs of roads, etc.

3 This was true at least of the medical staff during my stay in the Gishiga district.
in Gishiginsk, Markova, Petropavlovsk, Okhotsk, and Udsk. The Cossacks form an hereditary class, and their services are obligatory. The term of the Cossack’s active service is twenty-five years, beginning at the age of eighteen. Every Cossack draws a yearly salary of seventy rubles, and receives monthly seventy-two pounds of rice and flour. Boys, from their birth to the age of sixteen, receive half that amount of provisions. Hence boys are much desired in Cossack families, and a Cossack maiden who has male children born out of wedlock is a welcome bride. The Cossack detachment in Gishiginsk numbers about thirty, and the wives and children bring the number up to over one hundred. The duties of the Gishiginsk Cossacks consist in being on service in the offices of the district chief, in escorting officials on their journeys through the district, and in accompanying the mail as carriers; scientific expeditions also made use of the Cossack as guards or as servants and interpreters. Thus, by order of the Maritime Governor, a Cossack was despatched with my party. Mr. Bogoras, on his journey to the Chukchee Peninsula, had with him two Cossacks. In the summer the duties of the Cossacks are limited to the days when steamers arrive. They unload the official freight, consisting to a large extent of rice and flour for their own use. The rest of their time they spend in fishing. Even during the winter months they have spare time enough to attend to their households or to serve as commissioners in the barter of the natives with the merchants.

The Cultural Influence of the Russians on the Koryak. — What has been shown in regard to the remote districts of Northeast Siberia, as exemplified by the Gishiga district, will in a future work on the Yukaghir be demonstrated in regard to the northern districts of the Yakutsk province; namely, that these districts require heavy expenditures from the metropolis, and that while the present policy lasts there is little hope for better conditions in the future. From these facts one would imagine that Russia maintains its remote northeastern colonies solely for the glory of possessing a territory which, although barren and not populated, is immense; or for the sake of civilizing the natives. These motives do without doubt enter as factors into the so-called “colonial policy” of Russia; but they are not the main causes of the deficits in the Treasury. The excess of expenditures over revenues is primarily due to a deficient administration of the territory, which is ruled by ignorant and mostly unnecessary officials. Frequently the high bureaucrats have no knowledge whatever of the country intrusted to their care. Here is an interesting illustration. The chief of the Gishiga district, Ratkevich, was rash enough to present in his report to the Governor of the Maritime Province for 1885 a short ethnographical sketch1 describing cases where old men were killed or vendetta murders committed by the tribes in his district.

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1 See the Gishiginsk Archives, Reports of the Chief of the District, of Sept. 30, 1885 (No. 197) and of Dec. 31, 1881 (No. 404).
In answer to this report, the vice-governor wrote to Ratkevich, asking him, in the name of the Governor, on what grounds he tolerated in his locality acts which were illegal according to the laws of the Russian Empire.

In regard to the cultural activity of whites in general in their colonies, we must remember that no white nation has ever approached a primitive people with the sole purpose of civilizing it. All civilized nations have acquired colonies, on account of their natural products, as lands for immigration or as markets for their own products. The natives, in some cases, where they were not exterminated or had not died out under the burden of oppression, acquired in the course of time a certain degree of civilization through intercourse with the whites.

The extreme northeast of Siberia is not fit for Russian colonization. The culture of the Russian immigrants in these localities has deteriorated, and their mode of life is but little different from that of the natives. The number of Russian inhabitants in the Koryak territory, to judge by the Gishiga district, where the bulk of the people are Koryak, is slightly in excess of six per cent of the total population.

If the country cannot be populated by Russians, the question arises, whether under any conditions it would become possible for the latter to raise the civilization of the natives? The answer must be that a civilizing influence could certainly be exerted on the Koryak and their neighbors if the Government assigned for that purpose the sums now expended on the complex administration. Such expenditures for cultural purposes would ultimately result in an improvement of local conditions, leading to an increase of revenues which would easily equal and finally exceed the expenditures for the administration of the country. In place of the present staff of officials and the Cossack detachments, one commissary and a few paid guards could efficiently attend to the simple needs of the district. The duties of a commissary could be performed by one of the school-teachers. At the time of my stay in the Gishiga district, there were no schools. The children of the Gishiginsk priests, as well as the children of District Chief Prshevalinsky, Councillor of State, who died before my arrival, could hardly write a note or even sign their names; while the chief's wife, who belonged to the local Russians, was entirely illiterate. The Cossacks and common people were, of course, practically all illiterate. According to data contained in the Archives, an elementary school was held at different times; but as it was intrusted to the priest and sexton, who themselves were but little versed in the art of reading and writing, the school had to be closed after a short existence on paper. It goes without saying that the institution of schools with trained teachers in Gishiginsk, as well as in some of the more important Koryak settlements, would have familiarized the Koryak with Russian culture to a much greater extent than did the levying of a petty tribute. Besides giving
an elementary education, these schools ought to pursue practical ends. A breeding-station for reindeer associated with the school could vastly increase the value of herds. There the Koryak could be instructed in the advanced methods of domestication and of improving breeds, as well as in the art of preventing reindeer-epidemics. The school should also teach better methods of catching and preserving fish. The technical capacity and artistic talent of the Koryak, if properly directed, would lead to the development of home industries, — the production of fur rugs, for instance, — which would yield valuable articles for the export trade. If for a period of ten years the sums now expended on the administration of the country were spent on building and maintaining schools, the culture and material well-being of the Koryak could be raised to such an extent that their further development could be left in their own hands. Such ought to be the results aimed at by a rational colonial policy, leaving quite out of account the moral obligations of a civilized nation towards its primitive subjects. It cannot be denied that life under conditions and circumstances like those of the Koryak must be extremely hard to endure for people of any culture; but when the fate of the Siberian natives shall pass from the hands of the bureaucracy to those of the nation, not a few of the Russian intellectuals will be willing to sacrifice their comfort and habits of life for the sake of enlightening and enriching the inhabitants of the Far North.

It remains to summarize the positive and negative results derived by the Koryak from their contact with civilization. I shall, however, treat only of those aspects of the subject which were not touched upon in my description of the modern material culture of the Koryak as compared with that of the past. After the complete subjection of the Kamchadal, followed by a number of military rulers who abused their vast powers, Kamchatka entered upon a period characterized by greater consideration for the natives. That period, beginning with the end of the eighteenth century, could be termed the "period of enlightened despotism." Instead of trying to stimulate the local pursuits of the natives, the Administration decided to introduce among the Kamchadal occupations belonging to Russian civilization. By means of flogging and other modes of punishment, the Kamchadal were forced to build Russian houses, sow rye, raise vegetables, and breed cattle. The constraining measures innocently used by the despotic civilizers killed in the Kamchadal all initiative and energy: their individuality was totally crushed. Of course, all attempts to introduce agriculture utterly failed, while cattle-breeding and horticulture are still carried on in a desultory way. This "enlightened despotism" had its effect also on the Koryak settlements in northern Kamchatka. Here horticulture proved impossible, while horses and cattle are bred on a small scale. Thus, according to the data for 1896, there were in the village Dranka 9 horses and 17 cows; in Karagha, 3 horses and 2 cows; in Uka, 1 horse; in Pallan, 7
horses and 21 cows; and in Lesnovskoye, 27 horses and 2 cows. A somewhat greater number of these animals is found in the village Yamsk of the Okhotsk district. In 1895 there were in that village 30 horses and 40 cows; here, however, the population consisted in part of Yakut, who, being born cattle-breeders, take much better care of their cattle than do the Kamchadal and Koryak. The inhabitants of Yamsk also raise potatoes; in 1895, 63 puds1 of these were planted, and 602 puds were reaped.

The Missionaries. — With the exception of a few noble personalities, like the Aleut missionary Veniaminoff, or the Altai missionary Verbitsky, the history of the activity of Greek-Orthodox missionaries among the heathen peoples of Siberia cannot be considered honorable. Up to the present time, the priests and monks sent to the Far Northeast are men of little education; they do not know, and are not able to study, the languages of the natives; they have rough manners, and are utterly lacking in qualities indispensable in expounders of the moral foundations of Christianity. Among the Koryak, the Russian missionaries had at first no success whatever. Among the Kamchadal, baptism in the beginning served as a means of making slaves of the newly baptized; and missionaries, no less than Cossacks, strove, above all, to secure furs. The secular chiefs often regarded the conversion of the Kamchadal to Christianity as one of the means of subjecting them. One of these chiefs would hang a Kamchadal who refused to be baptized; others excused the newly baptized for a number of years from paying tribute.2 From the Kamchadal the missionaries proceeded to the Uka and Pallan Koryak of northern Kamchatka, and from there to the Alutor. In Dranka there is at the present time a church with a resident priest. But all these Christianized Koryak adopted to a certain degree only the formal side of the Orthodox creed. The same holds true of the Russianized Koryak of the Okhotsk district and of the village Nayakhan in the Gishiga district, while the great bulk of the population of the Gishiga district has until to-day entirely resisted Christianity. These phenomena must in part be ascribed to the great tenacity with which the Koryak cling to their old religious beliefs. Besides, however, the Koryak are reluctant to undertake the burdens associated with baptism. The priest must be paid for performing the ceremonies of the Church, and be driven about the villages and settlements without remuneration to the drivers. To this must be added the abuses and extortions committed by the priests, against which the secular administration itself has repeatedly protested. In the Gishiginsk Archives there are several suits directed against the abuses of the clergy. Thus a suit was filed against three priests who had entered the services of merchants as drivers of goods, at the same time

1 One pud is equivalent to 40 Russian or 36 English pounds.
2 For very interesting data on the unfavorable activity of the clergy, and on the oppression of the Kamchadal by the officials, see Dr. Tushov, Along the Western Shore of Kamchatka (Memoirs of the Imperial Russian Geographical Society, Vol. XXXVII, No. 2, St. Petersburg, 1909).
making free use of the transportation facilities of the Russian settlers and the natives, in their capacity as priests.1

Without going into a discussion of questions of a purely religious character, it must be said that the priests would have been in a position to promote the cultural mission, had better men been selected, and had their subsidies from the Government or private missionary societies been large enough to prevent them from becoming a burden to the local population.

The Americans. — Of the representatives of other civilized nations, the Koryak know but the name “Americans,” — American whalers. The carving shown in Fig. 173, p. 655, representing the captain of an American, whaling-ship, testifies to the fact that the Koryak are acquainted with American seamen. It is hard to fix the date when American traders first appeared in Koryak waters; certain it is, that as far back as the first half of the nineteenth century American whaling-ships hunted for whales and other sea-animals in many places on the Okhotsk and Bering Seas. They entered into relations with the Koryak, and carried on barter with them. The Gulf of Baron Korff, the island of Karagha, and Penshina Bay, were among the places visited by American schooners. At present such visits are less frequent, owing to the decrease of the number of sea-animals in these regions. From its earliest days and up to the present time the American hunt of sea-animals in these waters has been carried on as contraband; but, owing to the absence of coast defences, the hunt of sea-animals, as well as the barter with the Koryak, continue undisturbed. The Koryak themselves are sympathetically disposed towards American seamen. These men from beyond the sea demand no tribute, want no free services; on the contrary, they themselves perform services for the Koryak (see p. 550). The American articles which they offer in exchange for reindeer hides and furs are cheaper and of better quality than the articles brought by the Russian merchants. The elder of the Tai-gonos Koryak once asked me this question: “Tiyk-e’yim (Sun Chief; that is, the Czar) is so powerful; why are his workers inferior to those of the American e’yim (chief)?” The guns, cords, and clothes received from the Americans are of better quality than the Russian ones. — The alcoholic liquors which the American traders carry along with other good things are also highly appreciated by the Koryak. There were cases however, when the crews of American schooners entered Koryak villages with other than amicable intentions. In connection with one visit of American sailors to Koryak villages, there is in the Archives of the Gishigia district Administration an interesting “case” (No. 578) referring to the year 1856. The heading reads, “The case of the robbery of the Kamenskoye and Levatt Koryak by men of unknown nationality who arrived on ships.” In substance it was the following: —

Early in the winter of the year 1856 some Koryak from Kamenskoye —

1 From records in the Gishiginsk Archives.
went to Gishiginsk and complained to the authorities that they themselves, and the inhabitants of the neighboring village Levatt, had been robbed in the summer by American whalers. All the inhabitants of these two villages had departed in their skin boats to hunt seals. Only two Koryak had remained in Kamenskoye. While the villages were still deserted, two threemasters entered the bay and dropped anchor in the vicinity of Kamenskoye. Here three whales were killed. The men from the ships boarded their whaleboats and came ashore. The two Koryak mentioned above, seeing the approaching strangers, left the village and fled to a near-by rock. Watching the strangers from afar, they saw how they carried out of the houses foxes, reindeer-hides, and fur garments. Then the sailors entered Levatt, where they proceeded in the same fashion. Further, it appears from the "case" that an account of the occurrence, written by the chief of the Gishiga district, was sent by the Governor to the Minister of the Interior, who passed it over to the Ministry of Foreign Affairs, to be presented for explanation to the United States of North America. The Minister of Foreign Affairs, however, declared that he could not adopt the course of action suggested, for the testimony of the two Koryak was insufficient to positively establish the nationality of the sailors. Thus the affair remained unexplained. As, however, whalers of no other nationality had until then visited Gishiga Bay, it seems plausible that the whalers in question were Americans.

The Neighboring Peoples. — The neighbors of the Koryak at the present time are the Chukchee in the north, the Kamchadal in the south, the Yukaghir in the west, and the Tungus in the southwest. On the middle course of the Penshina River we find, wandering with their herds, the remainder of the now almost extinct Chuvantzy people, who were related to the Yukaghir, but have now become assimilated with the Koryak. From the direction of the Kolyma River, single representatives of the Yakut people at times go to the Koryak territory as traders. The Russianized Koryak of the Okhotsk district, like the inhabitants of Yamsk and Tumanskoye, have to a certain degree mixed with the Yakut, who have been forced to migrate from the vicinity of Yakutsk to the shores of the Okhotsk Sea.

I have repeatedly mentioned the fact that the Kamchadal, Koryak, and Chukchee are really branches of one and the same people, as testified to by the type of their languages, their religion and culture, except for the fact that the Kamchadal have no reindeer-herds. According to tradition, the early relations of the Koryak with the Chukchee were different from their relations with the Kamchadal. With the former the Koryak were constantly engaged in war, while their relations with the latter were of a more friendly character. The reason for this probably lies in the fact that the Reindeer Chukchee and the Reindeer Koryak, whose territories were as loosely defined in olden times as they are now, came into constant collision regarding pas-
turages. Besides, in the days when might was right, herds were often taken by force through direct attack of the herd-owner: they had to be always watched, arms in hand. The Reindeer Chukchee, in their invasions of the Koryak Reindeer camps, would ultimately reach the sea and attack the settlements of the Maritime Koryak. The northern villages of the Kerek are still subject to oppression by the Reindeer Chukchee, who, as the Koryak, often rob the Kerek of their stores, and exact service from them.

We have some traditions recording wars between the Kamchadal and the Koryak. Without doubt, such wars occurred often, as well as lesser feuds between the various groups of each of these two peoples; but what may be concluded from the traditions is, that no such antagonism existed between the Kamchadal and the Koryak as between the latter and the Chukchee and Yukaghir. This could possibly be explained by the fact that in northern Kamchatka the settlements of the Maritime Koryak are in direct contact with the settlements of the Kamchadal. It would have been hard to draw an ethnographic line between these settlements Marriages between the peoples were common, and the border region was populated by a mixed people.

The Kamchadal obtained from the Reindeer Koryak, through barter, hides for clothing, and these trading-relations were peaceful. In olden times the Reindeer Koryak did not advance in Kamchatka farther south than Tighil. The subsequent movement of the Reindeer Koryak along the western slope of the Kamchatka ridge southward led to complaints from the Kamchadal, who accused the reindeer-breeders of driving away their game-animals or of killing them out of the hunting-season. To regulate these conditions, the Russian authorities require from the Reindeer Koryak, that whenever they pass to the Kamchadal territory, they shall secure the consent of the neighboring Kamchadal villages and abstain from hunting earlier than the Kamchadal hunters. On the other hand, the Kamchadal derive benefits from the close proximity of the Reindeer Koryak; for, outside of the advantages of barter, the Koryak kill reindeer for the Kamchadal in times of famine. Still the Koryak are not admitted to the valley of the Kamchatka River.

The relations of the Koryak to the Yukaghir and Tungus will be discussed more fully in the work on the Yukaghir. Besides, the Koryak at present scarcely ever meet the Yukaghir. Only those of the Reindeer Koryak who during the winter traverse the Stanovoi Mountains to the valleys of the Korkodon and the Omolon Rivers, come in contact with the Korkodon Yukaghir. Their relations with the Yukaghir are rather of a beneficial character. The Yukaghir are too poor to carry on regular barter. Generally they induce the reindeer-owners to give them some hides and a little deer-meat for nothing. The Tungus, who before the advent of the Russians, were constantly at war with the Koryak, began, after the subjection of the country by Russia, to penetrate the unoccupied localities in the Koryak terri-
Being hunters, they occupy the wooded valleys of rivers which abound in game, and where the Koryak with their herds are seldom met with. Friction is thus avoided. It even happens that the Koryak and the Tungus peacefully camp not far from each other or side by side. Thus the Tungus gradually advanced to several tributaries of the Penshina River, on which the squirrel occurs; and along the shores of the Okhotsk Sea they quite recently penetrated, even to Kamchatka, where, besides finding plenty of food for their reindeer, and mountain-sheep for hunting, they ran across a valuable fur-animal, — the sable.

Thus the original warlike relations of the Koryak with the neighboring natives were in the course of time superseded by entirely peaceful relations, based chiefly on barter. It is true that the Koryak still have contemptuous nicknames for each of the peoples; but, wherever they come into contact with these peoples, they form friendships and favor intermarriages.

An interesting trait in the lives of these primitive peoples is the remarkable tolerance with which they treat each other's customs and beliefs, and their willingness, in case of need, to recognize each other's strength or superiority. Thus the Koryak do not hesitate to appeal for assistance to the shamans of the Chukchee or Tungus. A foreign shaman is even treated with more than the ordinary respect accorded to his class, for he is the master of spirits who are beyond the control of local shamans. When a Koryak enters into the relation of marriage or of friendship with a person belonging to another people, the accompanying ceremonies follow the custom of either of the two peoples, according to agreement. If a Koryak, for example, marries a Tungus girl, the marriage ceremony is performed in accordance with Tungus customs, and he pays a ransom for the bride. A Tungus girl, on the other hand, on entering a Koryak household, puts on Koryak garments and submits to the customs which regulate the home life of the Koryak. A Tungus has to serve for his Koryak bride. Tungus-Koryak marriages are, however, very rare in the interior of the country. As indicated above, intermarriages of the Koryak with the Tungus are of most frequent occurrence in the territory of the Reindeer Koryak on the Gishiga and Varkhalam Rivers. Although the Tungus are all Christians, they do not invite the Russian priests to perform their marriage ceremonies whenever one of the parties belongs to the heathen Koryak, but wed according to Koryak or ancient Tungus customs. Marriages between the Koryak and the Chukchee are more frequent than those between the former and the Tungus. In the case of these intermarriages, the Chukchee camps within the Koryak territory, like those in the north of Kamchatka or on the Parnol Dol, adopt Koryak customs; on the Chukchee frontier, on the other hand, in the northern part of the Palpal, the Koryak submit to Chukchee customs, including that of exchanging wives.
LIST OF KORYAK AND ALLIED NAMES.

For page references to the text, when not given in this list, see Index, under the English equivalent, which is here enclosed in parentheses following the foreign word. Entire entries in parentheses are of either Chukchee or Kamchadal origin.

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Anna'mayat (Frost-Man).
Annok, village, 440.
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A'qafa'ut (Sea-Woman).
A'rqij (Strong-One).
Anyapel (Spider-Woman).
Anyapilaq (little grandmother).
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Apka'wka (Able-to-do-Everything).
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