

THE KAMCHADALS

BY

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TYPESCRIPT PREPARED BY INGRID SUMMERS AND DAVID KOESTER

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THE COUNTRY OF THE KAMCHADALS

Geologic Past of Kamchatka. Professor Obruchov¹ says that at the end of the Miocene Epoch the western shore of Kamchatka was sinking, and Professor Bogdanovich² supposes that during the Pliocene Epoch a considerable part of the present western and eastern shores of the peninsula were still covered with water. The beginning of the Quaternary, says Obruchov, evidently formed a continental phase of the Mio-Pliocene Epochs; the land in Siberia reached its maximum extension; the Bering Strait did not exist as yet, and the Chuckchee Peninsula was connected with Alaska, and therefore the northeast of Siberia must have had a milder climate than at present. But all these are geological periods which preceded the appearance of man.

The Pleistocene Epoch, which is associated with the existence of man, may be proved in the valley of the Kamchatka River, according to Bogdanovich, by the frequent occurrence of remains of the mammoth and the *Bison priscus*. But nothing is said about the remains of man. In many places of Siberia man was contemporaneous with the mammoth, but there is a question, whether the same was in Kamchatka. About the end of the Pleistocene Epoch, says Bogdanovich, there was an extensive glaciation in many places of Kamchatka.

These climatic changes do not interfere with the writer's theory of the migration to America of the Siberian-Americanoid tribes, including the Kamchadals, in one of the Interglacial Epochs, and of

¹ W. A. Obruchev. *Geologie von Siberien*, Berlin, 1926.

² Karl Bogdanovich. *Geologische Skizze von Kamchatka*, Petermann's Mitteilungen, Band 50, 1904, pp. 66, 198, 217.

their reemigration to northeastern Siberia after it was released from the ice.

But especially of the Kamchatka Peninsula must be noted, that our theoretical considerations are proved by archaeological evidence. No artifacts of the palaeolithic man were discovered by the author on Kamchatka, and it is possible that no man lived during the old stone age on the Kamchatka Peninsula. It remains, however, for the future to prove or disprove it. In order to clear up my doubts in this respect I communicated with my friend the Russian geologist, Professor I. P. Tolmachov, now curator of the Department of Invertebrate Palaeontology of the Department of Invertebrate Paleontology of the Carnegie Museum, Pittsburgh, Pennsylvania. He writes that it is hardly proper to conclude that man lived in the Kamchatka River valley in the Pleistocene Epoch on the only ground that remains of mammoth and of *Bison priscus* were found there. Mammoth and man very often were neighbors but, as it seems, their dependence was not necessarily mutual. Man might follow the mammoth in order to hunt him, but the mammoth had no need of man. Thus the remains of mammoth do not indicate that man lived in the same place if there is no direct proof of it. However, the presence of the mammoth may postulate to climatic conditions fit for man to live in, and it remains for the future to find remains of the palaeolithic man; but for the time being one may be right to hold to the theory of the peopling of Kamchatka in Recent Times, especially since no palaeolithic artifacts were discovered in my excavations, and I feel authorized to say that the late peopling of Kamchatka may corroborate the theory of the reemigration of the Siberian Americanoids from America after the last glaciation subsided. To be fair, however, I must add that I had no time to make excavations in the Kam-

chatka River valley and that no regular excavations in the territory of the other Americanoids - the Koryaks, Chuckchee and Yukaghirs were made.

Geography and Occupations. The country of the Kamchadals - or the part of the Kamchatka Peninsula to the south, from the Amanino village to the west, and Osernaya River to the east - was a part of the Primorskaya Province. In 1909 a new province of Kamchatka was created, which included 6 districts: Okhotsk, Gishiginsk, Anadyrsk, Chukotsky, Commandor Islands and Petropavlovsky. The last district is the territory of the Kamchadals. The city of Petropavlovsk was made the capital of the province and the seat of the newly appointed Governor.

The former Territory of the Kamchadals is inhabited by 8,037 people, of which 3,370 are Russians, 3,555 Kamchadals, 802 immigrated reindeer Koryaks and Tunguses and 300 Chinese, Koreans and Japanese. There were also 10 Europeans and Americans.³

The Kamchadals have become Russianized and only the inhabitants of seven villages (between Amanino and Sopochnoye) of the western coast have preserved their native language - the western dialect of the Kamchadal language - and the inhabitants of the village Sedanka on the Tighil River speak the northern dialect. There were formerly four Kamchadal dialects, and at present even the Kamchadals, who

³ According to official data of 1911. During the summer fishing season, Kamchatka's shores have many thousands of temporary dwellers. Russians who operate canneries and salteries bring thousands of laborers. The number of Japanese fishers at the time of my stay in Kamchatka was estimated at more than 10,000. About 250 Japanese schooners were lying near the shores and about ten Japanese steamers were coming from and leaving for Japan. According to the convention concluded after the Russian-Japanese War the Japanese were authorized to fish everywhere in Kamchatka waters except bays and river-mouths, but by bribing the guards they used to fish also in the inner waters.

speak two dialects, use more of a Russian-Kamchadal slang than the pure Kamchadal. The younger generation is learning Russian in the schools, and soon the Kamchadal language will be forgotten entirely as was the case with the dialect of the Kamchatka River and with the southern dialect, which was spoken between the Great River (Bolshaya Reka) and Lopatka Cape. While the northern dialect of the Kamchadals on the Tighil River contains many Koryak words, the southern dialect had an intermixture of Kurillian words. Krasheninnikov called the southern Kamchadal people Kurillians.

The Kamchadals had been and still remain a genuine fishing tribe. They did not adopt from their Koryak neighbors the domestic reindeer, although they were hunting the wild Kamchatka variety of reindeer. Fish, different species of salmon, ascend the Kamchatka rivers in such abundance that they amply satisfy the needs in food. The Kamchadals have no time during the short fishing season to dry or smoke all the fish for the winter and the greater part of it is put in holes covered with stones and earth, and during the winter it is consumed in a decayed state by dogs as well as by men.

To a certain degree the Kamchadals of the western coast hunt sea mammals, but, not having skin boats, they do not go out to the sea, but kill those seals, white whales (*Delphinopterus leucas*) and seldom sea lions which enter the mouths of the rivers in order to catch the ascending fish. Thong nets are put up for that purpose. The Kamchadals also kill seals, spearing and shooting them at their rookeries.

Horned cattle and horses were imported into Kamchatka chiefly from the Okhotsk district, i.e., of the Yakut race, In spite of the fact that they are badly cared for, they became acclimatized in Kamchatka and are a strong race of domestic animals. The Kamchatka

horses are small, short necked, wide breasted and with short legs. during the winter they become covered with long thick hair, particularly their legs. Horses are used only in summer - as riding and pack animals. During the winter they are set free and have to graze from under the snow; rarely are they given hay and they therefore turn wild and have to be captured in the summer by lassos and trained again for riding.

Cow's milk plays at present an important role in the food of the Kamchadal and Russian inhabitants of the country. They use sweet as well as sour milk and pot cheese. Butter is rarely made, although the milk is rich in fat. But the Kamchatka cows give a small quantity of milk, about three or two quarts a day, as a result of scanty feeding in winter and of being kept in cold stalls. The Kamchadals make little hay, as the season for fishing and hay making coincide. One cow may be reckoned for every three inhabitants. The number of cattle may be estimated, according to the writer's census, at about 2,000.

Prior to the advent of the Russians the only domestic animal of the Kamchadals was the driving dog. The Kamchadal dog was regarded as the best and biggest driving dog of Siberia; at present, as a result of unfavorable conditions of life, it has become small in size. The dogs work hard during the winter, but during the entire summer they are tied up, otherwise calves and colts and sometimes cows and horses are in danger of being torn by them. They are kept far from the village and poorly fed. Owing to the economic, climatic and topographic conditions of the country, the Kamchadal can not dispense with the driving dog, and every family has from eight to fifteen dogs. The number of dogs in 1911 in Kamchatka, according to my census, was more than 5,000. The old Kamchadal sledge

for riding astride is no longer in use, the Russians having introduced the type of sledge used all over eastern Siberia. The dogs are harnessed to the sledge, being tied in pairs to a long thong.

There are no domesticated small animals, as goats or sheep and birds, in Kamchatka, as they would be exterminated by the ever hungry dogs, which very often find means to free themselves.

The Russian Government repeatedly tried to introduce agriculture and gardening into Kamchatka. For this purpose peasants from Southern Siberia and European Russia were transferred several times to Kamchatka, but all experiments have failed and the imported husbandmen turned to fishing and hunting. Only in the valley of the Kamchatka River, near the village Kluchevskoye, small sowings of barley are still being made, but without any economic importance.

Experiments with gardening appeared to be more successful. Potatoes grow all over Southern Kamchatka where the digging of edible roots had almost ceased. Turnips grow there and the inhabitants of Kluchevskoye also grow cabbage, which heads well.

CLIMATE OF KAMCHATKA

The following data on the climate of the Kamchatka Peninsula are based on observations made in 1908-1909 by the members of the Meteorological Division of the Riaboushinsky Expedition headed by Dr. V. A. Vlassov.

As climate is one of the most effective nature-agents regulating human life, data concerning three chief regions of the country will be given: the western coast, the eastern coast and the central part, represented chiefly by the valley of the Kamchatka River. The western and eastern shores represent maritime climates, while the climate of the central part may be characterized as a continental one.

The climate of the western coastline of Kamchatka is more

severe than that of the eastern, due to the cold Okhotsk Sea. During the winter cold winds prevail, blowing from the Siberian continent, the region of the great Siberian anticyclone. A late spring and a cold summer characterize the climate of the western coast. On the eastern shore of Kamchatka, under the moderating influence of the Pacific Ocean, frosts in the winter are not severe. Rain and snowfall are more abundant. However, the cold current arriving from the Bering Strait and the amount of ice it brings delay the beginning of summer and reduce its temperature.

The climate of the central Kamchatka, confined by its western and eastern mountain ridges, i.e., the valley of the Kamchatka River, distinguishes itself by all the peculiarities of a continental climate, having a cold winter and a comparatively warm summer. In order to demonstrate what have been said of the three climatic regions, mean annual figures for three points are given: for Tighil on the western shore, Petropavlovsk on the eastern shore and Kluchevskoye in the valley of the Kamchatka River.⁴

	Jan. °C	Feb. °C	Mar. °C	Apr. °C	May °C	June °C	July °C	Aug. °C	Sept. °C	Oct. °C	Nov. °C	Dec. °C	Year °C
Tighil	- 20.0	- 19.8	- 13.6	-2.2	2.4	6.2	11.3	12.1	7.0	-1.0	-7.4	- 17.2	-3.5
Petropavlovsk	- 10.9	- 11.2	-7.0	-1.6	3.1	7.9	11.8	13.5	9.8	4.2	-1.8	-6.6	1.0
Kluchevskoye	- 16.4	- 15.2	- 11.3	-1.5	4.6	8.5	12.15	13.1	8.8	-1.4	-7.8	- 18.0	-2.0

⁴ See V. A. Vlasov, The Kamchatka Expedition of F. P. Riaboushinsky organized by the Imperial Russian Geographical Society, Meteorological Division, vol. I, part 1, On the Climate of Kamchatka; part 2, on the Temperature of the Waters. Moscow, 1916 (in Russian). Centigrade thermometers were used.

from this table it is seen that the climate of Tighil is much colder than that of Petropavlovsk and that the climate of Kluchevskoye, by its yearly and some of its monthly mean temperatures, is colder than that of Petropavlovsk, but by its summer temperature (May, June and July) it is warmer than that of Petropavlovsk.

Temperature of the soil

monthly means, 1909

	Jan.°C	Feb.°C	Mar.°C	Apr.°C	May°C	June°C	July°C	Aug.°C	Sept.°C	Oct.°C	Nov °C	Dec.°C	Amplitude
Petrovavlovsk													
(1)	-10.5	-10.6	-7.3	-0.5	8.8	14.5	17.6	15.6	10.9		-4.7	-10.5	28.2
(2)	0.6	0.4	0.3	0.1	4.9	0.3		13.4	10.9		1.9	0.9	13.3
(3)	1.9	1.6	1.4	0.9	3.1	6.5		12.1	10.4		3.6	2.4	11.2
(4)	3.8	3.4	3.0	2.6	1.6	2.7		6.8	7.1		5.2	4.4	5.5
Kluhevskoye													
(1)	-15.1	-17.3	-12.2	-2.4	10.2	15.6	19.3	15.9			-8.3	-19.3	38.6
(2)	-9.5	-10.3	-7.8	-3.1	3.5	9.3	12.8	12.4			-3.0	-10.4	23.2
(3)	-1.2	-2.6	-2.8	-2.2	-0.8	0.0	2.0	4.0			1.7	0.1	6.8
(4)	1.4	1.0	0.7	0.5	0.4	0.4	0.4	0.4			2.7	2.1	2.3
Tighil													
(1)	-15.3	-20.3	-14.0	-2.8	6.8	13.0	15.7	12.3	8.4	1.7	-6.1	-15.6	36.6
(2)	-11.9	-14.7	-12.0	-3.9	1.6	6.9	10.6	10.7	8.1	2.7	0.8	0.4	25.4
(3)	-3.1	-6.2	-6.9	-4.4	-0.3	0.0	1.1	4.0	5.1	3.0	0.9	0.3	12.0
(4)	0.4	0.0	-0.3	-0.9	-0.6	-0.2	-0.2	-0.2	0.0	0.3	0.3	0.2	1.2

(1) means of the surface

(2) means of 0.25 meter deep

(3) means 1.0 meter deep

(4) means 2.0 meter deep

This table is compiled from the numerous data on this subject by Vlassov, in order to show what time of the year may be regarded as the most favorable for making excavations in Kamchatka. In Petropavlovsk from May to September inclusive; in Kluchevskoye from July to September; in Tighil in August and September, and even in these two months we meet the freezing point at the depth of two meters. My own experience in that region gave still less favorable results. While digging on June 11 on the bank of Kulki River, a tributary of Tighil River, not far from the village Tighil, I met frozen soil at the depth of one foot and down. According to Vlassov only at the depth of more than one meter (3.28 feet) is the soil in Tighil frozen in that month.

SANITARY CONDITIONS AMONG THE KAMCHADALS

The Russian conquerors have exercised a distintegrating influence on the family life of the Kamchadals. Among the Kamchadals unchastity has been more or less common in the case of girls before marri-

age and of women after marriage. The Russians made liberal use of this custom and in this manner syphilis brought by them was widespread among the Kamchadals. This contagious illness resulted in different inherited diseases. In twenty-six villages of the western coast of Kamchatka, out of a population numbering 2,500, 250 people (i.e., 10 per cent) were, according to my census in 1911, cripples (blind, deaf-mute, humpbacked, lame persons and so forth); particularly were there many blind people, an average of 1 per cent and half of the population was suffering from eye diseases. Plate 2, figure 2, shows a photograph of 11 blind men and women of the village Kharyusovo, which had 200 inhabitants; i.e., 5.5 per cent of the population were blind.

These observations refer to the year 1911 and it would be fair to relate observations of later years.

Dr. Shirokogorov,⁵ basing his statement on a recent (1919-1920) medico-statistical survey by Dr. Puxov who put his material at his disposal says that some groups in Kamchatka after being exposed to syphilis, alcoholism, tuberculosis and other consequences of Russian influence, show a marked increase over the former number. But these general observations are not corroborated by statistical figures.

The well-known investigator of Siberia, Patkanov,⁶ has shown

⁵ S. Shirokogorov, Northern Tungus Migrations in the Far-East, The Journal, North China Branch, Royal Asiatic Society, vol LVII, 1926, p. 174.

⁶ S. A. Patkanov, On the Increase of the non-Russian Population in Siberia, published by the Imperial Russian Academy of Sciences, St. Petersburg, 1911 (in Russian).

that the groups which had adopted a higher system of economical organization (cattle breeding, agriculture, etc.) show a marked increase in population. But these groups do not include the Kamchadals. On the other hand the latest investigators of Kamchatka, the Swedish traveler Bergman⁷ and the Russian Gapanovich,⁸ attest the same state of affairs as pictured by the author. Only the infusion of fresh blood may save the Kamchadals from extinction. And the Kamchadals are conscious of it. I remember how some Russian adventurers coming from Vladivostok after the Russian-Japanese War were welcomed and adopted by the villagers of the western coast of Kamchatka, and the hunting rights of their territory were extended to them, provided they settle there.

⁷ Sten Bergman, *Vulcane, Bären und Nomaden - Reisen und Erlebnisse im wilden Kamtschatka*, Stuttgart, 1926, Chapter: "Durch sterbende Dörfer langs der Küste des Ochotskieschen Meeres," pp. 177-180. German translation from the Swedish.

⁸ I. I. Gapanovich, *The Native Population of Kamchatka, North Asia*, Jour. Social Science, Moscow, 1925, No. 5, pp. 40-52 (in Russian).

The Art. Like the Koryaks, the Kamchadals are greatly skilled in the art of cutting in bone, horn and wood of realistic figures of men, animals and birds. The Kamchadals are able also to ornament clothing, skillfully and nicely, with many colored silks, threads and sinews, with pieces of many colored painted leather, and figures - geometrical, stylized and realistic - of many colored pieces of fur from reindeers' legs. Thus are famed the Kamchadal "opuvans" - broad ornamented stripes on the skirt of clothing over the fur trimming - and fur rugs, ornamented with figures, of short haired skins of legs of reindeer calves or of fur from reindeer legs.

THE SIBERIAN NEOLITHIC CERAMICS. The Siberian neolithic ceramics are marked by their elegant form and variable ornamentation, by which they advantageously distinguish themselves from the neolithic ceramics of European Russia. They consist of egg-shaped pots with a conical bottom. When put on the hearth they were supported by three stones which took the place of the present tripod. Pots with a flat bottom, which are characteristic of the iron period, are almost absent. In a neolithic station on the Baikal Lake Prof. Petri found, however, two flat-bottomed pots. The walls of the Siberian neolithic pottery were thin and porous in order to accelerate boiling, which the flat-bottomed clay vessels of the metallic ages have thick and compact walls and are used for conservation of liquids and milk products and not for cooking. The large amount of the remains of pottery shows that the Siberian neolithic man was rather a settled dweller, as pottery requires a more sedentary mode of life on account of its fragility. The use of pottery is an effective check to nomadism. The manufacture of the Siberian neolithic pottery was evidently the privilege of the women, as decorative patterns produced by fingers show the small finger traces of women. The clay vessels

had handles outside the upper rim, or perforations under the rim, which were intended to suspend the vessels over the fire. For cooking in wooden trays and for pottery with handles inside see in my work "Archeological Investigations in Kamchatka" published by the Carnegie Institution of Washington in 1928, p. 73. As tempering ingredients Prof. Petri found quartz, sand and gravel, but no other nonplastic materials. He contends also that cooking by means of hot stones put in wooden trays filled with water was not used by the Siberian neolithic man. He does not mention inside handles like those of the primitive Aino-Kamchadal pottery.

THE KAMCHATKA PROVINCE

Before the foundation of the Kamchatka Province the Okhotsk District in an administrative way was incorporated into the Yakutsk Province. At present it enters into the Kamchatka Province. The Russian inhabitants of the district are chiefly concentrated in the district city Okhotsk. Before the conquest by the Russians of the Amur Region Okhotsk was the chief harbour and the administrative center for the intercourse with Kamchatka and the other Russian possessions in the north-eastern Siberia. Later it served as residence of the chief of the district. The inhabitants consisted of kosacks of the Yakutsk regiment, of several merchants and citizens. In the former time the number of population have reached several thousands souls, in the latest time, however, it consisted only of about 300 people. A part of them consisted of russianized Yakuts and Tunguses. As for its climate, as well as for its situation Okhotsk may be regarded as the most unfavorable place for living on the whole Okhotsk coast. Even the growing of vegetables is impossible in the swamps nearby Okhotsk. Horses and horned cattle were kept in villages situated upwards on the river Okhota.

The inhabitants of the villages Insk, Tauisk, Arman, Ola, Yamsk, Takhtoyamsk, Tumany, Meta and Bakhchich consist of mixed blooded russionized natives. In all the mentioned villages were 902 souls (465 men and 437 women). They live on fishing and hunting of land and sea mammals. They have also horses and horned cattle, but for winter traveling they keep dogs.

The Russians of the Gishiga District. The Russian population of this district is concentrated in the district town Gishighinsk and in the nearby villages: Kushka, Levchak, Krestovoye and Paderino.

Gishighinsk is situated in twenty versts from the mouth of the Gishiga River, Kuschka on the mouth and the other villages in 5, 10 and 15 versts⁹ from it. The total number of Russians was in 1894 516 souls (265 men and 251 women), and, according to the report of the governor of Kamchatka to the czar for the year of 1911, the Russian population of the Gishiga district consisted of 584 souls (312 citizens: officials, clergy and merchants, of 240 cosacks and 32 peasants).

The Russians in the District of Petropavlovsk. Of the 8069 inhabitants of the district of Petropavlovsk Russians were, according to the dat of the year of 1912, 3270 souls. In this number were included 1223 citizens (officials, clergy and merchants), 620 cosacks and 1427 peasants. A small number of Russians live in the villages of the Kamchadals. The Kamchadals themselves were subjected to a more or less degree of mixture with Russians, but the following places have almost exclusively a Russian population: Petropavlovsk, Tighil, Bolsheretzsk, Ust-Kamchatsk, Nishne-Kamchatsk, Verkhne-Kamchatsk, Milkovo, Klucheveskoye and Kresty. Near Petropavlovsk there are 8 Russian villages (Seroglaski, Avacha, Nikolayevsk, Stary Ostrog and others). Besides, after the war with Japan, 400 men of those Russians, who remained in the Amur region, started to Kamchatka. They founded two villages on the western shore and two on the eastern. Besides, near the city two villages were founded by the sectarians of the Amur region. The chief occupation of the Russians on Kamchatka, as well as of the Kamchadals, consists in fisheries and in hunting of the sable. All the Russians on Kamchatka have horses and horned cattle. Cows are about three times more than horses and therefore milk products play a great part in the food of the Kamchatka's Russians. Horses they use only during the summer as riding and pack

⁹ a verst is equal to 0.66 of a mile.

animals in the swampy and mountainous places. During the winter the Russians, like the Kamchadals, are traveling on dogs.

Of the history of places, inhabited by Russians, is interesting to mention the following ones:

Bolsheretzsk was founded as a military post in the year of 1711. Its significance increased after the discovery in 1716 of a sea route between Okhotsk and Kamchatka. In 1785 the chief administration of the country was removed to Nishne-Kamchatsk.

In the year of 1812 Petropavlovsk and Bolsheretzsk lost their priority. At present Bolsheretzsk represent a small and poor Russian hamlet with 12 houses and population of 100 people of the descendants of cosacks, soldiers and hunters.

Tighil, formerly called Shipinsky fortress, was fortified in the year of 1744 and was called Fortress of Tighil, but it was built earlier. Thus to Tighil landed in 1716 the first ship which came from Okhotsk. In the middle of the former century the fortress vacated and the village was transferred up the river in 45 versts (about 40 miles) from its mouth. Tighil makes the impression of a large Russian village. The houses are situated in two rows, forming one long street. The village has about 60 houses with 302 inhabitants, consisting of cosacks, merchants and citizens. For the summer the inhabitants of Tighil move for fishing to the mouth, where there are summer dwellings. There also land the freight-passenger steamers, which make their regular voyages in the Okhotsk Sea.

Ust-Kamchatsk, on the mouth of the Kamchatka River, is inhabited by cosacks, who were transferred from the vacated fortress of Bolsheretzsk. The inhabitants, about 100 souls, are fishing, gardening and cattlebreeding.

Verkhne-Kamchatsk and Nishne-Kamchatsk are two ancient fortresses, inhabited by descendants of cosacks. There are 68 inhabitants

in Verkhne-Kamchatsk and 107 in Nishne-Kamchatsk.

The most populous Russian villages in the valley of the Kamchatka River, which are inhabited by descendants of cosacks and peasants, are Kluchevskoye and Milkovo. Already in the year of 1733 in these villages were settled, in order to develop agriculture, several families of peasants. In the years of 1738, 1744 and 1758 there were again settled peasants from the banks of the Lena River in order that they may develop agriculture, but it was abandoned, when it appeared to be unsuccessful. Only in the village Kluchevskoye the people sowing potatoes, and with cattlebreeding. In the village Kluchevskoye were 376 inhabitants, and in Milkovo 342. Of course, the largest place with a Russian population is Petropavlovsk, from the year 1909 the residence of the governor of the newly organized Province of Kamchatka.

Beside Petropavlovsk there are on Kamchatka 46 villages. All the villages of the western shore are situated on the banks of rivers, some distance up from their mouths. On the eastern bank we find now one village in the mouth of the Kamchatka River and on its tributaries. In olden times Kamchadal villages were also found on the rocky shore of eastern Kamchaka. Traces of ancient village may also be found on the shores of the lakes Nalecheva, Kronotzkoye, Kurilian and in some other places.

The Dwelling of the Kamchadals. The ancient earthen hut of the Kamchadals, as it was described by Steller and Krasheninnikov, disappeared now altogether. At present the Kamchadals live in Russian wooden frame houses. The house is usually divided by a boarded partition into a habitable room, with a Russian stove, and a clean chamber. Often a special vestibule separated the clean chamber from the habitable room. The roof is made of grass or bark. The windows are mostly drawn over by fish-skins or by sewn together bear's or seal's guts. Of the old type of Kamchadal constructions there are preserved the former coniform or with slopes "balagans" on high piles, which are ascended by means of sloping notched beams. During the summer in some places the people still live in such balagans and in the winter they store there their food supplies.

Sea Hunting. The inhabitants of the western shore of Kamchatka at present also are hunting sea-mammals. The kamchadals do not start into the sea, not having skin-boats and canoes like those in use among Koryaks and Chuckchees. The Kamchadals descend in their boats made of boards and called "bats", to the river mouths and put up leather nets for seals, belukhs (*Delphinopterus leucas*) or sea-lions. Sea-lions, however, are seldom seen. Sea animals usually enter the mouths of rivers which hunting fish. On their rookeries seals are killed with guns or pointed sticks.

Fishing. Fish is the chief food for men as well as for dogs. Therefore the Kamchadals devote during the summer all their time to fishing. It begins about the end of May, when the biggest of the Kamchatka fishes, the chavicha (*Salmo orientalis*) enters the rivers by great multitudes. It is caught by nets and fences which cross the whole river. To the fences bow-nets are tied. After the chavicha the rivers another salmo, the haiko (*Oncorhynchus keta*) is ascending. It moves mostly dense in July. From August begins the passage of the horbusha (*Oncorhynchus horbusha*) and the kishuch, another species of salmonidae.

For storing from fish is prepared the yukola - dried in the sun the soft part of the fish. For this purpose the Kamchadals cut off from the bone two slices, joined by the tail. The bone and head of the fish they dry separately, for dogs. At times there are not sufficient hands for such a method of conserving and then the Kamchdals apply the method of conserving it in holes, in whihc the fish is decaying and turns into a gray stinking mass. During the winter it is taken out from the holes to feed their dogs, and then it is impossible to breath from the heavy odor of the decayed fish.

Species of Fish. The principle food of the inhabitants of the northern coasts of the Pacific Ocean consists of Oncorhynchus, a genus of the Salmonidae family. 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 getá or getaget, is often called ligi-anan (genuine fish) or simply enem (fish). Next in importance is the humpback salmon (*O. proteus* Pall. or *O. horbusha*). The red salmon (*O. lycaodon* or *O. niarka*) is less important, but a great number of them is caught by the Kamchadals. The chavicha (*Salmo orientalis*) enters the rivers of southern Kamchatka in great numbers. The kundscha (*Salmo leucomaenis* Pall.) is rarely met.

Salmons 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 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, grew 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 to death" (Totwandern).

Among the other Salmonidae the most important in the household economy of the Kamchadals is the small uyok (*Salmo socialis*), which belongs to the genus of smelts (*Osmerus*). The uyok goes with the

tide to the river-mouths 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 uyok returns to the sea.

The salveline (Salvelinus malma Walb.), which belongs to the genus Salmo, also plays a role of some importance. There are two kinds of Salveline - the large and the small - but these are clearly of the same species, at different ages. 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 toward spring.

In the rivers is found also the grayling of the genus Thymallus. The catch of tom-cod (Eleginus Navaga) of the family Gadidae, us aksi ysedm byt bit si nycg as tge varuios species of salmon. Herrring (Culpea harengus) enter the mouth of some rivers, but not every year as is the case on the east coast of Kamchatka. In the river-mouths flounders (Pleuronectidae) are also procured.

Finally we must mention the eel-pout and the pike, which at times are caught in river nets, but are not specially sought.

Fishing-Seasons. - The dog-salmon, the principal object of the Kamchadal 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. The dog-salmon does not go far up the rivers. The farther up the river the dog-salmon is caught, the drier and less savory it is.

The humpback smon enters the rivers nearly at the same time as the dog-samon. As compared with the dog-salmon, the humpback salmon visits the Kamchatka river in very insignificant numbers.

At the end of May or in the beginning of June, Salmo socialis 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 returns to the sea.

The salveline enters the rivers somewhat later than the dog-salmon. 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.

Fishing-Implements. The Russians have exerted little influence upon the methods of Kamchadal fishing. The salmon run is abundant in Kamchatka rivers. The dog-salmon run alone is so heavy, that with good seine-nets the Kamchadals 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.

The Killer-Whale. The Kamchadals are familiar with the killer-whale (*Orca Gladiator Gill*). Krasheninnikov says that the Kamchadals 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.

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 Kamchatka tribes, Peshina 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 Koryaks still relate how they themselves used to go whaling, but this industry came to an end many years ago. The Koryaks 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 Gshiga Bay. The Koryaks do not venture to go whaling in their skin boats in the open sea. During their expeditions they do not go far from shore. If the Koryaks have obtained any whales during the last few years, they have been either dead ones drifted ashore or whales killed by the American whalers and left to them. In the later case, the whalers take off the skin, blubber and whalebone, and, after informing the Koryaks throw the rest of the body ashore, or even tow it to the nearest settlement. The Koryaks speak with gratitude of these acts of the American whalers..

Exactly what species of whale the Koryaks hunted is difficult to say. The whale which they honored with a festival is called by them *yu'ñin*. 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" (*popla'-yu'ñin*). It is small, and has white whalebone. The Koryaks never hunted it, but ate it when washed ashore by the sea. A third kind of whale is called *lúkulan*, and is met with in the ocean, but never enters the bays. Finally the Kamchadals are also familiar with the killer-whale (*Orca gladiator* Gill),

which they call "wedge-whale" (wu'li-yu'nin); but I did not observe that it is an object of cult, as among the Gilyaks, who consider it a veneficent spirit, that kills large whales for them. Krasheninnikov says that the Kamchadals 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 the Kamchadals saw a killer-whale approaching their boats, they sacrificed to it praying that it might do them no harm.

Several skin boats joined in hunting the whale. The greatest chance for success was during the spawning-season of small fish, like the uyok (*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 Koryaks, the painful wounds inflicted by bone heads did not cause any particular harm to the whale. The rivle-bullets which the Koryaks 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 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 Koryaks and Kamchadals.

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 pain, from four to six stone spears, seal-skin wallets containinf 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, - wometimes after a long time, - the hunters in the boats that happens to be mearest 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. A separate stone head of such a spear (a'ut) is shown in my book on the Koryaks 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 ebd of the wooden spear-shaft, which is ound 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 and is hauled to the village.

Krasheninnikov relates (I, p. 421) that in his time the people of Alutor caught whales in the bays in enormous nets made of smoke-dried walrus-hide thong as stout as a man's arm.

White whales (Delphinapterus leucas) are hunted in the same way as thong-seals. The white whale (Russian belúkha) too, comes into the bays and the 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. 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 by their kayaks, and drive them back into the river by means of shouts and by striking the water with their oars until the eatuary becomes shallow and the white whate remains almost high and dry. It is then easily killed with rifles and spears. In this way the Koryaks sometimes shut whole shoals of white whales within the river-mouths, as was the case

in the summer of 1899, when the Koryaks 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.

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.

In the bays of the Sea of Okhotsk there are not walruses and sea-lions, nor any ribbon-seals (*Histiophoca fasciata*). The walrus in Bering Sea has decreased very much in numbers owing to its incessant unlawful pursuit.

The Land Hunting. If the sea hunting and fishing furnish food to the Kamchadal, the hunting of fur animals gives him the means for exchange and for buying of imported objects and products. The Kamchadals are hunting foxes, bears and sables. As the chief object of hunting, however, serves the sable, The Kamchatka sable is famous by its valuable fur. The chief sable hunting takes place in the beginning of the winter. The Kamchadals find out foot prints of the sable on the fresh fallen snow and by the help of a specially trained dog they strive to drive out the sable into a spread out net. In order to prevent the extermination of the sable there were, beginning from the year of 1882, pointed out two districts, in which the sable hunting is prohibited.

Kamchatka is still abundant with bears. The hunting of bears is going on in the autumn before the bear is going to sleep and in the spring, when the bear leaves his den and goes hungry to the shore looking for food.

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) is abundant in Kamchatka, where the rivers are rich in fish. 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 storehouses 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 Kamchadals kill bears mainly with the gun; in olden times they used the bow for this purpose. Not infrequently they attack the bear with the spear. In both cases, 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. 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.

Foxes, particularly red foxes, are caught in great numbers, and their skins constitute the greatest part of the furs exported. Fox-hunting is carried on in various ways, - with dogs, which the hunter sets on the track; by the reindeer people 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 left 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 (See Jochelson, Sketch of the Hunting-Pursuits, etc.) 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.

Krasheninnikov asserts that all traps of the Kamchadals were introduced by the Russians. He states that previous to the arrival of the Russians the Kamchadals 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 (See Krasheninnikov, I, p. 340). I believe that the same conditions prevailed among the Koryaks. The Eskimos and Indians, too, employ various traps for the capture of animals (See Mason, Traps of the American Indians), but the traps with sinew springs, found in Alaska, are probably of Siberian origin (See Krasheninnikov, Fig. 5, p. 472 and Nelson, Fig. 37, p. 122). The Koryaks have evidently adopted the self-acting bow either from the Russians or from the Yakuts and Tunguses, who use it widely.

In the fur trade the red foxes of Kamchatka, on account of their gorgeous and soft fur and its fiery-red color, are considered among the very best. They are equal in value to those of Anadyr. Since the arrival of the Russians to Kamchatka 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 country of the Koryaks than in the western district. Blue foxes are very rare; their number constitutes about one per cent of that of the white foxes. The method of hunting the polar fox is identical with that 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 Peshina rivers and 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 Tunguses but the greater part of squirrel-skins which are exported by way of Gishiga is obtained from nomadic Tunguses in the Kolyma district and partly in the Okhotsk district. In former times the Tunguses 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 zibellina, 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 Peshina and Opuka, and partly in northern Kamchatka. In southern Kamchatka the Kamchadals even now kill nearly two thousand sables annually.

The highest value is places on those from the valleys of the Olekma and 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 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 Kamchadals shoot sables with shot. If the animal runs into a hole, the hunter sets a nettle-thread net near the entrance, and dries it out either with the help of a dog, which digs the hole open, or by means of smoke. In my collection in the American Museum 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 people, 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 trimming of clothing and foot-wear. Part of the wolf-skins are exported. In 1899

one hundred and twenty were taken out of the Gishiga district. The Koryaks hunt for wolves in the same manner as do the Chukchees.

Only a few skins of ermine (Putorius ermineus Linn.) are exported, and it seems probable that the Koryaks do not hunt it much. It would also seem that this animal is not common in the Koryak territory. Ermine is hunted by the Russians and by the Maritime Koryaks, who set near their store-houses traps based on the principle of the self-acting bow, in which the animals are strangled (See Jochelson, Sketch of the Hunting, etc.). The Koryaks have undoubtedly borrowed this device from the Russians. In Siberia it is specially favored by the Yakuts, 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 Koryaks as well as among the Kamchadals and Chukchees. 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 trade. At present the Chukchees are the principal consumers of wolverene-skins, and the wolverenes killed by the Kamchadals are also exported by merchants to the Chukchees.

Bird-Hunting. Birds of passage, like ducks, geese and swans, were formerly shot with bow and arrows, but are now shot with rifles. However, the Koryaks 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, the Kamchadals 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 which are hurled with slings of seal-skin.

If there happens to be a nesting-place of ducks or geese, or other birds of passage, not far from the village, the Kamchadals 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 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 Koryakds, however, do not employ the throwing board, but hurl the dart with the hand.

War. At the present time the Kamchadals 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. - Previously to the introduction of iron, stone and bone, and partly also wood, were used as material for arrow-heads. Stone harpoon-heads are still in use; but stone arrow-heads 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 my work on the Koryaks in Fig. 135. They were inserted in 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 Kamchadals, but they are not often used in hunting. Bone of whales was employed principally for bird-arrow. The bone arrow-head was inserted in a split in the shaft, or it was on like a head, 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.

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 Maritime Koryaks 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 birchbark. The grip of a good bow was bent in 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 my collection has a bowstring of sinew of the white whale. Krashennikov says that the Kamchadals used to make bow-strings of whale-sinew.

The bow was held vertically, with the belly toward 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.

Armor. The Chuckchee and Koryak coats of mail collected by us have been described by Mr. Bogoras (See The Chuckchee, pp. 161-168). I merely wish to add that in my opinion the upper part of the arm or had two wings. The absence of one wing from our specimens proves only that they are not complete. The helmet and arm-guards were made of small iron plates. 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 thongs, resembles a skirt. It was closed at the side by means of short straps.

Prior to their acquaintance with iron mail-coats, - which I

suppose were introduced by the Tunguses, - the Koryaks wore mail-coats of walrus-skin or of small plates of bone joined by means of straps.

Krasheninnikov says (Vol. II, p. 51) that "the Koryak armor consisted of oblong bone pieces sewed together with thongs".

Fortifications. The Kamchadals fortified their villages in order to prevent sudden attacks by the enemy and to withstand a siege. When ever 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 unihabited, but it is said that on many of them traces of ancient dwellings may still be seen. Where no islands were near the coast, the Kamchadals 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 stome wal, or a stockade. When an attack was expected, sentines were stationed on the roofs of houses or storehouses; for, in case of a sudden attack by the emeny on the hamlets of the sedentary people, 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 settlement or 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 Koryaks. At the mouth of the river Nayakhan I swa traces of a fortived 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. Traditions relate that the Russians were led there by Tunguses who were hostile to the Koryaks. The latter stubbornly defended the approach to the village. It was winter, and tyen 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 Koryaks and from stones which they rolled down; but as soon 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 (See my work on the Koryaks, Plate XXIX, Fig. 2).

At sight of an enemy the Reindeer people 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 reindeers 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.

The Beginning of Reindeer-Breeding. The domestication of wild reindeers is probably of less ancient origin than that of other draught-animals. This is shown by the fact that the domestic reindeers still differ byt little from the wild variety. In the prehistoric period the reindeers 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 reindeers without making any effor tto 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 and on the Sayansk Mountains of the Kuznetsk-Altai Ridge.

Whatever the origin of reindeer-breeding among the Koryaks and the Chuckchees may have been, there is not 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 reindeers or to the acquisition of domesticated reindeers or the taming of wild ones insured the people against starvation in case of failure in fishing and against accidents inhunting land-animals. It made it also 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 fact, of the three related tribes: the Chuckchees, the Koryaks and the Kamchadals, the last-mentioned has not developed reindeer-breeding, shows to what extent expeditions in the interior were responsible for the domestication of the reindeer. The land of the Kamchadals 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 reindeers and mountain-sheeps 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 Kamchadals was more regular than that of their northern neighbors. In my opinion, this accounts for the fact that we find no domesticated reindeers among the Kamchadals.

The wild reindeer and the mountain-sheep or Kamchatka big-horn (Ovis nivicola Eschholtz) are the onkly wild land-animals killed by the kamchadals for food. The elk and the musk-deer, which are met with on the southern coast of the Sea of Okhotsk and west of the Stanovoi Mountains, are unknown in the Kamchadal territory, at least nowadays.

The hunt of wild reindeers is unimportant in Kamchatka; and there are few hunters who make a speciality of this pursuit, as is the case among the Yukaghirs and Tunguses. Besides, the wild reindeers in Kamchatka 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, mountain-tops in summer, and in the tundra and river-valleys in winter. On the Palpal Ridge a wild reindeer is gound which crosses the Anadyr River and lives in summer on the coast of the Arctic Ocean. Small herds of the migratory wild

reindeers reach the most southerly parts of Kamchatka. The wild reindeer is pursued principally by the inhabitants of northern Kamchatka. 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 reindeers are not exported from the Anadyr and the Kolyma Rivers the skins of wild reindeers occupy an important place, 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 Kamchatka Mountains. It is hunted in the mountains of northern Kamchatka and some other places. 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 sheeps 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. In northern Kamchatka there are special hunters who go out into the mountains in autumn and in the beginning of winter to hunt sheeps. 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.

DOG-BREEDING

The Beginning of Dog-Driving and its Former and Present Extent.

No doubt the dog was domesticated long before it was used for driving. According to the statements of early travellers and writers, like Marco Polo and Witsen, dog-driving 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 part of the Yenisei district, but only dogs; and even near Tomsk horses were used in summer for driving and dogs in winter (See Middendorf, II, p. 520). 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 the 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 (See Lehrberg, Untersuchungen zur ältern Geschichte Russlands: I. Ueber das Yugrische Land, St. Petersburg, 1816, p. 17) by hundreds of dog-sledges. The same writer states that in former times dog-driving was in use west of the Ural Mountains in the government of Perm. Middendorf (II, p. 520) supposes that in Europe the driving-dog was superseded by the horse in antiquity, probably in prehistoric times. He 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 (Compare Middendorf, II, pp. 519, 520). 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 reindeers. Most of the Siberian tribes engaged in dog-breeding, like the Ostyaks, Samoyeds, Tunguses, Yukaghirs, Chuckchees and Koryaks, employ also the reindeers 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 Ainus, Gilyaks and Kamchadals in Asia, and the Eskimos 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 reindeers, but the herds are under the care of Tunguses.

Both the modern driving-dog of Siberia and that of northern America belong to the same wolf-like race of domestic dogs. Middendorf (Vol. II, p. 527) supposes that it represents a cross between a wolf and jackal. Schrenck, too, considers (See Schrenck, II, p. 167) 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. (See Schrenck, II, p. 167).

Except for its smaller stature 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 River 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 River, 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 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 (See Bogoras, *The Chuckchee*, 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; Fig. 12, 13). BUT the manner of putting them on was like that of the Yakut reindeer collars which on¹⁰ the right-hand animal are put over the head and the left fore-leg, so

¹⁰. See before, p. 487, and Krasheninnikov, II, p. 79. I will here translate Krasheninnikov's own words, as his obsolete Russian and 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 Krasheninnikov describes the Koryak harness of a pair of reindeers: "The loops by which the reindeers pull are like those of dogs: they are put on both reindeers over their right shoulder-blades" (Krasheninnikov, II, p. 210); i.e., both reindeers pull with their left shoulders, as I have described before (p. 486). Dittmar's description is much clearer. He says: "Jeder Hund tragt manlich bestanding einen festen ledernen Halsriemen mit einem daran hangenden Haken und alle Enden der Anspannriemen verlaufen in eine weite lose Schlinge durch die der Kopf und ein Vorderbein des Hundes gesteckt werden, wahrend die Haken der Halsriemen in die Wiederhaken der Schlingen eingreifen. Die Hunde ziehen also mit dem Nacken und der Brust, wodurch sie die grosste Zugkraft entwickeln konnen".)see Dittmar, *Reisen in Kamtschatka in den Jahren 1851-1855*, p. 161).¹¹ 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, - one on each side, - which are fastened to the end of a whiffletree, as is on 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.

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-harnesses mentioned in my work on the Koryak, that of the Eskimos is most effective. Next to it, the most practical is the ancial Kamchadal harness, which, in simplicity, even surpasses that of the Eskimos. 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 inbention of the harness described here as the East Siberian type, which is used at present by the Koryaks, belong? We do not know the type of harness used in olden times by the Koryaks and Chuckchees. It is likewise unknown what type was used by the Yukaghirs 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 Gilyaks or Kamchadals, 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; the Kamchadals have adop-

ted the East Siberian harness from the Russians; and the Russians,¹¹ not only all over eastern Siberia, but even on the Amur River (See Schrenck, Vol. II, p. 173), employ this harness, evidently imported by them, and not that of Gilyak type. That the Yakuts, 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 Yakuts, the northern branch of whom became dog-breeders very late. Their word for "dog-harness" (a'lyk) 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 easily be cast off by the dog, or it slips off¹² - a great inconvenience - in driving over snowdrifts, over hummocky ice, and rough ground, where the long traces of the Eskimo harness may catch.

The Koryaks 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 (*Als Eskimo unter den Eskimo*, Wien, 1881, p. 83), the Eskimos sometimes use dogs for carrying packs when sledge-driving becomes difficult or

¹² 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 *The Koryak* p. 507, Footnote 3).

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 Kamchadals nowadays harness the dogs in pairs, one dog on each side of a long stout main line (See phot. N. 48). 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 Yukaghirs of the Upper Kolyma harness dogs that way even now; and the same is done by the Koryaks 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 Koryaks in olden times did not drive fast. They harnessed few dogs to the sledge, and the driver himself helped to pull or push the sledge, as the western Eskimos do. The Koryaks 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 Koryaks, 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 Gilyaks, like the Yukaghirs of the Upper Kolyma, attach the dogs at equal distances apart, alternately on the two sides of the main line (See Schrenck, Vol. II, Plate XXXVI, Fig. 2. p. 172), and there are only few dogs (about six or seven) in a team; while the Russians on the Amur attach the dogs in pairs (Ibid., p. 173), 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 Krasheninnikov (Vol II, p. 77), the Kamchadals of his day would usually harness only four dogs to a sled, but would attach them alternately or in pairs.

The Eskimos generally attach the dogs so that the traces of each dog 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 (Teh Chikchee, p. 98), this method of harnessing was still in use on the Chikchee Peninsula in the middle of the last century. On the other hand, the Eskimos about Bering Strait now employ both the Asiatic and the American methods of harnessing; i.e. tandem and fanlike (See Nelson, Teh Eskimo about Bering Strait, p. 209), having evidently adopted the former method from the Chukchees, or rather from the Russians in Alaska. At Point Barrow the Eskimos, too, now employ the Asiatic method of harnessing. As Murdoch (Teh Point Barrow Eskimo, p. 358) 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 Yukaghirs of the Upper Kolyma, by the Gilyaks, and in many cases by the Koryaks. The Eskimos about Bering Strait, in employing the tandem method, attach single dogs alternately, or in pairs, if there are more than three dogs (See Bogoras, The Chukchee, p. 98).

The Sledge. - The sledge now employed by the Koryaks 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 Chukchees, and has been described by Bogoras (See the Chukchee, p. 98), in Fig. 21, pp. 104--106. It should be added, however, that our information concerning the method of harnessing and dog-driving of the Maritime Chukchees of the Arctic Ocean between Cape Erri and East Cape is as yet incomplete. 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" (See Bogoras, The Chukchee, p. 99). The ancient dog-sledge of the Kamchadals also had curved ribs (See Steller, p. 370; Krasheninnikov II, p. 78; Bogoras, The Chukchee, p. 93). Accordingly there is no ground for assuming that the Russians adopted from the Koryaks the above-described type of sledge with vertical bow. In Steller's time there were already in use in Kamchatka two types of sledges (See Steller, p. 370); 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 Yukaghirs, with whom the Russians fell in on the rivers Yana, Indighirka and Kolyma, far back in the first half of the seventeenth century (The Cossaks 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). But the Russians considerably improved upon the native type, and then carried it to Kamchatka, to the Koryaks, Chukchees and to the Russian settlers on the Amur. Part of the Yakuts, 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, and room in front for the driver. To a sledge intended for passengers a high netted back, made of sticks and strips of leather, is attached. 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 his 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 run 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.¹³ The Yukaghirs 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 dri-

¹³ I knew a certain Yakut, Nikolai Sleptzov by name, who lived on the border of the forests, 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 Yukaghirs 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-straps, had died there.

ving with pasengers and heavy freight. I had to hire horses from the distant Yakut villages. The Yukaghirs themselves, in their wanderings go on foot or on showshoes. Only hcildren and th sick sit on the sledges. But whenever I had to make short journeys, and it was inconvenient to send for Yakut horses, the Yukaghirs, in order to carry me some five or ten miles, would combine the dogs of two or three househodls 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, follwoed 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 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 have 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.

In Whympers book "Travels in Alaska" (See Whympers, Alaska, Reisen und Erlebnisse; illustrations on p. 188 and on titlepage), we find an accoutn of Russian-Indian dog-driving on the Yukon River. It is to be tegretted that it contains no detailed description of teh 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 afar 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 were placed abreast, after the manner of the Eskimos.

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 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 Gilyaks sit astride of their light sledges, which have no bow, and are peculiar in that their runners turn upward both front and rear (See Schrenck, II, Plate XXXVI, Fig. 1; Sternberg, *The Gilyak, Ethnographical Survey, Moscou, 1904, Part I, p. 19*). 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 (*The Chukchee, p. 100*) that the driver of the ancient Kamchadal sledge sat astride it; while Krasheninnikov, in whose day the Kamchadals 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 sledge is deemed a great sin, for thus the Kamchadal women sit on it" (*See Krasheninnikov, II, p. 81*). On the other hand, Steller relates that the Kamchadals 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 (*See Steller, p. 371*).

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. 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 Kamchadal dogs, too, prefer fish to any other kind of animal food. The principal fish caught by the Kamchadals 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 sometime sthrown. The soup for the dogs, when ready, is cooled a little by pouring it into wooden or seal skin buckets. The dogs are fed outside of the house. As far as know, among all the Asiatic tribes using the dog, only the Gilyaks feed the dogs indoors.

Care of the Dog. - Among all dog-breeders, - excepting the northern Yakuts, 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 Yukaghirs, Koryaks, Chukchees and Kamchadals believe that dogs guard the entrance to the country of the shades (See The Koryak). 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 Gilyaks, Aleuts and Eskiimos. We find an entirely different attitude towards the dog among the Yakuts, 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 Yakuts were offended when I took along my dog 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 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 toward the dog. The Koryaks 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 Yukaghirs of the Upper Kolyma, and also the Maritime Koryaks, build on the side of the house rather 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 one metre to two metres, and its height is about a metre. These kennels are mainly intended for bitches with puppies. Schrenck (Vol. II, p. 168) says of the Gilyaks, as Boas and Murdoch (See Murdoch, p. 358; Boas, Central Eskimo, p. 538). 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 Koryaks upon their dogs.

I take occasion 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 roof 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 anteroom 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.

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 den, 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 nearest 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 (P. 138) 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 bred. After they had been weaned, they were placed in another ditch. On reaching six months of age, they were harnessed 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 Koryaks also begin to break pups when they are six months old. They are first kept tied to a line. Being used to run 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 dri-

ving until the end of winter or spring, and are not used for driving until the following autumn.

According to Schrenck (Vol. II, p. 167), the Gilyaks do not use female dogs in harness; but all other dog-breeders of East Siberia with whom I came in 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 rasks more earnestly and diligently. Sluts, in addition, often exhibit more aptitude to act as "leaders" than do males. Often a botch is placed among the front pairs to induce the ungedled males to try to reach her and thys 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 my way from the coast village Kamenskoye to the Reindeer Koryakds of the Palpal Ridge, a slut of on e of the drivers who carried my frieght 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 the.

If a dog becomes so ill on a journey that it can no longer run, it is 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 not 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, which 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-briar (*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 character¹⁴ 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 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 sage to go to the privy without a stick in hand, owing to the fights among the dogs for possession of the excrement.

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

¹⁴ The poor polar Yakuts 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 Yakuts 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 Yakuts 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 Yakuts treat dogs, which are considered as unclean animals.

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 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 had rested. The feeding with soup described before takes place in the afternoon, toward 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 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 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. Ungelded 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 ungelded 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.

CHARACTER AND NUMBER OF DOGS. - The driving 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, and thus does not warn its master of danger. Some dogs do not bark at all, and are as silent as if they were dumb. Those that bark do so rarely, Their bark is a drawl, and turns into a whine. Three times I took Arctic dogs, that I 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.¹⁵

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 dog 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 reindeers meet with a dog-team unawares, they are inevitably torn to pieces. The dogs pay not attention to their master's shouts and club. The only way or 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

¹⁵ 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 Tartars from the Kazan Government who had been banished to the Yakut district for highway robbery, and who were my neighbors, stole the horse, the dog followed it in silence. The Tartars 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.

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 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, in 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.

Before the advent of the Russians to Kamchatka the local dog was the only domestic animal. Of the Siverian driving dogs the Kamchatka dog was held as the biggest one. At present, under unfavorable conditions of life it degenerated into a small species. A particular heavy life is the fate of the driving dog during the summer. For the immunity of cows and horses, and particularly of calves and colts, dogs are kept for the whole summer chained to posts far from the village, usually beyond the river. They suffer from mosquitoes, heat and thirst. It is fed irregularly, in spite of the abundance of fish. It lies motionless in a hole dug out by it. Not pleasing also is the life of the driving dog during the winter. The whole winter it is working hard. It is taken from its chain to be harnessed to a sledge and after a drive it is again chained. With the decreasing during the winter of the stored fish it receives always less food. About the spring it is half starving or completely without food and then among the driving dogs begin epidemic maladies and epizooties. At present the number of the driving dogs on Kamchatka have much decreased in comparison with the past. On the deterioration of the qualities of the Kamchatka driving dog the castration of the males had a pernicious effect. In the villages the people usually leave one or two producers and among the dogs it getting a near blood relationship, which weakens the

breed. But for reasons of rural economy, climate and topographical conditions of the country the Kamchadal cannot be deprived of the driving dog. Each household keeps from 8 to 15 dogs. In accordance with my census the Kamchadals had in the year of 1911 more than 6000 dogs. The dogs are harnessed by pairs to the sledge, being put from both sides of the "potyag", a long leather line, which is tied by one end to the horizontal bow of the sledge. The kayur, i.e., the driver, is directing the dogs by special calls designating: to the right, to the left, straight ahead, stop. In front of the harness is put the "front dog", a particular clever dog, which understands the directing calls and leads behind it the whole line. The speediness of the drive (from three to fifteen versts in an hour) depends of the quantity of freight and quality of the road. Usually each dog has to carry about two poods (a pood is a weight of 40 Russian pounds). It is equal to 36,11 pounds avoir du pois. As a means of spurring lazy dogs serves the oshtol, a heavy stick with a pointed iron head and a loose iron ring from the other side. In order to bring the sledge to a stop the driver puts into the earth or snow the oshtol between the stanchions of the sledge. The kayur throws his oshtol at a lazy dog and skillfully takes it up when reaching it.

The Food. The chief food of the Kamchadals consists of fish of different kinds. On the sea-shore the meat of seals and belugs (*Delphinopterus leucas*) serves as a considerable support in feeding. The Kamchadals are very fond of vegetable food and they gather the following berries: huckle-berry, cloud-berry, red bilberry, blea-berry, shiksha (*Empetrum nigrum*) and the roots of two kinds of sarana: the ovsianka and kemchiga (*Polygonum viviparum*). The bulbs of these plants the women dig out themselves or in the autumn they get them from the holes of field mice. In the summer time they gather also the kiprei (*Epilobium angustifolius*), sweet grass (*Heracleum dulce*) and the barannik (*Senecio cannabifolius*). As dainties is regarded the "tolkusha", which is prepared in different ways. Some kind of fat is pounded with stripes of the stem until they get a white extensible mass, into which they add the sarana and some kinds of berries. The Tolkusha prepared with reindeer fat tastes well, but one cannot say the same of the tolkusha with seal's fat. There is still a tolkusha of yukola, which is prepared of the keta-yukola, some kind of fat and sweet grass. Kamchadal hunters get the meat of wild reindeer, mountain sheeps and bears. The Kamchadals get also reindeer meat from the Koryaks. From merchants the Kamchadals get also flour, biscuits, grits, sugar, tear and other food articles. In spite of the diversity of the many kinds of food, it must be said, that, when the yukola is not sufficiently prepared in the summer, the Kamchadals will not have enough food during the spring. Of the products of cattlebreeding and of gardening I shall speak farther.

The clothes. Their winter dress the Kamchadals acquire ready made from the reindeer Koryaks, or the Kamchadal women sew it themselves of reindeer skins. The cut of fur clothing is the same as among the Koryaks. Foot wear is made of seal skins. There is however met upper clothing of the Russian cut in the shape of an overcoat or a woman's jacket. Under the fur clothing the Kamchadals wear jackets, blouses, pants or skirts made of imported stuff and the under garments of calico. Rich people in sundays and other festive days put

on leather boots or shoes.

Cattlebreeding. Horned cattle and horses were transferred to Kamchatka chiefly from the Okhotsk district, i.e. of the Yakut breed, and in spite of the bad attendance, the animals were used to the climate and became strong, but of small growth, animals. Milk at present plays an important role in the household of the Kamchadals, as well as curdled milk and pot-cheese. Butter the Kamchadals churn seldom and little, but their cows' milk is fat. Generally the Kamchatka cows give not much milk, from two to three bottles a day. This can be explained by the poor feeding of cattle during the winter, for the Kamchadals store little hay, they keep cattle in cold stalls and calves are given to remain sucklings for a long period. Approximately one cow is estimated for every three persons. In total there are on Kamchatka from 1500 to 2000 heads of milking cows.

Horses are of small stature. They have a small head, a short neck, a broad breast and short legs. They have long hair, particularly on the legs, like the horses of the northern Yakuts. The horse is used only for riding and carrying loads. For the last purpose there is a special wooden pack saddle with two hooks on which the loads of equal weight are hung up from both sides of the horse. In this case under the saddle lies a soft cushion in order not to wound the back of the horse. The horse is always going at a foot pace. One can urge it to run at a little trot, but for a short time. The merits of a Kamchadal horse consist in its quiet temper and the cautious gait, by which it treads in swamps, on the moist tundra and rocky ridges. It is therefore advisable to leave the horse to choose the pathway. The horses are always grazing on the green fodder. Seldom during the winter they are given some hay. Therefore they grow lean during the winter, in spite of the fact that they do

no work in this season. During the winter the dog is used for driving and carrying loads on sledges. The horse during the winter is letting to run free, it grows then shy and when the summer arrives it has to be caught by a lasso and to be accustomed to riding. The Kamchadals do not keep small cattle, like sheeps, as well as domestic fowls on account of the absence of suitable food for them and also for the reason, that the always hungry driving dogs exterminate domestic birds at the least opportunity.

Agriculture and Gardening. The Russian government many times undertook measures to develop agriculture in the country. Several times were forcibly settled Siberian peasants on the Kamchatka agricultural fields. But all the attempts appeared to be unsuccessful. The innate farmers after the struggle for many years with the unfavorable conditions of the climate abandoned the farming experiments and went over to fishing and hunting. Only in the valley of the Kamchatka River, namely in the village of Kluchevskoye, are still pre-

served small sowings of barley. Not long ago there was made once more an attempt to develop agriculture near Petropavlovsk. In the year of 1911 there was founded an experimental farm to which little-Russian immigrants were attracted. But the latter, after reaching the place of destination, found it more profitable to take up fishing and they founded a new settlement in the mouth of the Osernaya River, which runs out from the Kurilian Lake. More successful stood the matter with the development of gardening. Potatoes are sown every where and in a certain degree it began to substitute the bulbs of wild plants, but it is not so with other edible plants and roots. Seeds are brought to Kamchatka only occasionally and mostly not fit for its climate. Better than other vegetables ripen two kinds of turnips. In the village Kluchevskoye there grows well the cabbage, giving big strong heads.

THE SPIRITUAL CULTURE

The Beliefs At present all the Kamchadals are baptized and are counted as belonging to the orthodox faith. But the former religion of the Kamchadals very little distinguished itself from the religion of the Koryaks, whom I described in a two volume work under the title "The Koryak". Some of the names of gods, identical by their characteristics, do not coincide. Thus, the chief deity, the creator of the world was named Nustakhcex, evil spirits - kamaks, the deity of hunting - Pichvuch. As the divine ancestors of the Kamchadals is regarded the same Raven-Kutch, his wife - Miti, his son, Ememkut etc.

The Folklore. The Kamchadal myths like those of the Koryaks are concentrated about the ancestor Kutq, his wife Miti and their children. They are also full with funny and dirty episodes. But to these myths is also added a mixed Russian-Kamchadal folklore - comic tales on heroes and Russian miraculous tales, dancing, wedding and other songs with a curious pronunciation of Russian sounds.

The Language. In my work on the Koryaks I indicated already the affinity of the Kamchadal language with those of the Koryaks and Chukchees and that this group of languages may be called an "americanoid group". The morphology of the Kamchadal language is very complicated. It seems that formerly it had four dialects: the eastern, southern, western and northern ones. The eastern and southern dialects disappeared altogether, the Kamchadals using instead the Russian language. It may be accepted, that elements of the Kurilian language entered into the southern dialect. Unfortunately in the year of 1911 I already did not find alive in the village Yavina the old woman, who still knew her native tongue.

The western dialect, which is still preserved in seven villages of the western shore, between the villages Ichi and Amanino and more to the north, and which is spoken also by the inhabitants of the village Sedanka, I had the opportunity to study. The latter dialect appears to be a transient one to the dialects of the Koryak language. The inhabitants of the indicated villages speak also a peculiar Russian, in which one can meet ancient Russian expressions, adopted already from the first Russian conquerors of the country. This dialect does not recognize many rules of the Russian grammar and the proper pronunciation of Russian sounds. It must be added, however, that the Kamchadal dialects are already in the state of dissolution.

The Art. Like the Koryaks the Kamchadals are skilful experts in the cutting in bone, horn and wood of small realistic figures of men, animals and birds. The Kamchadals are also apt beautifully and masterly to ornament their clothing with many colored silks, threads and sinews, with pieces of painted leather and figures - geometric, impressionistic and realistic - of many-colored pieces of fur from reindeer legs. Thus are far-famed the Kamchadal "opuvans" - broad ornamented stripes on the coat skirt over the fur trimming - and fur carpets with figures made of skins of reindeer calves.

Of the industry of the Kamchadals and their carpets and rugs making

Every skin used for making fur-coats, as for instance seals, dogs and sea-otters skins the Kamchadals dress in one and the same way. They soak them first with water and scrape with a sharp-edged stone, fastened to the middle of a stick, in order to remove the rind and sinews. After that they smear the skins with roe and folding them they trample them with their feet till the rind burst. Then they again scrape them and smear until the skin become clean and soft. The skins of which they want to make shamoy-leather, after dressing in the mentioned above manner, they keep about a week over the smoke of the chimney tube, then soak them in hot water until the hair falls out and dress them as mentioned before.

Skins of reindeers, seals and dogs for clothing the Kamchadals dress carefully in a particular way and then they color them red soaking into a decoction of the bark of an alder-tree. This preserves the skins from moisture.

Rugs are plaited of long grass growing on the sea-coast and called by Pallas *Triticum littorale*. In Siberia this grass is called wild rye. The best rugs are ornamented by chessmen and other figures. The seal's hair by which the Kamchadals ornament their clothing and shoes, they dye red with paint consisting of the juice of red bilberries, cooking it with the bark of an alder-tree, alum and petroleum. This paint uses to be of hot red color.

KAMCHADALS

Division of labor among sexes. During the summer men are fishing, drying the fish, transporting it from the shore to their dwellings and making stores of offd for dogs. Women clean the caught fish, cut it in two halves and, sometimes, help their men fishing. Certain time they use for gathering grasses and roots not only for food, but also for medical purposes. They take care of storing food stuffs.

In the autumn men catch fish, and different birds, like geese, swans and ducks. They are mustering their dogs for winter driving. They are preparing wood for making sledges and other household needs. Women are working on the preparing of nettle. They go to the tundra and take out of mice holes their stores of edible roots like sarana and other kinds of lily.

During the winter men are hunting sables and foxes, binding nets for fishing, making sledges, going to the forest for wood and transporting to the wintering places their stores of fishes. Women are twisting threads for nets.

In the spring when the rivers break and the fishes which wintered in them are going down to the sea men are fishing them. Particularly is caught the haddock, which is numerous in the bays. Some of the men start to far away places, to the Eastern Sea and to the Kurilian extremity for the hunting of sea-otters and other sea-animals. Women go to the tundra in order to gather there berries and edible grassea, which they are very fond of.

To the work of men belong the construction of the Kamchadal winter half underground earth dwellings and the summer balagans - storehouses on high posts, which serve also as dwelling. To the men's work belong also the making fire in the house, cooking food, feeding

of dogs, treating guests, to skin dogs and other killed animals and in the preparing of articles of household and of objects for war.

Women's work consists in the dressing of skins for clothing and footwear and in the sewing of clothing and footwear. Some of the skins, which have to be soft as chamois, are dressed and soaked in a particular way. Reindeer and dog skins for clothing are dyed in the different ways, usually with the pain prepared from alder and the juice of bilberries. Clothing and footwear the Kamchadal women sewed with bone needles and in place of threads they used sinews of reindeers of the needed thickness.

THE SOCIAL CULTURE.

The relations between sexes before marriage. Already the earliest travelers on Kamchatka, Steller and Krashennikov, noted the free manners among the Kamchadals. In a certain degree the same is preserved also at present. The influence in this direction of the Russians was rather unfavorable. Kosacks, traders and even missionaries made use of the easy accessibility of Kamchadal girls and women. Syphilis brought to Kamchatka by the Russians made therefore such a wide distribution. It may be said, that whole villages are suffering from one or another form of the hereditary syphilis. As an element of racial improvement may be regarded the affluence of fresh blood in the persons of new Russian immigrants, the influx of whom was particularly noticed after the war with Japan.

The Family and Community. The present Kamchadal family does not at all distinguish itself from that of the Russians. The Kamchadals adopted all the Russian customs of courting, church marriage, other customs before marriage and of other marriage practices. The ancient large family is now seldom met. The son, who had married, usually builds for himself a new framework. The youngest son, however, remains with his parents.

The Kamchadals, as a settled people, are not divided into tribes. In former times as the head of the village was regarded a good hunter or a strong warrior. With the advent of the Russians it was the elected elder, who was responsible before the administration of the regularity of the payment of the sable-taxes called yassak. The yassak of the Kamchadals distinguished itself by its particular value. Be-

sides, the tax-collectors and other chiefs collected also furs for their own use. This led to a considerable decreasing of the sable. The regulations for the exacting of the yassak in furs was preserved until lately, when the yassak, after the revolution of February, was abolished by the Provisionary Government. Although the mutual relations between the inhabitants of two or more villages are not founded on the principle of blood relationship, still the Kamchadals held it as their duty to support each other from the excess of their hunting and fishing. In this work I am relating to the population not of the whole Kamchatka peninsula, but only of that part of it, which is situated to the south of the most northern Kamchadal village Amanino on the wester shore and the river Osernaya on the eastern shore. To the north of this line begins the territory of the Koryaks, which territory I surveyed in my book on the Koryaks. The most part of the Kamchadals became at present already russianized, a considerable part of them were mixed up with Russians and the inhabitants of some of the Kamchadal villages consist of Russian immigrants only. Besides, on the former Kamchadal territory wander about at present small camps of reindeer Koryaks and Tunguses, who arrived wandering from the north.

The number of the inhabitants. The whole number of the population of Kamchatka consisted in the year of 1911 of 8069 souls. Of them Kamchadals were 3555, reindeer Tunguses and Koryaks 802, Russians (officials, clergy, peasants and cosacks) 3370 men, foreigners, including 9 Europeans and Americans, 310 men, 18 Japaneses, 231 Chineses and 52 Koreyens.

The Physical Type. The question concern here only the Kamchadals. The most part of them becmæ mixed up with Russians in such a degree, that it is difficult to speak at present of a Kamchadal type. But in so far as the Kamchadal type had been preserved in some of the

northern villages of the western shore of Kamchatka, we may say, that in not way it distinguishes itself from the Koryak type (See my work on the Koryaks). In the most part of villages, even there where officially no Russians are counted, the type appears to be a mixed one: a Russian-Kamchadal. In the same way the type of the inhabitants of the southern villages Yavino and Golygino is by no means to distinguish from the type of the other Kamchadal villages, although it might be expected the influence of the Kurilian Ainos, who formerly had intercourse with the southern Kamchadals and even lived on the southern extremity of the Kamchatka peninsula.

Somatology

The present Kamchadals have become mixed with Russian settlers and many have lost their former Koryak-like appearance, even in places where officially no Russians are recorded. The same may be said of the inhabitants of the southern villages, Yavino and Golyghino, who in former times might have been physically influenced by the Kurilians (i.e., the Northern Ainos). The Kurilians had intercourse with the southern Kamchadals, and some Kurilians had settlements on the southern extremity of the Kamchatka Peninsula.

The measurements of Kamchadals taken by Mrs. Jochelson show that the Russian metisation influenced very little the physical character of the Kamchadals. 158 men and 170 women were measured. The following table gives some of the measurements and indices.

	Men		Women	
Stature	1,597mm.	5.4	1,495mm.	4.6
Length of head	188mm.	6.8	183mm.	5.7
Width of head	149mm.	5.7	144mm.	4.8
Cephalic index	78.9	2.9	78.5	2.7
Width of face	144mm.	5.7	137mm.	4.3
Cephalic facial index	96.5	3.3	94.9	3.0

The Kamchadals, prior to embracing Christianity, threw away their dead to be devoured by dogs, and therefore no skeletal remains were found by the writer while excavating prehistoric sites. Only in one pit on the mouth of the River Kavran I discovered prehistoric human bones, and among them were two skulls in good condition for measurement.¹⁶ One of the skulls seemed to be that of a woman, the other of a man. The length of skulls was 177mm. and 188mm., the width 136mm. and 143 mm. and consequently the indices 76.9 mm. and 77.9 mm. According to Broca 2 units may be added to the cephalic index of skulls to obtain the cephalic of the living. Adding two units to 76.9 and 77.9 mm. we have 78.9 mm. and 79.9 mm., figures nearly equal to averages of the cephalic index of the present-day Kamchadals.

Plate 1 shows photographs of Kamchadal men, women and young girls, Plate 2 figure 1 represents elders of some villages of the western shore of Kamchatka.

16 [missing]

The Description of Kamchatka.

The Emperor Peter the Great, the wise reformer of Russia, did not leave any branch of the state's life without his care. At his order were drawn sketches of the Kaspian and Asov seas; investigated the Terek River and the lower course of Volga; was made a survey of the Kasan and Astrakhan countries and of the whole Siberia. At his order did their works the eminent scientists Messerschmidt and Strahlenberg. The journal of Messerschmidt, forming six volumes in manuscripts form is till now preserved in the library of the Russian Academy of Sciences. In order to investigate the northern countries, particularly that of Siberia, and to learn, whether they are connected with America, Peter the Great despatched two ship from Arkhangelsk, which had to pass by the White Sea to the Arctic Ocean. This voyage was unfortunately not successful. One of the ships was carried away by ice-floats and perished not leaving any traces. This misfortune did not stop the ever working mind of the wise Emperor. Not long before his death he put up a plan for a new voyage, namely to Kamchatka, in order to survey from there the northern shores of Siberia. For this work were selected the captains Bering, Spanberg and Chrikov. But the fulfilment of this experiment was left for the reign of the Empress Catherine the I. The navigators returned in the year of 1730.

Before that time the Russian Academy of Sciences still did not take part in the travels which were carried out. But when the so called Second Kamchatka Expedition was organized and when one part of the travelers had to navigate from the shores of Kamchatka to the American coast and the other part had to go to Kamchatka by land through the whole of Siberia. Then the cooperation of the Russian Academy of Sciences became necessary. The selected professors had to act in

accordance with the received orders and to take care for astronomical and geographical surveys, and also for civic as well as for natural history. Then Delil-de-Lakroyer was sent out for astronomical investigations, Prof. Müller for civic history and Prof. Johann Georg Gmelin for natural history . To them were afterwards added Prof. Fischer and the adjunkt Steller. Almost every where accompanied them the student Krasheninnikov. From the works of the mentioned travelers one can see, what results they achieved.

From that time on till the year 1768 the Russian Academy of Sciences took part in all the important scientific undertakings. But the glorious times of the reign of Catherine II were made by the organization of new travels in almost all the parts of the vast Russian Empire. There were organized two Astrakhan and three Orenburg Expeditions, which began in 1768 and ended in 1773. Thus were founded the memoirs of the prominent academiciens Lepekhin, Pallas, Gmelin Gildenstedt, Falk, Georgi and others. An editorial committee was appointed headed by a chief-editor, the academician Severgin, who took the care of printing of original, as well of translated scientific works.

I wish to say here a few words on the churches of Kamchatka. A part of them look very poor inside as well as outside. Even the capital city of the province Petropavlovsk had to be satisfied with a small church of boards not fitted for service during the winter. This sad appearance does not comply with the position of Petropavlovsk as a center of the province and an open harbour visited by foreign ships. Very much are in need of material help many country churches, particularly chapels in which the service is performed only in days, when they are visited by priests.

The Kamchadals had still preserved the memory of times, when there was given attention to the needs and embellishment of churches,

when they were conspicuous by their inner somtuousness, when there were monasteries building and to the service on Kamchatka devoted their energy such enlightened archpriests like the metropolitan Innocent. Having the intention to render help to the population I requested the chief commander of the province to ask the Holy Synod to share with the poor Kamchatka churches with objects of sacred vases and other church-furniture from the rich vestries of convents. Already before the foundation of the Kamchatka Province was roused the solicitation to institute a separate diocese on Kamchatka to to build a monastery near the village Kluchevskoye, which might serve as a center for distribution of useful informations.

The people's education. The total number of schools in the Kamchatka province was 26 to the 1 of January of 1911. All of them were parochial. Three of them are closed already during two years on account of absence of teachers. Of the mentioned before composition of the clergy one can get an idea, how it could, with some exceptions, correspond to the task. Middle schools of the gymnasial type were absent. Means for keeping schools were given scanty. It is quite clear, that the teachers, taking to consideration the expensiveness of life on Kamchatka, had to be always in need. There had been planned to organize an experimental farm, arrange the teaching of trades and a boarding house for native children, having in view the dispersedness of the popu-

lation. There was not teachers of gymnastics and not military detachment for keeping order in the city and stand on guard at the treasury, prison and other places.

In view of lacking teachers sufficiently prepared for elementary schools there were opened in the city school of Petropavlovsk special two years teachers courses, where 12 native boys who finished the city school were instructed. Thus in the nearest future Kamchatka will have a staff of native teachers. This is very important, as the non-resident teachers hasten to abandon their pedagogical activity in view of the heavy conditions of the local life and insufficient material security.

People's health. The matter of medical assistance on Kamchatka is in a very unsatisfactory state. According to the acting staff each district had to have its own physician. In reality I found only one district doctor in the city of Petropavlovsk, who in the spring of 1910 took leave of absence and resigned not coming back to his duties. Fortunately in the month of August there arrived in Petropavlovsk the newly appointed district medical inspector. Otherwise the city and the whole province would be left without any medical help. Thus the medical inspector, being a naturalist and surgeon, had simultaneously, beside his direct duties, to look after the hospital, the city's ambulatory and to perform the duties of a district doctor. Of course, it was not possible to join all of these duties in one person, and when during the winter he had to leave Petropavlovsk for a little place to perform there a post mortem examination, the city remained without a doctor.

THE KAMCHADAL DIALECT, ITS ORIGIN AND A
BRIEF CHARACTERIZATION

The primary inhabitants of the Kamchatka peninsula, the so called Kamchadals, speak a peculiar Russian dialect, called ordinarily Kamchadal dialect.

In order to comprehend the peculiarities of that dialect it is necessary to say a few words of its origin.

Kamchatka was conquered by the Russians in the end of the seventeenth century. In the pursuit of yassak (tribute in furs) and the sable the enterprising kosacks and accompanying them traders did not stop before any difficulties and obstacles. A small group of kosacks, altogether about a half score, under the command of Atlassov, penetrated though Anadyr into Kamchatka. In the time of its conquest Kamchatka was inhabited in its southern part by kamchadals and in northern part by koryaks. The Kamchatka natives, who were on the level of culture and technics of the men of the stone age, could not halt seriously the military bands provided with fire arms and regularly organized. The kamchadals were conquered easily and in a short time. According to the law of the czarist period the kamchadals were regarded as a free people. They were obliged only to pay yassak, consisting of one sable a year from each grown up man. This yassak, taking into consideration the abundance of the sable at that time, was not hard. However, the kosacks, who settled themselves in the southern part of the peninsula, as a place richer with furs and fish and having an approximately soft climate turned

the native kamchadals into slaves. The kosacks, being collectors of the yassak, collected, besides the yassak-sables, for themselves many times more than for the treasury, using to that end fraud and extortion. In the same time the kosacks dealt with the natives an unusual commerce, which ended by their enslavement. In the winter time the kosacks transported idfferent goods into the kamchadal villages and spread them among the kamchadals voluntarily or by force at very high prices. For instance, for one knife they asked two sable skins or for an iron kettle they demanded as many sable skins, as they might fill the kettle up to its top. Ordinarily goods were given in credit and in case of not payment in time the debt was doubled after year. In payment of thi debt the trader had the right to take into slavery the wife and children of his debtor. According to testimony of Steller, every kosack had from 15 to 20 slaves. By the governement order, having place after one of the uprising of the kamchadals, slavery was prohibited. Nevertheless it continued in one or another form and the slaves were called godchildren of the kosacks.

Steller and Krasheninnikov who were the first who described Kamchatka, are of the opinion, that to the time of Kamchatka's conquest there lived on the peninsula about 20 - 25 thousands kamchadals. This is shown by the remnants of former dwellings even on banks of the smallest rivers. After several pernicious epidemics and lboody punishments of the urising kamchadals their number, in the time described by Steller, diminished from 10 to 15 times.

The Russian inhabitants proper of Kamchatika never were numerous. The kosack conquerors, as had been said before, nubmered by tens, mostly by hundreds. There took no place an immigration into

Kamchatka on a large scale. On one hand this was hindered by the great remoteness of Kamchatka from the continent, considering the means of communication at that time, and from the other hand by the politics of the czarist government, which hampered the immigration into Kamchatka, regarded as a large natural fur-nursery, which gave a sure income to the government. Only in the middle of the XVIII century, for the purpose of the development on Kamchatka of agriculture, several villages of peasants immigrants from the Lena river were founded.

The russians settled themselves among the kamchadals by separate groups of villages. These old russian dwelling places may be divided into three groups:

1) The former administrative centers - Verkhnekamchatsk, Nishnekamchatsk, Bolsheretzk and later of all - Petropavlovsk.

2) The kosack villages - Tighil, Ust-Kamchatka and Seroglaska. In Seroglaska were immigrants from Gishiga.

3) The peasants villages: Milkovo, Kluchi and Paratunka.

The Russians in a considerable degree became mixed up by blood with the kamchadals, adopted from the latter their modes of housekeeping. However, in their self consciousness they opposed themselves to the kamchadals, at least till it was profitable for them. The czarist government strictly discriminated the peasants, citizens and kosacks from the kamchadal natives. The kamchadals had to pay yassak and the other inhabitants were freed from this tax; but the kosacks received from the government during their whole life a monthly ration and were obliged to carry the function of police and guards.

The kamchadals preserved their national qualities in more or less purity only in the southern part of the district Tighil.

This group preserved its native tongue and, in contrast to those who lost it, are called "itelman". The kamchadals who speak Russian are counted, according to the census of 1926, with Russians on the ground of their speaking Russian. However, besides the language the kamchadals do not differ from the itelman, with whom they have a common origin and are identical anthropologically. Both divisions are of small or middle stature, have light yellow or swarthy complexion, with considerably prominent cheek-bones, black straight hair and squint eyes.

Till the end of the XIX century Kamchatka formed a closed-in island, into which only single persons happened to enter. This circumstance favoured the reservation and development of the particularities of the kamchadal dialect. In the beginning of the XX century on Kamchatka quickly developed the fishing industry, which gradually received a world importance. In connection with this into Kamchatka again precipitated, almost after two hundred years, a new wave of Russian dwellers. New villages were established and in the old kamchadal dwelling-places gradually Russian new settlers formed the bulk of population. New conditions of life, the influence of new settlers and school - all this is quickly wiping out the kamchadal dialect or, at least, alters it, nearing it to the literary speech.

The fundamental peculiarities of the Kamchadal dialect. The kamchadal dialect very considerably distinguishes itself from the literary language. It developed from the old northern Russian dialect, which was spoken by the first conquerors of Kamchatka. It preserved some old forms and words of the northern Russian dialect, which disappeared in the present Russian language. Side by side with this the influence of the kamchadal language expresses itself in the fact,

that the language adopted many kamchadal words, chiefly the names of objects of the peculiar kamchadal household and life. The influence of the kamchadal language on morphology and phonetics of the speech expresses itself in more less perceptible form

Before entering into the description of the modifications of the Kamchadal nouns it is necessary to say a few words on the kamchadal language in general. The structure of the Kamchadal language, forming with the Chukchee and Koryak a kindred group, has much in common with the structure of the languages of the Northwest Coast Indians. There were formerly several dialects, those of the Kamchatka River, of the eastern shore, of the western shore, of the Tighil river, and of the southern part of the peninsula. At present only two dialects are extant: that of seven villages to the south of the Tighil River and that of Sedanka village on the Tighil river. The Sedanka dialect contains many Koryak words. Both dialects contain Russian words and the time is not distant when both dialects will become extinct, since the younger Kamchadal generation learning Russian in the schools will soon use the Russian language exclusively.

[TYPISTS' NOTE: THESE SPELLINGS ARE ONLY ROUGH APPROXIMATIONS OF THE TYPESCRIPT. DIACRITICAL MARKS COULD NOT BE SYSTEMATICALLY ADDED DURING THE TYPING PROCESS. PLEASE CONSULT THE ORIGINAL TYPESCRIPT FOR JOCHELSON'S LINGUISTIC ANALYSES]

The Modification of a Kamchadal Noun

Nomin. - Accus.	SPE, a pestle	SPEEN
Possessive	SPEÍN	SPEIEN
Locative	SPENK	SPEENK
Dative	SPANKE	SPAENKE
Ablative	SPENK SFIZGIN	SPEEN SFIZGIEN
Instrumental	SPEL'	SPEEL'
Comitative I	KSPEL'	SPEEL'
Comitative II	KSPACOM	SPAECOM
comparative	KATAT SPE	

Examples

Spel' tgenin, he grind with a pestle

Kspel' kkolxc, come with a pestle

Qepx kspacom tsalgen, the mortar fell down with the pestle

The kamchadal epos in the center of which we find the god-man Kutq, who is able to turn himself into different animals, chiefly into a raven, is preserved also, but it took the character of a tale, losing its primary religious-mystical meaning.

The most significant differences from the present Russian language we may find in its phonetics.

The following is another example of a modification of a kamchadal Noun.

	Singular	Plural
Nominative-Accusative	XILGIN, a net	XILGI N
Possessive-Genitive	XILGIIN	XILGI N
Locative	XILGILGENK	XILGILGE NK
Dative	XELGINGANKE	XILGINGA NKE
Instrumental	XILGIL'	XILGI L'
Comitative I	KXILGIL'	KXILGI L'
Comitative II	KXILPACOM	KXILPA COM
Comparative	KATAK XILGIN	KAAX XILGI N
Ablative	XILGINGENK SFIZGIN	XILGINGE NK SFIZGI N

Icen xilgiin - noose of net
 Kima tinlkicen xilgin - I bought a net

THE KAMCHADAL PRONOUN

Kima - I; kimanke - to me; kima - me; from me, from myself - sxfizezin;
 kimank; kimanikeit - for my sake; mankekit kima - as I, like me; kimank -
 through me; kimanikit - on my account; kimank - on me.

Example

qazilmin kimanke inc - give me fish
 swizezin kimank isin - from me he goes.
 ina ilki tcescen - he goes with me.
 ina qosin kimake - he goes to me.
 pule sxigin kimank - a bullet passed through me.
 narta kelxfuzixal pesxaznin kimank - a sledge passed over me.
 tin sxfizigen kiman asgen - this on my account happened.

THE FOLLOWING THREE LINES ARE CROSSED OUT

kima tsunskicen - I live, I am living.
 kiza sunsc - thou livest
 ina sunsin - he lives.

SAMPLES TO THE FORMATIONS OF THE

KAMCHADAL VERBS

Present tense of a neutral verb

I live - kima tsunskicen

I seat - kima ttaskican

Thou livest - kiza sunsc

Thou seatest - kiza l'asc

He lives - ina sunsin

He seats - ina l'azen

We live - muza nsunskicen

We seat - muza nl'arkecan

You live - tuza sunsx'

You seat - tuza l'aszx'

They live - itx' sunsin

They seat - itx' l'azen

Past tense

I lived - kima tsunl'kicen

I sat - kima tl'aqazokecan

Thou livest - kiza sunl'gez

Thou satst - kiza l'aqaz

He lived - ina sunl'qazugin

He sat - ina laqazogen

We lived - muza nsunl'qazukicen

We sat - muza nl'aqazokecan

You lived - tuza sunl'qazusx'

You sat - tuza l'aqazosx'

They lived - itx' sunl'qazugin

They sat - itx' l'aqazogen

Future tense

I shall sit (absolutely, without fail) - kima l'amnutl'aqazal'kecan

Thou shalt sit - kiza l'amnul'aqazal'c

He shall sit - ina i'amnul'qazaxwn

We shall sit - muza l'amnunlaqazal'kecan

you shall sit - tuza l'amnul'aqazal'sx'

They shall sit - itx l'amnul'qazaxwn

The imperative mood

Sit (thou) - ql'azxc

Sit (you) - ql'azx'

Do not sit (thou) - zaql'akax'

Do not sit (you) - zaqcinl'akax'

To live to kill to sit

Present tense

Singular

1. t-sun-skicen - I live

2. sun - sc - thou livest

3. sun - sin - he lives

Plural

1. n - sun - skicen - we live

2. sun -sx' - you live

3. sun - sin - they live

Singular

1. I kill (somebody) - t - l'am-a-zcan

2. thou killst - l'am-a-zen
 3. he kills - l'am-a-znen
- Plural
1. we kill - n-l'am-azcan
 2. you kill - l'am-a-zxen
 3. they kill - n-l'am-a-znen

to seat

Present tense

Singular

1. I seat - t-l'a-zkecan
2. thou seatest - l'a-zc
3. he seats - ina l'a-zen

Plural

1. we seat - n-l'azkecan
2. you seat - l'z-zx'
3. they seat - l'a-zen

Past tense

Singular

1. I sat - t-l'a- qazokecan
2. thou satst - l'aqaz
3. he sat - ina l'a - qazogen

Future tense

Singular

1. I shall seat - kima l'amnut - l'a- qazal'kecan
2. thou shalt sit - l'amnu l'a - qazal'c
3. he shall sit - ina l'amnu-l'a - qazaxen

Plural

1. We shall seat - l'amnu-sun-l'qazal'kicen
2. you shall seat - l'amnu-sun- l'qazal'sx'
3. they shall seat - l'amnu-sun- l'qazaxin

Imperative mood

Positive form

- Singular - q-sun-sxc - seat down
Plural - q-sun-sx' - you seat down

Negative form

- Singular - zaq-sunll'keq' - do not seat down thou
Plural - zaqcin-sun-l'keq - do not seat down you

Modifications of an active

Present tense

Singular

1. t-l'am-a-zcan - I kill (somebody)
2. l'ama-zen - thou killst
3. l'am-a-znen - he kills

Plural

1. n-l'am-a-zcan - we kill
2. l'am-a-zxen - you kill
3. n-l'am-z-znen - they kill

Past tense

Singular

1. t-l'am-can - I killed
2. l'am-an - thou killed
3. l'am-nen - he killed

Plural

1. n-l'am-can - we killed
2. l'am-sxen - you killed
3. n-l'am-nen - they killed

Future tense

1. t-l'am-a-l'can - I shall kill
 2. l'am-a-l'en - thou shalt kill
 3. n-l'am-al'xi-nen - he shall kill
-
1. n-l'am-al'can - we shall kill
 2. l'amal'sxen - you shall kill
 3. n-l'am-al'xinen - they shall kill

Imperative mood

Positive form

Singular

- q-l'a-zxc - kill thou
q-l'a - zx' - kill you

Plural

Negative form

- zaq-la-kaq - do not kill thou
zaqcin-l'a-kaq - do not kill you

to sing (medium)

Imperative mood

- qcaqasxc - sing thou
qcaqasx' - sing you
zaqcaqal'kaq - do not sing thou
zaqcin caqal'kaq - do not sing you

Present tense

1. t-caqaskecan - I sing
 2. caqa - sc - thou singest
 3. caqa - sen - he sings
-
1. n-caqa-skecan - we sing
 2. caqa - sx' - you sing
 3. caqa-sen - they sing.

1. t - caqa - l'qazokecan - I sung
2. caqa - l'qazoc - thou sung
3. caqa - l'qazogen - he sung
1. n - caqa - l'qazokecan - we sung
2. caqa - l'qazosx' - you sung
3. caqa - l'qazogen - they sung

Future tense

1. l'amnu - t - caqa - l'qazal' - kecan -I shall sing
2. l'amnu - t - caqa - l'qazal' - c - thou shalt sing
3. l'amnu - t - caqa - l'qazax' - en - he shall sing
1. l'amnu - n - caqa - l'qazal' -kecan - we shall sing
2. l'amnu - n - caqa - l'qazal' - sx' - you shall sing
3. l'amnu - n - caqa - l'qazax' - en - they shall sing

caqalez - a song; caqalzen - songs

qtsix' qasx' - strike the dog

qtxsxin qasxan - strike the dogs

zaq' txlex' qasx' - dont strike the dog

zaq' txlex' qasxan - dont strike the dogs

kima tx'ecen qasx' - I strike the dog

kima txecen qasxan - I strike the dogs

kiza tx'zin qasx' - thou strikest the dog

kiza tx'zin qasxan - thou strikest the dogs

ina tax'snin qasx' - he beats the dog

ina tax'snin qasxan - he beats the dogs

tuza tax'sisx' qasx' - you beat the dog

tuza tax'sxin qasxan - you beat the dogs

itx' ntaxsnin qasx' - they beat the dog
itx' ntaxsnin qasxan - they beat the dogs
kima tax'l'qazucen qasx' - I have beaten the dog
kiza tax'l'qazun qasx' - thou hast beaten the dog
ina tax'l'qazunin qasx' - he has beaten the dog
muza ntaxl'qazucen qasx' - we have beaten the dog
tuza tax'l'qazusx' qasx' - you have beaten the dog
itx ntax'l'qazunin qasx' - they have beaten the dog
kima tax'l'qazucen qasxan - I have beaten the dogs
kiza tax'l'qazun qasxan - thou has beaten the dogs
ina tax'l'qazunin qasxan - he had beaten the dogs
muza ntax'l'qazucen qasxan - we have beaten the dogs
tuza tax'l'qazusxin qasxan - you have beaten the dogs
itx ntax'l'qazunin qasxan - they have beaten the dogs
kima l'amnu taxl'qazual qasxcen - I shall beat the dog
kima l'amnu taxl'qazual'cen qasxan - I shall beat the dogs
kiza l'amnu taxl'qazualin qasx - thou shall beat the dog
kiza l'amnu taxl'qazualin qasxan - thou shall beat the dogs
ina l'amnu taxl'qazual'nin qasx - he shall beat the dog
ina l'amnu taxl'qazual'nin qasxan - he shall beat the dogs
muza l'amnu taxl'qazual'cen qasx - we shall beat the dog
muza l'amnu taxl'qazual'cen qasxan - we shall beat the dogs
tuza l'amnu taxl'qazual'isx' qasx - you shall beat the dog
tuza l'amnu taxl'qazual'isx' qasxan - you shall beat the dogs
itx l'amnu taxl'qazual'nin qasx - they shall beat the dog
itx l'amnu taxl'qazual'nin qasxan - they shall beat the dogs
kima tlaxen kiza - I take thou
kima tscen ina - I take him
kima tlal'sxin tuza - I take you

kima kiza smin - thou me takes
kima szen inan - thou him takes
kima l'axmin muza - thou takes us
kima szen itx - thou takes them
ina sgimnin kima - he takes me
ina nsgin kiza - he takes thou
ina snin inan - he takes him
ina sgimnin muza - he takes us
ina nsxin tuza - he takes you
ina nscen itx - he takes them
muza nl'axin kiza - we take thou
muza nl'al'cen inan - we take him
muza nl'aal'sxin tuza - we take you
muza nl'al'cen itx - we take them

tuza l'al'minsx kima - you take me
tuza l'al'sx inan - you take him
tuza l'al'minsx muza - you take us
tuza l'al'sxin itx - you take them

itx nsgimnin kima - they take me
itx nsgin kiza - they take thou
itx nsnin inan - they take him
itx nsgimnin muza - they take us
itx nsxin tuza - they take you
itx nscen itx - they take them

kima tocizin kiza - I call thou

kima tociscin inal - I call him

kima tocesxen tuza - I call you

kima tocescen itx - I cal them

kiza ocezmen kima - thou calls me
kiza ocizin ina - thou calls him
kiza ocimin muza - thou calls us
kiza ocezen itx - thou calls them

ina ocizgimnin kima - he calls me
ina nocizin kiza - he calls thou
ina oceznin ina 0 he calls him
ina ocezgimnin muza - he call us
ina nocexin tuza - he calls you
ina ocesnin itx - he calls them
muza nocezin kiza - we call thou
muza nocescen ina - we call him
muza nocexin tuza - we call you
muza nocescen itx - we call them
tuza ocezminsx kima - you call me
tuza ocezsx' ina - you call him
tuza ocezminsx muza - you call us
tuza ocezsin itx - you call them
itx nocezgimnin kima - they call me
itx nocegin kiza - they call thou
itx noceznin ina - they call him
itx nocezgimnin muza - they call us
itx nocezin tuza - they call you
itx nocezcen itx - they call them

The following are words and phrases showing different forms of the kamchadal grammar, as they are met in my notes.

Kimán, kinin, inaan, mizgin, tizwin, txiin isx' kist skarznen - my, thy, his
, our, yours, their father a house builds

Kimán isx' kotligen - my father has come.

Kimán isx' kosim - my father is coming.

Kimán isxen kist - My father's house.

Kimán isxen kist - my father's house.

Kimá isx' kimán tuxlikicen - My father I brought.

Metxanki - grandfather and grandmother.

isx' - father.

laxsx' - mother.

salatumx' - brother.

lilixs - sister.

ktxancen salatumx' - elder brother.

ktxancen lilixs - elder sister.

salin imtx' - younger brother.

salin lilixs - younger sister.

kixus - uncle.

tlesux' - aunt.

luxsx' - nephew.

ñimsxi luxsx' - niece.

pec - son

ñimsxi pec - daughter

nenekic - boy

ñimsxi nenekic - girl

xoniñ - one; xoniñ kasux' - one axe

kasex - two; kasex kasxun - two axes.

cox - three; cox kasxun - three axes.

Four and farther are used in Russian.

or komron - grandson.

ñimsxi komlon - grand daughter

samses - son-in-law (daughter's husband) and husband of the wife's sister

cicnenlax ñimsix - a pretty woman

aslax kist - a high house

lil - a line

nerpa inlil - a line of sealskin

u - a tree

u inkist - a wooden house

kosux - an axe

watc - stone

watc inkosux - a stone axe

emsxulax kosux - a light axe

textem - canoe

kemme scalerzk taxtemen - I am driving in a boat.

kemme taxtem tskazen - I am making a boat.

kemme kist tskazen - I am building a house

memen - a storehouse on high posts

memen kince incen slozin - fish lies on a high platform

stoaln inc stolozin - fish lies on the table

kemme incel tanursk - I fish am eating

kaz incel nurisk - thou fish eats

kemme incel tlimask - I am catching fish

ena incel tlimasic - he is catching fish

kemme scalerzk narten - I am traveling on a sledge

kemme scalerzk koxsxol - i am traveling with dogs

a fox - csal; csalai

a man - camzanlix

a man became sight of a fox - camzanlix csala tulkckican

A fox became sight of a man - csala camzanlix tulkckican

Csala carzin - a fox is sitting

csalin carxin foxes are sitting

nimsix carzin - a woman is sitting

kemme carzk stulang - I am sitting on a chair

kimma isx cisen sxiziki - I am traveling with my father

kimma isx sxezi sanki - I am speaking of my father

kuman kist - my house

knin kist - thy house

plxin kist - his house

kman kist - our house

knin kist - their house

Hac kiman kestanki xelxc - enter my house

Hac knin kestanki xelxc - go into thy house

Hac plxin kestanki xelxc - enter his house

kman kisten - my houses

kaman isxen kist - my father's house

kaman isxen kasx kisten - my father's two houses

kumman esxanki txuskican - I came from my father.

kimmat txezisk kumman esxanki - I am traveling to my father

ixlex - a man

nimsix - a woman

kig - a river

xix - the sea

kotlux - a lake

shore - knizum

kigin knizum - the shore of a rive.
kunc - a narrow valley
eel - a mountain
neinen - a mountain ridge
kaman kisten sunsin - he in my house lives
xemslix - a fire
loos - the sun
jalnen - a month
enezicex - a star
klxal - day
kunk - night
kxat loc esezin - sunrise
loc kxat ksiin - sunset
xosx - dog
sasxamen - dog's harness
inc - fish
ksus - largefishes; red salmon
xeiqux - haiko (fish)
xayuca - kind of salmo[n]
cuai - kind of salmon, Russian chavicha
yialgen - month
kist - ouse; kisten - houses
isx father; isxen fathers; kasx isxen - two fathers
xcamzanlix - a man; csal - a fox; xcamzanlix csal klemkinan - a man a fox
killed; xcamzanlix csal kelcguin - a man came in sight of a fox; csal
xcamzanlix kelcguin - a fox came in sight of a man.

- a i u - have the continental sounds
- a i u - are long vowels
- a - short, resembling the English a in all, ball, tall or o in not
- ä - short, resembling the English a in hat
- a^e i^e u^e - are pronounced energetically, with a deep laryngeal intonation.
- y - is pronounced like the German j
- yi - is pronounced nearly as the Russian semi vowel h
- d - is a linguae-dental surd-sonant resembling to the English th in those
- g - is a velar sonant resembling to the russian sound g in bog0
- b - is a very loosely pronounced bilabial sound, sonant
- g - is an uvular g
- gw - is a loosely pronounced bilabial w with a preceding velar g, pronounced similar to wh in where
- h - as in English
- k - as in English
- k' - have aspirant added
- c - like English ch
- l - like English l
- l' - anterior palatal sound, surd
- n - as in English
- n - with a strong nasalization
- n - palatized, similar to ny
- ñ - n combined with a velar g
- q - an uvular k

- s - as in english
- s - palatized (similar to sy)
- t - as in English
- t' - has a spirant added
- t - is a cerebral sound, the tip of the tongue is turned back
- tl - is an affricative sound, medial
- x - is a velar spirant, sonant, like the German ch in ich
- x' - is a velar spirant, surd

THE FOUNDATION OF THE KAMCHATKA

PROVINCE

The 17 of June 1909 the Czar ratified the law concerning the administrative reorganizatoin of the Primorski Province and the Sakhalin Island and of the foundation of the Kamchatka Province.

Although there alreadyt passed 200 years since the Russian valiant warriors had conquered this distant corner of the Asiatic continent, adding it to the Russian Emire, it still remains in the same primitive, halfwild state, in which the cosack conquerors had found it, and as before it is sparsly inhabited (about 32.000) souls on 1.182.000 square versts). Keeping this in mind, it will become clear, with what difficulties, during the first period of time, the local administration had to fight ofr every cultural beginning. Each administrative measur eis spreading and adopted by the inhabitants quite slowly, taking itno consideration, that the inhabitants stand on a low level of mental development, being in their greater part local natives. The province is divided iinto 6 districts, called ouyesds. But we are chiefly interested in the district of Petropavlovsk, the center of which consists of the city of Petropavlovks, which also serves as a capital-city of the whole province.

To the 1 of january of 1910 there were in the Petropavlovsk district

urban population	- 1105	souls
cosacks	- 602	"
natives	- 4439	
koreyens	- 4	
americans	- 5	

Japanese	- 21
Chinese	- 48
Total	7623

To the 1 January 1911

urban population	- 1223
peasants	- 1427
cosacks	- 620
natives	- 4457
koreyans	- 74
Americans	- 9
Japanese	- 18
Chinese	- 237
Total	8065

Approximately one man to 40 sq. versts.

All the Japanese live at present exclusively in the city of Petropavlovsk, being chiefly different artisans: they opened recently a hair-dressing establishment, a laundry, a boat making shop and others. As to white foreigners there were few of them: 9 Americans, chiefly in Petropavlovsk.

In the year of 1852 were invited voluntary immigrants in the number of 589 men from peasants of the Irkutsk and Transbaikalian provinces in order to people the road from the river Amga to the river Ust-Maya. These peasants received assistance in money, cattle, implements and seeds. But after the acquisition by the Russians of the mouth of the Amur river Ayan had lost its importance and a part of the mentioned peasants moved to the Amur River. There still remained the villages: Amginskaya Sloboda with two small hamlets Verkhny and Chepchal-

gan, the villages Arylax, Bulun and Ust-Maisk. in all these places lived 453 souls (234 men and 219 women). They lost their national peculiarities and adopted the language, manners and customs of the Yakuts. The type of an Amga peasant V. G. Korolenko immortalized in his sketch "The Makar's Dream."

The villages of the Skoptzy. Although the remarks on the Skoptzys have no connections whatever to the peninsula Kamchatka, where there are not castrated people, I think that these remarks will be found of interest by scientists.

In the year of 1894 I made a special study of the castrated of the district Olekminsk in the province Yakutsk and I published on them an article under the heading: "The Olekman Skoptzys" an article representing their mode of life in the periodical "The Living Old Times". parts III and IV, 1894. The villages of the castrates make an odd impression on their visitor. The Russian sect of the castrates had gotten up from the teachings of the religious sect of the khlysty on the sin of cohabitation of sexes - the teachings which brought their followers to quite opposite results in practice.

Various sections on Siberian residents

THE POPULATION OF KAMCHATKA AND ITS HUSBANDRY

The population of Kamchatka, according to the census of 1926-1927, shows a total of 34.940 souls of both sexes. Of this number

26.605 or 76.3% are natives and

8.355 or 23.7% are newcomers

The bulk of the immigrants is concentrated in the city of Petropavlovsk and on the greatest rivers: Kamchatka, Great River and Tighil, where the newcomers form 52.7% of the population. It become more and more of less density with the removing to the north. in the Chukotski district it comes down to 2.2%.

The immigrants consisted of soldiers, who were sent to Kamchatka for its conquest and government, of peasants-agriculturists, who were settled there by the government for the development of agriculture, of workers and of different enterprising people, who came to Kamchatka in pursuit of high earnings and light profits.

The local population consisted of the following tribes:

	souls of both sexes	percent of the total population
Chukchee	11002	41.0%
Kamchadals	3387	13.0%
Tunguses	382	5.2%
Lamuts	1362	5.1%
Eskimos	1251	2.6%
Chuvantzys	691	2.6%
Aleuts	335	1.2%
Yikaghirs	46	0.2%
Yakuts	1	
Koryaks	7148	27.0%

We see, that the Chukchee form the basic group of the native population. During the first period of the conquest of the country by the Russians the Chukchee were able to render a desisive resistance to the Russians. They defeated the detachment sent out against them and kiept up their independance thanks which they escaped the fate of the tribes of souther Kamchatka: they did not experienced the horror of physical extermination. They do were conquered later, but not by military forces, but by the trader and hunter.

The next tribe by its number (of 11492) souls) are the Koryaks. They occupy the territory of the Penshina Bay about 287000 sq. miles and have their center on the Penshina River.

The Kamchadals are spread all over Kamchatka, except the Penshina locality, but the bulk of them occupy the southern and central parts of the peninsula Kamchatka. The fate and history of the most ancient tribe of kamchatka is very dramatic. Before the arrival of the Russians the Kamchadals were a numerous tribe. Prof. Krasheninnikov, whoinvestigatede Kamchatka about 2000 years ago, says, that the shores of the chief rivers of the Kamchatka peninsula were densely populated by Kamchadals. Their nubere was not less than 20 - 25 thousands of people, i.e. 6- 7 times more than at presnt. As a result of the meeting with Russians the Kamchadals not only decreased in number, but in a considerable degree have lost their national traits. krasheninnikov tells us, that in his time the Kamchadals spoke their native tongue. At present the eastern Kamchadals have lost it altogether. Prof. Komarov asserts in the "Works of the kamchatka Expedition of Riaboushinsky", that in the time of the investigation, i.e. in the years of 1908 - 1909, in the valley ofthe kamchatka River only one 80 years old Kamchadal still knew the Kamchadal language and after his death the eastern Kamchadal dialect will cease to exist. Together with the language the Kamchadals lost their former mode of life, adopted the mode of life of the Russians, with whom they were mixed up by means of marriages, and now form, according to the census, a particular hybrid group with a peculiar mixed up culture.

Of diseases and medicaments

The chief diseases on Kamchatka are: scurvy, furuncles, weakness, cancer, jaundice and uncleanliness, which, they believe, are letting loose by evil spirits living in birch-woods when people are cutting them not being aware of it. These diseases are cured chiefly by incantations, but they use also some grasses and roots. Steller mentions some of the medicaments. Against scurvy the kamchadals use certain grasses which they apply to the gums. They drink also a decoction of grasses of red bilberries and crow-berries and eat the buckram. Both these remedies were recognized by all members of Kamchatka expedition. furuncles the Kamchadals regard as a most dangerous illness, from which people are dying. Steller writes very detailed of diseases and their curing. i wish to mention here some of them. Weakness, cancer and syphilis are regarded as uncurable. of the syphilis the Kamchadals tell that it appeared after the arrival of the Russians on the Kamchatka peninsula.

i wish to name here the following medicinal plants.

The Sarana (bulbs) is of two varieties. One is called "kruglashka" (the round one) form the womewhat roudned appearance of its bulbs (called by Dittmar Liliun Maragon) has a round, somewhat longer stem with a rather big and nice orange flower. it is called "ovysyanka" from the certain likeness of its leaves with the seeds of oats. Both kinds of bulbs are eaten. Frm them a tasteful gruel is prepared with milk. The sarana is also put into soups, like cabbage soup. It is also roasted with meat and fish. Fresh it has a sweetish, mealy taste.

Concerning other edibleplants, known to the Kamchadals, I may mention the following:

The Barannik, (Senecio cannabifolius). The leaves of this plant, resembling to the leaves of hemp, the Kamchadals often put into their soup, which gets the taste of sheep meat.

The Devyatilnik (a species of Orchis) is used as a remedy against fits of fever, rheumatism and many other maladies. It is dried, infused and drunk like tea.

Kopytnik (Majan themum) is used to treat furuncles.

Red elder-berry (Sambucus). its flower is infused and drunk like tea against cough.

The "drunken grass" (Rododendron chrisanthum), which grows only on mountains near the village Nachikino, bloom in June and is used to cure inner bleedings. It has an astringent taste.

On the Religion of the Kamchadals

(From Krasheninnikov p. 100)

As a god the Kamchadals honor a being called Kutchu, from whom they believe to originate. Who created the sky and stars they do not know. They tell, however, that they existed before the earth appeared. There are two traditions concerning the creation of the earth. One of them says, that Kutchu created the earth of his son by the name Symskalin whom his wife Ilkchum bore when she walked on the sea's surface. The other tradition relates that Kutchu with his sister Khutlyschich brought the earth from the sky and put it on the sea and that the sea was created by the god Utleigyn, who lives in it till present. However, all agree with the fact that Kutchu before creating the earth lived in the sky. Some others are of the opinion that the possession of the sky and the earth is ascribed to two different gods. Besides, they worship also a god of the hell and they regard all those "possessors" as native brothers, as did the Greek and Romans.

Kutchu after creating the earth left the sky and settled himself on Kamchatka, where another son was born to him by the name Tyshil-Kutchu, and a daughter by the name Siduku. Tyshil-Kutchu and Siduku after growing up became married. Kutchu himself as well, as his wife and children were dressed in coats sewn of leaves and they lived upon the bark of birch trees and willows. They said that beasts were still not created and that they were not able to catch fish. Kutchu, abandoning his son and daughter, left Kamchatka and it is not known, where he went. It is only said, that he left Kamchatka on snow-shoes, and the mountains and valleys were the result of his travel, as the earth under him was bent like thick ice, and

thus was deprived of its evenness and flatness.

Tyshil-Kutx after his father left bore a son Amlei and a daughter Sidukamshich, who were married when grown up. The Kamchadals do not know farther their genealogy. They only assert, that from the names forefathers they multiplied into a great nation.

Tyshil-Kutx, when his people became numerous, began to contemplate of a better life. he invented how to bind nets from nettle and to catch fish. how to build boats he learned already from his father. he created also all the animals on the earth and as a shepherd to them he appointed a certain being by the name Pilachuch, under whose supervision they find themselves until now. he began soon to sew from their skins kuklankis (ordinary shirtlike short fur coats) and parkis (long doubled fur coats with the fur of reindeer calves inside and outside).

of the Pilachuch it is said that he wears clothing of gibbon skins, of which the Kamchadals are very fond, that he is traveling on birds, particularly on ptarmigans, and that some people even at present are able to see his foot steps.

Steller describes the local tribes as believers in many gods and says that they assert that in olden times they were able to see them, and for that reason they feel no respect toward them. They picture the Kutq as a most foolish being and tell of him such indecent tales that it is a shame to repeat them. Among other things they accuse him of having created such many mountains and big and small rivers, and that he produces many rains and tempests in order only to cause them trouble. When in winter the Kamchadals ascent mountains, they defame Kutq by different mean names. Thus they do not during many other hard times.

The Kamchadals call god by the name Dustekhtich. They put in his honor in plains posts, which they embellish by grass-crowns and throw to them, when passing, some pieces of food. but they do not

give them what may have a value. Every thing what they want to throw away, they offer as offering. They do not gather berries near these posts and do not hunt any animals or birds and they believe that by so doing they prolong their life.

All the dangerous phenomena, like volcanoes, hot sources and dense forests are inhabited by a certain kind of devils, of whom they are more afraid than of their gods and they worship them.

Mountain gods the Kamchadals call kamuli, what means small souls. These gods whom they call also foes, live on high mountains, particularly on smoking and volcanic ones. These mountains the Kamchadals not only do not ascend, but even do not come near them. The Kamuli, as the Kamchadals believe, are fishing descending to the sea in the night time. They cook and roast fish as the Kamchadals do, using instead of wood whale's fat and bones. The Kamchadals, when passing by such places, throw to the foes some food as a present.

Forest gods the Kamchadals call Ushakhchu, and say, that they have likeness to men. They try to lead men astray.

The sea god they call Mitg and say, that he has the likeness of a fish.

The Kamchadals have only one yearly festival, when they clean themselves from their sins and call it therefore "the cleansing or purifying one". The festival consists of many actions, ceremonies and offerings to their gods, which Steller fully described. All diseases they chiefly cure by conjurations, they use also grasses and roots, enumerated by Steller.

The Kamchadals do not bury their dead and throw them to their dogs as food. They believe, the people, who were eaten by dogs,

will in the future life travel with fine dogs. After such burials the Kamchadals clear their dwellings by making a big fire of rods. Instead of commemoration for the dead they throw into the fire place the fins of a first caught fish, which is regarded as an offering to the dead. The fish meat they eat themselves.

The Kamchadals bury children in hollows of trees, mostly without any ceremonies. They regret and mourn their deads and weep not loudly.

The festival of clearing of sins takes place in November. After finishing their summer and autumn works the Kamchadals begin no new work before that festival. They do not visit friends and do not go hunting, regarding it as a great sin.

The forefathers of the Kamchadals, after storing food for the winter had the custom to bring to god an offering.

The festival of clearing of sins begins with the sweeping up of the dwelling. Then the old staircase is taken out and on its place is erected a new one, which is conjured by a charm formula. Then all the objects connected with dog driving: sledges, dogs' breech bands, bridles and the ostol (i.e. the driver's staff) are taken out from the house. The Kamchadals believe that all this does not please to evil spirits. The festival ends by the invocation to the hearth, that it may not harm the people and may not cause conflagrations.

On the Shamans of the Kamchadals

The Kamchadals have no special shamans as their neighbors do. Every woman, especially old ones, may perform shamanism and interpret dreams. While performing shamanism the Kamchadals do not beat a drum nor have any special garb, like that other Siberian natives use. The Kamchadals use incantations for healing diseases, but the formulas of incantations they keep in secret. Some dreams they regard as

positive prognosis. For instance, when a Kamchadal dreams of lice, they will undoubtedly be visited the following day by cosacks.

Then follows the description of the performances after the festival of the "Clearing of Sins". These performances consisted in the following: the Kamchadals, throwing off their clothes went perfectly naked with buckets one after another, in a row to an ice-hole to fetch there water and to bring the buckets home full, not splashing out the water, what was considered a sin. They were let in into their half underground earth-hut by means of a rope, which they had to slide down by one hand and in the same time not letting fall the bucket. This was a difficult task to perform. But they mastered it well.

On the Courting and Weddings. When a Kamchadal wishes to marry, he ordinarily looks for a bride in another village and not in his own hamlet. He works a certain time for his bride, showing his boldness and smartness, and serving to every one like a serf, particularly to his future father and mother-in-law, and then he asks permission to fetch the bride. If he is liked by the parents of his bride, he gets the permission otherwise his services are lost altogether. Who succeeds in fetching the bride, may visit her the next night without any obstacles, and the next day he may take her to his village without any ceremonies and for the wedding he returns after a certain time to the bride's relatives. Children are sucking the breast during three or four years. On the second year they are taught to crawl, are fed by dried fish, roe, birch and willow bark and chiefly by sweet grass. As concerns the bringing up of children, the opinion of Steller is that the love of parents to children is very great, but children despise parents, particularly aged and sick. They scold parents by dirty names and set no value upon them. They do not ask advice from parents, when they are going to marry and do not inform them of such important events of life.

To the Religion of the Kamchadals.

Steller calls the Kamchadal Kutka "the greatest deity of the Kamchadals, who created the world and every living being." (p. 18)

Steller says on p. 255: "If it is at all permissible to speak of any kind of god, we do not find any description of his nature, faculties, or deeds, though there is a name for him - "Dustechtschitsch" This is evidently the Supreme Being of the Kamchadals. unfortunately Steller does not give any further information about that deity. At the present time the Kamchadals call the Christian God by the name Dustqicic.

Struck with the ridiculous and disrespectful character of the tales about "Kutka" in Kamchadal mythology, Steller (p. 253) calls the kamchadals "geborene Gotteslästerers", and considers such an attitude toward the gods and anomalous exception. But the myths of the civilized peoples of antiquity, as well as those of other primitive tribes that have been collected since, prove that in point of coarseness the crude imagination of the kamchadals does not stand alone. indecent tales are, nevertheless, especially characteristic of the inhabitants of both shores of the north Pacific; and their obscene character constitutes one of the points of resemblance between the Kamchadal and the American mythologies.

GUARDIANS AND CHARMS

Passing from the conceptions of invisible supernatural beings to the religious significance of concrete objects, I shall begin with the discussion of guardians and charms. It is very difficult to answer the question, in what way does an image of man or animal, made by man, or do objects in their natural state and having no likeness to animated objects, come to be considered as deities or guardians?

It is impossible to obtain a direct explanation from the primitive man. I will here relate a case that I witnessed myself. Two brothers, Reindeer Koryaks from Tilqai River, after their father's death divided among themselves the reindeer-herd, intending to live apart. According to custom, the family sacred fire-board (see p. 33), the guardian of the herd was give to the younger brother. Then the older brother made a new sacred fire-board for himself.

With adze in hand, he went to the woods, and soon returned with a newly hewn wooden figure. It was put upon the cross-beam over the hearth to dry, and in a few days its consecration took place. A reindeer was slaughtered as a sacrifice to The-Master-On-High, and the figure was anointed with the sacrificial blood and fat. Thereupon the mother of the two brothers pronounced an incantation over it, consisting of an appeal to Big-Raven to set up the new sacred fire-board as a guardian of the herd. Then fire was for the first time obtained from the sacred fire-board by means of drilling; and the wooden god, or rather guardian, black from hearth smoke, and shining from the fat that had been smeared upon it, became the guardian of the herd and of the hearth. "Now my reindeers will have their own herdsman", said Qacai, the older of the two brothers, with a smile, in reply to my questions. It was clear tha his attitudes towards the new quadrdian was somewhat sceptical, but the ancient custom bproved stronger than his scepticism. it seems to me that here are tow elements which participate in this transformation into a guardian of a piece of wood shaped into a crude likeness of a human figure. first, there is the conception of concealed vital principle in objects apparently inanimate. Second, there is the mysterious influence of an incantation upon this vital principle i.e. the power of the words of man to increase th eforce of the vital principle, and to direct it to a certain activity.

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The following quotation from Krasheninnikov (II, p. 103) bears witness that the Kamchadals also had wooden kamaks: "The Kamchadals put up a pole on the vast plains of the tundra, tie grass around it and never pass by without throwing to it a piece of fish or something else. Steller had seen two such posts near the Lower Ostrog."

It is interesting to note here the Krasheninnikov (II, p. 126) speaks of the Kamchadals having small charms with pointed heads, under the name katide, which represent the spirits that enter into women while they perform their ritual dances.

Besides the guardians of settlements other wooden kamaks, consisting of long thin tapered poles, are occasionally found in the villages. They are put up on a rock overlooking the sea, after the whale-hunt, by the owner of the skin boat the crew of which had killed the whale. The duties of these wooden kamaks are to watch the sea,

and to attract new whales.

There is still another kind of kalaks connected with whale-hunting. These kalaks are also put up after the whale hunt, and a man who had killed many whales has several of these charms. They are of small dimensions, are kept in the house, and, when the whale-skin is being broiled, are seated or put up around the fireplace to watch the whale-skin, their tapering ends being driven into the ground. The fire on the hearth is regarded as the sea in which floats the whale-skin, representing the whale. If the whale is not watched, it dives into the fies and disappears underground. Then whale-hunting ceases.

On the Kurilians

The first Kamchatka Expedition

few lines about Steller

Krasheninnikov

Outline