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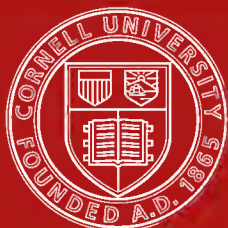
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ASIATIC RUSSIA



Tomb of Tamerlane at Samarkand.

Asiatic Russia

By

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and the Glacial Period,"
etc., etc.



With Maps and Illustrations

Volume One

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To
Samuel Prentiss Baldwin, Esq.

whose frequent, long-continued, and close
companionship in travel
and whose enlightened interest in my
investigations in Northern Asia
have rendered the present work possible,
these volumes are gratefully
dedicated



PREFACE

PREFACE

THE extension of Russian influence and the spread of Russian colonies over Northern Asia are among the most interesting and significant events of modern history. They are doubly interesting because of the peculiar physical conditions of the country and of the peculiar character of the aboriginal population. They are significant because of the political relations which have arisen between Russia and the nations of the Orient, and because of the opportunity opened for the unlimited peaceful expansion into contiguous territory of one of the most vigorous and progressive races of modern times.

When several years ago I began to make preparation for an extended trip through China, Siberia, and Central Asia to collect information concerning the conditions of the region during the glacial period, I found it difficult to obtain the preliminary comprehensive knowledge of the country which would render such a trip most profitable. It was in the effort to collect such information that the thought of preparing the present volumes was suggested. Now that I have traversed the principal portions of the country described, and have seen with my own eyes the land, the present varied population, and the numerous remains of ancient civilization, the

importance and interest of the subject have been greatly enhanced in my own mind, and, I hope, my ability to comprehend the facts has been so increased as to justify attempting to bring the work to completion.

The physical conditions of Asiatic Russia are unique, and have both molded its past civilization, and shaped to a large degree the forces determining its future. The region of the Caucasus, the arid area centering in the closed basin of the Caspian and Aral seas, the vast drainage basin tributary to the Arctic Ocean, and the splendid navigable river systems upon the Pacific coast bordering upon Japan and China, can be appreciated in their full significance only by detailed study in connection with the general geological facts and the remarkable climatic conditions of the country.

So intimately are the physical conditions of the country related to the historical development, that the last three chapters would logically have found a place before the history of the conquest and the account of the colonization. But, for fear of dismaying "the general reader" with too much "science" at the outset, they were deferred, as a sort of appendix, to the end. Still the climate, the geology, and the natural history, in addition to being extremely interesting in themselves, have been such potent factors in determining the historic development that most readers will wish to turn back from perusal of the chapters relating to them to further study of those dealing with the resources, the social conditions and the history of the region.

The historian has always been impressed, if not perplexed, by

the fact that Central Asia has been such a disturbing factor in the progress of human events. The movements of population from this radiating center have from the earliest times profoundly affected the history of the world. The results of these migrations are seen to-day in the Finns of Russia, in the Magyars of Hungary, in the Turks on the Bosphorus, in the Mongolian races of Eastern Asia and in the Red Indians of America, found from Bering Strait to Patagonia, as well as in the widespread Uralo-Altai languages, and in the still more widely disseminated Aryan tongues.

Much welcome light is shed upon this problem from study of the physical conditions which we have here so fully detailed. The irrigated belt about the base of the Tian-Shan and Hindu Kush mountains was admirably adapted to be the breeding place of nations, from whose subsequent overcrowded population there should be pushed outward the lines of colonization just indicated. There the lofty mountains not only give variety to the scenery and to the conditions of life, but by condensing the moisture of the clouds and retaining it for a while in glaciers and perpetual snow-fields, finally let it down in due measure to meet the wants of the teeming populations which in the midst of perpetual sunshine have grown up in dependence upon irrigation.

But the past has not always been like the present. This is evident enough to the ordinary student of the history of this region. The population was formerly more dense than now. This can partly be accounted for by a change in social and political conditions; but partly, and perhaps, more largely by

the physical changes indicated by close study of the geology of the region, and by the climatic changes affecting the distribution of plants and animals. The former greater rainfall, dependent on geological conditions, and profoundly affecting the climate, is probably the key to the puzzling historical problems. How much science and good government can do to counteract these deteriorating conditions and to restore and augment the former prosperity, remains to be seen.

Everything in Asiatic Russia presents itself in gigantic proportions. Russia's empire in Asia is destined to be either a monumental success or a tragic failure. The curtain is about to rise on the third and final act of the drama in Central and Northern Asia. Aboriginal man and the Mongol race have there already had their day. Europe of the middle ages has finished its invasion and reached the limit of its development. And now the twentieth century with all its new-born energies is entering upon its more hopeful effort to subdue and utilize to the utmost the latent physical forces of its vast territory. The results will depend upon the wisdom of the ruling minds at St. Petersburg. At present the Tsar has no more loyal subjects than those residing in his Asiatic dominion. The same political and natural instincts which are now re-consolidating the English-speaking people of the world may well preserve forever the unity of the great Slavic nation, and restore again the golden age to this, which many, with much reason, believe to be the original center of the human race.

In a bibliography is given a partial list of the books and publications which have been found most helpful in the prepara-

tion of the work. In addition I would make special acknowledgments to the managers of the Trans-Siberian Railroad for their reports, of more than twenty volumes, upon the Geological Exploration conducted by the government in connection with that great enterprise; to Professor F. Schmidt for numerous publications upon the geology of the New Siberian Islands and the adjoining mainland; to General M. Rikatcheff, Director of the Nicholas Physical Observatory, for the magnificent Climatological Atlas summarizing for Russia the results of fifty years' observations in all parts of the Empire; and to Actual Privy Councillor Witte, the Minister of Finance; Actual Privy Councillor Yermoloff, the Minister of Agriculture and State Domains; and Actual Privy Councillor Khilkoff, the Minister of Public Works and Railways, for various publications and documents of great value and importance. The important chapter on Climate has been prepared by Mr. Frederick Bennet Wright, for some time connected with the United States Weather Bureau. To him also I am indebted for most of the photographs from which the illustrations are furnished, and also for much assistance in preparing the chapter on the Flora and Fauna.

G. FREDERICK WRIGHT.

OBERLIN, *April 21, 1902.*

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ASIATIC RUSSIA

INTRODUCTORY

RUSSIA'S advance into Northern Asia is merely the reversal of the ancient order of events. From the earliest periods of history down to the seventeenth century of the Christian era, the movements of population in this region had been towards the setting sun. Long before the beginning of the Christian era, the tribes inhabiting the northeastern portion of Mongolia, about the headwaters of the principal tributaries of the Amur River, became a disturbing element in the history of the world. Penned in by the Pacific Ocean upon the east, and restrained by the more compact civilization of China upon the south, they began those vast migrations to the west whose influence was eventually felt to the farthest extremity of Europe. Being nomadic in their habits, they were not firmly attached to any particular locality, and hence could easily migrate *en masse* in whatever direction inclination and opportunity might lead.

As the conditions to the north were not inviting, their inclinations would naturally lead them to the more attractive regions of the west; where lay, also, their opportunity. Moving westward over the northern margin of the great plateau of Central Asia, they found a belt of territory which was sufficiently well irrigated by streams coming down from the snow-clad mountains to furnish them ample pasturage for their flocks and herds. On passing the southern spur of the Altai

Mountains, they found, in the Sungarian depression between the Greater Altai and Tian-Shan ranges, the natural pathway to the plains which stretch from these mountain borders of Central Asia northwards over twenty-five degrees of latitude to the Arctic Sea, and westward to the shores of the Baltic and of the German Ocean.

From this point, following down the Irtysh River, and crossing to the various other southern tributaries of the Obi, they found conditions which did not differ to any great extent from those in Northern Mongolia. Over this area, the Scythians, or Tartars as they are indifferently known in history, easily became the dominant race. But the most inviting region beckoning them onwards was that exceedingly fertile belt of territory which is watered by the perennial streams descending from the northern slopes of the Tian-Shan range, and which extends southwest along their base through what was formerly known as West Turkestan to Bokhara, and thence along the base of the Hindu Kush Mountains to the Caspian Sea. Here, in the "Land of the Seven Streams," to the south of Lake Balkash, and in the valleys of the Ili, the Chu, the Talas, the Jaxartes (the modern Syr Daria), the Zerafshan, the Oxus (the modern Amu Daria), the Murghab, and the Tejend, is found one of the most fertile areas of the world; each of the streams being bordered by rich deposits of loam, or "loess," and each rivaling the Nile in its life-giving properties.

After sufficient time had elapsed for the occupation of this fertile belt, the Mongols spread westward over the pasture lands of Northern Turkestan, which extend past the Aral and

Caspian seas, until they found more congenial room for expansion in the steppes of Southern Russia, which are watered by the Ural, Don, and Volga rivers. From this center there proceeded, in the fourth century of our era, a movement of population which has most profoundly affected the history of the world. About the year 372 A. D., the Huns, under Balamir, moved westward from the region of the Volga and the Don, and, driving before them the Ostrogoths and the Visigoths, succeeded in crossing the Danube and in forming permanent settlements in the fertile plains of Hungary, from which center, they became, under Attila, the terror of the world and a fruitful cause of the fall of the Roman Empire.

Again, in the thirteenth century of our era, a movement of the Mongols, under Jenghiz Khan, began in the valley of the Onon, one of the headwaters of the Amur River, which did not cease until Mongol troops swarmed like locusts over the steppes of Southern Russia, and, advancing northward, captured the cities of Ryazan, Moscow, and Vladimir. The scenes of this conquest were well calculated to burn themselves into the memories of the Russian people. After the capture of Ryazan by assault on the 21st of December,

“the prince, with his mother, wife, sons, the boyars, and the inhabitants, without regard to age or sex, were slaughtered with the savage cruelty of Mongol revenge; some were impaled, some shot at with arrows for sport, some were flayed or had nails or splinters of wood driven under their nails. Priests were roasted alive, and nuns and maidens ravished in the churches before their relatives. No eye remained open to weep for the dead.”

Advancing westward, the Mongols carried Kief by assault, razed the city to the ground and subjected the people to indiscriminate massacre. Nor did they cease their victorious march until the armies of Hungary and of Poland were defeated and their capitals had submitted to Mongol rule. Only the death of Ogdai, who was the successor of Jenghiz Khan in Mongolia, brought this invasion to an end. Batu, their leader, was summoned to return, but not until he had founded upon the Volga, the city of Sarai, which became the permanent center of Mongol domination. The power of Russia seemed completely broken. Only Novgorod and the northwestern portion of Russia which she represented remained free from the Tartar yoke.

“Hundreds of thousands of Russians were dragged into captivity. Men saw the wives of boyars, ‘who had never known work, who a short time ago had been clothed in rich garments, adorned with jewels and collars of gold, surrounded with slaves, now reduced to be themselves the slaves of barbarians and their wives, turning the wheel of a mill, and preparing their coarse food.’”*

In 1272 the Tartars became Mohammedans, and were henceforth among the most active propagators of that alien faith. This increased the burden of the yoke imposed upon Russia. The domination continued for more than two centuries, namely, from 1243 to 1480. During the first half of this period a capitation tax was levied by the Mongols upon the whole Russian people, the collection of it being farmed out to the merchants of distant Tartar cities. The poor who neglected to pay were enslaved, being frequently beaten without mercy

* History of Russia. By Rambaud. Vol. i, p. 161.

as a preliminary stage in their punishment; while the rich were let off with an extra payment.

But during the fourteenth century the rising power of Moscow began to check the insolence of the Tartar hordes. In 1378 Dmitri, afterwards entitled Donskoi, gained a small victory over the Tartar arms. Whereupon, in 1380, the Tartar Khan Mamai raised a large army, and marched towards Moscow to avenge the defeat. Dmitri with an army of 150,000 men met him in battle on the plain of Kulikovo, on the Upper Don, September 3, and fought one of the most hardly contested battles in history, each side losing as many as 100,000 men. Though the victory was slightly in favor of the Russians, it did not stem the tide. Two years later the Tartars captured Moscow and devastated it; Dmitri humbled himself before the Khan and consented to pay a heavy tribute. This tribute continued to be exacted for another hundred years.

In 1480 Ivan III. finally and forever broke the Tartar rule. But at this period, as in the time of Dmitri Donskoi, the rivalries of Russian princes gave to the Tartars a great advantage. The King of Poland and Lithuania formed an alliance with them against the Prince of Moscow and helped to continue the Tartar domination. But Ivan III. did not, as was done in the preceding century, risk everything upon a single battle. On the contrary, he wore the enemy out by delays, until the terrible Russian winter wrought its havoc upon the lightly clad Tartars, who, after suffering untold hardships, beat a retreat on the 16th of November, 1480, and retired from Russia nevermore to return. But they still remained a disturbing,

though receding, element upon the frontier, until the last half of the nineteenth century.

It was this long contest with the Tartar tribes which bound Russia into the compact military organization which it has since continued to be. Only by union could the Russians succeed. During the century following the expulsion of the Tartars, the national feeling in Russia continued to grow strong, and there were formed those peculiar military organizations which were necessary not only for their present defense, but for the conquests which were before them. Most prominent of these was that of the Cossacks, who were bodies of Russians volunteering either of their own accord or in response to public command to go to the border countries, where they could be a defense against the inroads of the Tartars and the Turks. Naturally they consisted of the boldest spirits among the Russians, and were not likely to be governed completely by the rules of civilized warfare.

The Zaporog Cossacks were specially noted. They were orthodox in their Christian faith, and asked no questions concerning an applicant's past life, if only he were orthodox and possessed a strong body and a stout heart. Their organization was democratic. All questions were settled in mass meeting, and all property, except arms and clothing, was held in common. On the shores of the Black Sea they carried on their predatory adventures in rude boats, often hollowed out of logs. On the steppes they became horsemen fully equal in agility and boldness to the Tartars with whom they had to contend. In many respects they resembled the pioneers who formed the ad-

vance guard of American civilization in displacing the Indians first from the Mississippi Valley, and then from the plains and mining districts of the Rocky Mountains.

The relation of the Cossacks to the Russian government has been, and continues to be, unique. While in complete subordination to Russian supremacy, they elect their own officers, except the commander-in-chief, who is appointed by the government. They clothe themselves, and provide themselves with horses and arms; so that they are at all times completely ready for a march. They receive pay, however, only when in service. In return they are freed from certain taxes and their communities receive grants of land or other rights of value. They enlist at eighteen and are only discharged at fifty. Thus organized, they are admirably adapted to settle on the outposts, where they can at once develop the resources of the country and serve as a defense against the aggressions of barbarous enemies.

In 1582 Yermak Timoféyevitch set out from Perm as leader of an expedition, organized by the family of Strogonofs, to chastise and subdue the nomadic tribes on the east side of the Ural Mountains who were harassing the settlements upon the Russian border. It has generally been represented that Yermak was nothing but a brigand and an outlaw. This seems to be an error, since he was at this time a regular Cossack officer in the service of the government at Perm. But it is true that the men of his command were selected for their bravery, rather than for their morality; while his chosen lieutenant, Ivan Koltso, was "an outlaw under sentence of death for capturing and sacking a small town of the Nogay."

The Strogonofs had come out into this wilderness a hundred years before, by permission of the Imperial Government, and had formed an important colony to develop the industries of the region, being engaged largely in salt-boiling and the fur trade. Nor did they send Yermak upon his enterprise across the Urals without the permission of the Tsar, though it would seem that they had overstepped their commission; for when Ivan IV. learned that Yermak had set out to wage a campaign not merely of self-defense, but of aggressive warfare upon the Tartars, he became alarmed and hastily sent a messenger to the Strogonofs, telling them to countermand the order and recall the forces under Yermak, since he wished to avoid a quarrel with Kutchum, the powerful "Sultan," or Khan, of the Tartars in Siberia. But he was too late. The deed had been done; the Urals had been crossed; and the conquest of Siberia was already well under way.

It is not, however, our purpose at this point to follow further the fortunes of these bold adventurers. The narrative thus far has merely brought us to the border of our subject, and here we can profitably pause to take a rapid glance at the empire which, at the close of the sixteenth century, was opening up before the Russian people. Only then had begun that counter-march which was not to end until well-nigh half of Asia came under the control of the Muscovite power, and a Tartar civilization had given place to that of an Aryan race; thus reversing the course of empire, which in Asia had been so long setting from the east to the west.

PART I
Physical Geography

I

GENERAL DESCRIPTION

ASIATIC Russia at the present time contains an area of 6,564,778 square miles, which is nearly twice that of the United States of America, including Alaska, twenty-five times that of Texas, and one hundred and sixty-one times that of Ohio. It stretches across one hundred and fifty degrees of longitude, and about forty degrees of latitude, and comprises about one tenth of the total land surface of the globe. For purposes of an empire, also, it has the advantage, or as some regard it the disadvantage, of being all contiguous territory, and possessing climatic and other conditions closely similar to those of the mother country. Like Russia in Europe, Asiatic Russia is a land of vast plains and of magnificent river systems, with endless opportunity for navigation; while the drainage of two thirds of Russia in Europe empties into the depressed basin of the Caspian Sea, which lies wholly within her Asiatic possessions. In any event, so vast and varied a region merits careful and extended treatment; but especially is this the case because of the great and almost unparalleled influence which the physical conditions of the country have had in determining the movements of the population and the character of its civilization.

The Asiatic boundary of European Russia begins with the Caucasus Mountains, which extend in an unbroken line from near the mouth of the Sea of Azof to the Caspian Sea, near Baku; thence it follows the northwest shore of the sea to the Ural River, which it follows as far as Orenburg, near the southern extremity of the Ural Mountains. A small part of the plain west of the Ural River is, however, incorporated into the Asiatic domain. For practical purposes, also, the Ural Mountains may be considered the boundary from Orenburg to the Kara Sea; although in comparatively recent times a considerable portion of the eastern flank of the Urals has been reckoned politically with the European provinces of Perm and Orenburg.

The northern boundary of Asiatic Russia is formed by the deeply indented shore-line of the Arctic Ocean extending from the 66th to the 190th degree of longitude east from Greenwich. The eastern boundary is traced along the waters of the Pacific as it is broken into the minor basins of the Bering, Okhotsk, and Japan seas.

Beginning at the border of Korea, at the mouth of the Tuman, in latitude $42^{\circ} 45' N.$, the boundary between the Russian and Chinese empires runs by an irregular line northward and eastward until it reaches the Usuri River as it emerges from Lake Khanka, and follows this to its junction with the Amur at Khabarovsk; thence westward the line follows the Amur River and its chief tributary, the Argun, to near its source, from which point, after crossing the northern projection of the great Asiatic plateau near the south end of Lake



A Defile in the Caucasus.

Baikal, it follows, roughly speaking, the summit of the lofty mountains which form the northwestern border of the Central Asiatic plateau past Afghanistan, Persia, and Turkey to the southern end of the Caspian Sea, and thence on to the Black Sea at Batum.

For general reference, this vast area may be divided into four sections, consisting of Trans-Caucasia, the Aral-Caspian depression, the River Basins of the Arctic Ocean, and those of the Pacific Ocean. We will treat of these in their order.

II

TRANS-CAUCASIA

THE Caucasus Mountains are now accepted by the Russian Government as the northern boundary of the Asiatic provinces lying between the Black and Caspian seas. This mountain range extends from the vicinity of Baku, on the Caspian, in a northwesterly direction for a distance of seven hundred miles, until it terminates in the promontory which nearly separates the Sea of Azof from the Black Sea at the mouth of the Kuban River. Throughout this entire distance the range is continuous, having no low passes, and but one which is practicable for a wagon road. Few long mountain chains have their boundaries so clearly marked for so great a distance. Though extending diagonally across more than twelve degrees of longitude and six of latitude, the average width is not over ninety miles; ranging from sixty-five to one hundred and twenty. On their northern side they rise with great abruptness from the vast Russian plain, which has nothing to break its uniformity between them and the Arctic Ocean. On the southern side they slope more gently, descending in a series of broken ridges, which afford arable land and protected fastnesses sufficient to support a large population. and

shield them from outside interference with their tribal development.

Geologically the range consists of a central nucleus of granitic and gneiss rocks which, in the middle and western portions, appear at the summit for a distance of fully three hundred miles. From this central ridge, stratified rocks of successive ages slope in both directions. Upon the northern side, rocks of Jurassic age extend nearly the entire length of the range, bordered successively by a belt of Cretaceous and Tertiary strata, which are at length covered, in the plains watered by the Kuban and Terek rivers, by late Quaternary sediment. Upon the south side there is a nearly continuous belt of Paleozoic rocks, which in the eastern third form the summit of the range. These are flanked by a less continuous belt of Jurassic and Cretaceous strata, which in turn are bordered by Tertiary deposits extending the entire length of the range.

Both in average height and in that of the individual peaks the Caucasus considerably exceeds the Alps. Mount Elburz is 18,526 feet above the sea, which is nearly 2,800 feet higher than Mount Blanc; while three other peaks attain elevations nearly as great, namely, Koschitan Tau (17,100 feet), Dych Tau (16,925 feet), and Kazbek (16,546 feet). Many other peaks approximate these, if, indeed, some do not equal them. It is to be said, however, that Elburz and Kazbek are volcanic cones standing somewhat apart from the main chain upon its northern side, and it is this which has largely given them their relative prominence. Mount Elburz is a conspicuous object even from the Black Sea, and is said to be visible upon the

Russian plains to the north for a distance of more than two hundred miles.

For something over one third of the length of the chain, the elevation, though continuous, is of more moderate height, rising gradually from Novo Rossisk to a height of about ten thousand feet, opposite the eastern end of the Black Sea. From this point near where the Kuban River rises, on the north side, to the Dariel Pass, about one hundred and thirty miles in a direct line, are found all the most lofty mountains of the chain; while the elevation of the watershed never sinks below ten thousand feet, and is nearly everywhere covered with glaciers. But none of these extends far down the mountain side. Just east of Mount Kazbek at Krestovaia Gora (Mountain of the Cross) there is a pass connecting the headwaters of the Aragua, a tributary of the Kur, upon the south, with those of the Terek, on the north, which is only 7,940 feet above the sea. This pass is now occupied by the excellent military road connecting Tiflis with Vladikavkaz. In the lower part of this road, upon the northern side, occurs the celebrated Dariel Gorge from which the Pass has been named, where the mountains rise on each side to a height of about five thousand feet as nearly perpendicular as rocks can stand, and the river dashes through a gorge so narrow that in ancient times it is said to have been closed by a gate. This is mentioned by Pliny under the name of the Caucasian Gates, and has continually played an important part in the defense of the country against enemies advancing from the north.



Military Road over the Caucasus.

The Eastern Caucasus is broader and more complicated than the portion west of the Dariel Pass. But from this pass to the Baba Dagh, the last of the high mountain peaks toward the east, a distance of two hundred and fifty miles, there is a continuous line of snowy peaks reaching a height of from ten thousand to fourteen thousand feet. The triangular area between this main line of the Eastern Caucasus and the Caspian Sea, occupying more than eleven thousand square miles, is known as Daghestan, and consists of a mountainous plateau, from seven thousand to eight thousand feet in height, sloping gently towards the northeast, and furrowed by innumerable ravines cut by the descending streams. It was in this region, about the middle of the last century, that the Russians met with greatest difficulty in subduing the independent mountaineers; numerous peaks furnishing impregnable strongholds, and the complicated ravines providing convenient death-traps into which the invading armies were inveigled.

On the south side the Caucasus is connected with the elevated plateaus and more extensive mountain systems of Asia Minor and Armenia by a cross-range of granitic rocks not over 3,000 feet high, known as the mountains of Suram, from a town of that name which occurs at the summit. This range forms the watershed between the Kur and the Rion River, and divides the country into two distinct zoological and botanical regions. The southern highlands, sometimes denominated the Anti-Caucasus, stretch from the southern side of the Black Sea to the Caspian in a northwest-southeast direction for about three hundred and seventy-five miles, with an average width

of one hundred and sixty miles. A large part of this consists of plateaus from five thousand to six thousand five hundred feet above the sea, surmounted by various peaks and ridges rising from one thousand five hundred to four thousand feet higher; while towards the east the Alaghez rises to a height of thirteen thousand four hundred and thirty-six feet, and Mount Ararat, which lies upon the southern border, to seventeen thousand one hundred and twelve feet. Numerous other peaks farther east exceed ten thousand feet. Mount Ararat and several other of the high peaks are volcanic cones. Indeed, a considerable portion of the southern part of this area is covered by volcanic rocks of geologically recent age, and the stratified rocks of all the northern part of the plateau belong to the Lower Tertiary period.

Trans-Caucasia occupies a territory of ninety-four thousand one hundred and eighty-two square miles, all of which, except a portion of Daghestan, lies south of the main ridge of the Caucasus Mountains, and possesses climatic conditions which are as divergent as possible from those upon the European slope. Over the plains of Russia the cold winds from the north bring severe winters to Northern Caucasia; while upon the southern side, sheltered by the vast mountain wall, a warm climate prevails during the entire year. Tiflis, though one thousand five hundred feet above the sea, has a mean temperature of 55° , and Kutais of 58° F.; while the average winter temperature of Tiflis is as high as 36° , and that of Kutais 43° . The rainfall upon the southern side of the mountain is likewise greatly in excess of that upon the

northern, especially in the western part: at Kutais fifty-seven inches per year, and on the coast of the Black Sea, from sixty to seventy-nine inches. East of the Suram ridge, however, the rainfall diminishes to twenty inches at Tiflis, and to a still smaller amount near the Caspian Sea. The narrow strip of land which lies between the main ridge of the Caucasus and the Black Sea is so rough and wild, through the frequent occurrence of short mountain gorges, that it has been well-nigh impossible to construct a road along the shore, and for a distance of two hundred miles, between Novo Rossisk and Sukhum Kaleh, in longitude 41° E. there is not a single harbor. The soil of this narrow strip is rich; so that, by reason of the abundant rainfall, magnificent forests cover the whole slope, and dense underbrush unites to increase the difficulties of travel by land. The great Mithridates is the only general who was ever able to conduct an army through the entire region.

The principal river in the western part of Trans-Caucasia is the Rion, which, with its tributaries, has a drainage basin of nearly fourteen thousand square miles. Rising near the summit of the mountain halfway between Elburz and Kazbek, and following a circuitous route, it empties into the Black Sea at Poti. The Rion is the ancient Phasis whither the Argonautic expedition went in search of the golden fleece. According to an early explanation of the legend, this fleece was one which had been spread on the bottom of the river to catch the fine particles of gold washed down by the stream—a mining process akin to that still practiced in many places. But at the

present time little gold is found in the sands of this mountain stream. The valley, however, produces what is better than gold, namely a luxuriant vegetation; the rapid decomposition of its sedimentary rocks and its abundant rainfall making it one of the richest gardens in the world. The mountain slopes are covered with a majestic growth of deciduous trees, and the fastnesses are adorned with azaleas, almonds, and rhododendrons; while the mulberry, the vine, and almost every variety of fruit grow in abundance in every valley and on the gentler slopes. From the earliest times the main valley has supported a dense population, the longitudinal valleys in the upper part of the river and its tributaries, as well as those of the Ingur, (which reaches the sea not far from the mouth of the Rion) furnishing the strongholds for the Swanians, one of the most independent of all the mountain tribes.

Geologically these high-level valleys are of much interest in illustrating the methods by which nature has produced most important results. All the southern streams coming down from the highest summits of the granitic axis, upon reaching the Paleozoic limestone strata which flank the mountain at a level of six thousand or seven thousand feet are deflected for a considerable distance to the right or left, until a gorge is found to conduct the waters over rapids and cataracts to a lower level. These narrow, high-level valleys parallel with the axis of the main chain have, both by their fertility and inaccessibility, furnished the conditions for the development of some of the most interesting races, and the arena for some of the most stirring episodes in human history.



Dariel Pass.

The eastern part of the area included between the Caucasus and the Anti-Caucasus Mountains is occupied by the valley of the Kur, which, coming down from the Armenian highlands, is still narrow at Tiflis, but gradually widens in its course of three hundred and fifty miles towards the Caspian, until it attains a breadth of one hundred and fifty miles. In its progress eastward, the rainfall continues to diminish, and large areas are incapable of cultivation from lack of water. Over these plains great numbers of antelope roam, and in winter pasturage is found for numerous flocks and herds. Nearer the foot of the mountain ranges irrigation is practiced with increasing success; while, farther up, forests appear, and the vine is cultivated. The Kur, however, has cut its bed so deep that, without government aid or the intervention of vast corporations, its waters are largely unavailable for the irrigation of the main portion of the valley.

From the southern slopes of the Caucasus farther east, the Alazan and the Gora rivers come down through long, transverse valleys similar to those about the headwaters of the Rion, only at lower levels, and irrigate areas which possess both a soil of great fertility and a congenial climate. The valley of the Alazan is especially rich in its deposits of loess.

The Aras, known in ancient times as Araxes, comes into the Kur in the lower part of its course, from the south. This important river rises in the highlands of Armenia not far from the sources of the Euphrates and of the Kur, and forms for several hundred miles the boundary line between Russia and Persia, but the descent is too steep to permit of navigation.

Indeed, its whole course is through scenery of the wildest description. Flowing not far from Mount Ararat, it surrounds in a great semicircle a plateau upon the north whose general elevation is about five thousand feet, from which rise numerous peaks from five thousand to seven thousand feet higher. The whole area is covered by rocks of volcanic origin, while one of its tributaries, the Sunga, which passes the city of Erivan, issues from Lake Goktcha, a body of water covering five hundred square miles of a depression, surrounded by volcanic masses, and having an elevation of 6,310 feet above the sea. Much of the area in the upper part of the Sunga Valley in the neighborhood of Erivan, and extending up to the base of Mount Ararat, is covered with deep deposits of loess.

Such is this most interesting country between the Black and Caspian seas which in ancient times was looked upon as the end of the world, into which were driven, as into a pocket, between the seas on either side and the impenetrable chain of the Caucasus on the north, all the odds and ends of the human race, and which has presented to Russia during the last hundred years some of her most difficult problems both of conquest and of government.

III

THE ARAL-CASPIAN DEPRESSION

THE lowlands of Western Siberia and Turkestan stand in unbroken connection with those of Russia in Europe and Northern Germany, being but partially interrupted by the low north-and-south range of the Ural Mountains, and in their southern portions absolutely continuous. Altogether they form the most extensive area of low land upon the globe, estimated at 2,213,400 square miles.

“Take away the Ural, and a continuous line could be drawn from Breda, near the confluence of the Meuse, Rhine, and Scheldt, across Europe and Asia, following the line of 50° N. Lat. as far as the Chinese frontier, passing over a continuous series of low, insignificant hills, heath-lands, and steppes, and traversing a space estimated by Humboldt to be three times the length of the Amazon.”

In Asia these lowlands are separated into two clearly-marked basins by a gentle swell of land, less than one thousand feet above the sea, which extends from the southern part of the Ural to the Altai Mountains. This forms the watershed between the streams running into the Arctic Ocean and the remarkable depression to the south which is occupied by Lake Balkash and the Aral and Caspian seas.

The Mountain Border

The southern boundary of the Aral-Caspian Depression in Asiatic Russia begins at Astara, about one hundred miles south of the mouth of the Kur, in Trans-Caucasia. Thence to Astrabad, on the southeast corner of the Caspian Sea, a distance of something over four hundred miles, the territory to the south belongs to Persia. Throughout this whole distance there is but a narrow margin separating the sea from the semicircular crest of the Elburz Mountains, several of whose peaks rise to an enormous height; Mount Savelan being fourteen thousand feet, and Mount Demavend, 18,600 feet. With one exception the streams coming down the northern flank of this range are unimportant, being only from twenty to fifty miles in length. The Kizil-Uzen, however, has a drainage basin of about twenty-five thousand square miles, extending almost to Lake Urumiah. This narrow seashore tract is well watered, and occupied by the Persian provinces of Gilan and Mazandaran. The eastern portion was formerly called Hyrcania, and was the region into which Alexander pursued Darius, and where the Persian monarch was assassinated. The height of the bordering plateau of Northern Persia, nowhere less than five thousand feet above the ocean level contrasts strangely with the depth of the southern part of the Caspian Sea, which ranges in its central portion from one thousand eight hundred to three thousand feet below.

So far, the elevated plateau of Northern Persia, with its abrupt northern wall, is a continuation of the Taurus Mountains of Asia Minor through the Armenian plains past Ararat

in a northwest-southeast direction. But a little north of Astrabad, the border turns to the northeast to meet, about two hundred miles distant, the Kuren Dagh and Kopet Dagh range, which running in a northwest-southeast direction, for nearly five hundred miles form the boundary line between Persia and Turkestan. This range is exactly in line with that of the Caucasus, which may really be said to be continuous across the Caspian Sea from Baku to Krasnovodsk, since between these places there is a ridge, over which the water is not more than one hundred and fifty feet in depth, which not only separates the two deep basins of the Caspian Sea from each other, but forms a direct connection between the Apsheron Peninsula (a projecting promontory of the Caucasus on the west), and the Balkan Mountains; then the Balkan Mountains rise to considerable prominence back of Krasnovodsk, and extend, with a slight interruption, to join the northwestern spurs of the Kopet Dagh. The complex mountainous district included in this northeastern angle of Persia was the center of the ancient Parthian power. The Atrek River, which enters the Caspian Sea about fifty miles north of Astrabad, with its northern tributary the Sumbar, now practically forms the boundary between the Russian and the Persian dominion for a distance of two hundred miles in a northeast direction to the summit of the Kuren Dagh.

Near the northwestern corner of Afghanistan the great east-and-west mountain system of Asia begins its general trend to the northeast, from which it does not depart until reaching the farthest extremity of the continent at Bering Strait.

Throughout the northern part of Afghanistan, for a distance of about eight hundred miles, and until in the lofty plateau of the Pamir it forms an angle with the Himalaya Mountains, this range is known under the general name of the Hindu Kush Mountains. Throughout this entire length it forms the southern boundary of Turkestan, and occasionally projects snow-clad peaks to a height of twenty thousand feet above the sea.

The Pamir, known as "the Roof of the World," is a series of plateaus formed at the meeting-point of the Hindu Kush, the Himalaya, and the Tian-Shan, three of the largest mountain chains of the world. It has a breadth of about two hundred and fifty miles, and a general elevation of about twelve thousand feet. Kaufmann Peak rises from the general level to a height of 22,500 feet above the sea; while Mustagh Ata, a little east of the line, reaches a height of 25,800 feet. Many lakes are found at an elevation of more than ten thousand feet. The Great Kara Kul, covering an area of one hundred and twenty square miles, has an altitude of 12,800 feet, and has no outlet. The Little Kara Kul and the Bulan Kul, with areas of fifteen and eight square miles respectively, have an elevation of more than thirteen thousand feet; while Victoria Lake reaches the extreme height of 13,900 feet, with an area of twenty-five square miles. This, however, does not by any means exhaust the list. From this plateau issue the Oxus River towards the west, the Jaxartes to the north, and the Tarim River to the east; while the headwaters of the Indus issue from the mountains which form the southern border.

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To the northeast of the Pamir, the Tian-Shan (Celestial Mountains), with their offshoots, form the southeastern boundary of the Russian possessions for a distance of six hundred or seven hundred miles. These mountains begin in the center of the Desert of Gobi, in longitude 95° E., and latitude 43° N., rising abruptly out of the desert sands, and continue in a westerly and southwesterly direction for a distance of sixteen hundred miles. The range gradually increases in width and height until, along the Russian border, it fans out to a width of eight hundred miles, with three projecting spurs extending into the lowlands of Turkestan to a distance of three hundred or four hundred miles. In the peak of Khan-tengri it rises to a height of 24,060 feet; while the average height of its dominant peaks is upwards of sixteen thousand feet. Reclus estimates the entire mass of the chain to be twenty-five times larger than that of the Swiss Alps.

The mountain masses projecting into Western Turkestan are really three slightly convergent chains running nearly east and west, but so arranged as to form a part of the grand southwest-and-northeast central mountain plateau of Central Asia. The southernmost of the projections is itself a vast mountain complex, four hundred miles long and more than one hundred and fifty broad, known chiefly under the title of Alai Tagh, (but also by various other local names), which lies within the provinces of Bokhara and Zerafshan, and between the Amu Daria and Syr Daria rivers. The extreme northwesterly projection is known as the Nura Tau; while the range of which the Kara Tau and the Alexandrovskii form the northern border,

separates the Syr Daria and Chu rivers, and has a length, from northwest to southeast, of something more than four hundred miles, with a breadth in its widest part of two hundred. The northeastern continuation of these border ranges, flanking the great Tian-Shan chain, is continued for about three hundred miles by the Trans-Ili, or Western Ala-tau, so named because it is upon the western side of the Ili River.

Farther on, the Eastern Ala-tau continues the elevated border line for another three hundred miles, when we reach what is called the Sungarian depression, which separates the Tian-Shan range from that of the Altai. This depression is in general between two hundred and three hundred miles in width, but is occupied in the middle by the minor range of the Tarbagatai Mountains, which run generally northwest and southeast nearly parallel with the main projections of the Tian-Shan and Great Altai ranges but at right angles to the general trend of the continental uplift, which for more than one thousand, five hundred miles forms the southeastern border of the Russian possessions in Central Asia. This Sungarian depression, as already said, has played an important part in the history, both of Asia and the world, by reason of the facilities it has afforded the nomad races of Mongolia for descending into the inviting fields of the Aral-Caspian region, from which they have readily found their way southwestward to the borders of Persia, and westward to the central plains of Europe.

The River Basins

Historically the interest of the entire region centers about the streams which descend into the basin from the mountain

border which we have been considering. These all empty into lakes which have no outlet, or finally waste their waters in desert sands. But in the middle and upper portions of their course they all rival the Nile in their life-giving properties, and furnish the arena for a long series of the most tragic and interesting episodes of human history, while at the present time, in connection with the progress of modern science, they are opening up to Russia a most attractive field for expansion and development.

Beginning in order from the Caspian Sea, we encounter the following river basins in the Aral-Caspian depression:—

1. *The Atrek*, which in the lower part of its course forms the boundary between Persia and the Russian possessions, passes through the center of what was in ancient times called Hyrcania, which, on account of its fertility and genial climate, is described by Strabo as “highly favored of heaven.” According to him, a single vine of this region had been known to produce nine gallons of wine, and a single fig tree ninety bushels of figs; while grain did not require to be sown, but sprang up from what failed to be gleaned in previous years.

2. *The Tejend*.—After passing a narrow strip of fertile soil (known as the “Atok”) stretching for about three hundred miles along the northern base of the Kopet Dagħ range, and irrigated by innumerable short streams coming down from its flanks, we reach the Tejend, known in the upper part of its course as the Heri Rud. This river rises in Afghanistan, and, after watering the plains of Herat, forms the boundary between Afghanistan and Turkestan for about one hundred

miles, when it penetrates the mountain border, and issues upon the plain at Sarakhs, dispensing fertility for another one hundred miles, when it is lost in the desert sands.

3. *The Murghab* also rises in Northern Afghanistan, and runs along the elevated plains of that country for a considerable distance nearly parallel with the Tejend, entering the plains of Russian territory at Penjdeh, about one hundred and twenty miles north of Herat, and forming here the main gateway between Persia and Turkestan. Thence the river proceeds for one hundred miles into the plain, ending in the celebrated oasis of Merv, which formerly supported an immense population; the city alone being estimated to have had a million inhabitants in the thirteenth century of our era. According to Strabo, such was the ancient fertility of the soil, "that it was not uncommon to meet with a vine whose stalk could hardly be clasped by two men with outstretched arms, while clusters of grapes might be gathered two cubits in length." Surrounded on every side by sandy deserts, the oasis has a climate that in the summer is oppressive by reason of the heat, and of the dust that comes in from every direction, but in the winter is exceptionally pleasant, snow rarely falling, and then rapidly melting. A large area extending westward from Merv towards the Tejend is covered with dilapidated irrigating ditches which could easily be re-opened; thereby restoring the oasis to its former state of fertility. Under the successors of Alexander the city itself is said by Strabo to have been surrounded by a wall 185 miles in length.

4. *The Oxus*.—The Amu Daria (called by the Greek his-

torians the Oxus) is one of the most important and interesting rivers, not only of Central Asia, but of the world. Rising in the elevated plains of the Pamir, it pursues for about six hundred miles a circuitous westerly course until it emerges upon the plains of Balkh, whence it takes a northwesterly course for another six hundred miles through a desert which is rendered fertile only by means of the water drawn from its banks, emptying finally by a number of mouths into the Aral Sea. The principal branches from the Pamir are the Panjah, about three hundred miles in length, which, rising in Lake Victoria (13,900 feet above the sea), comes down from the south closely bordering the highest ridge of the main Hindu Kush range, and the Bartang, three hundred and thirty miles in length, coming down from the central part of the Pamir. The two by their junction really form the Oxus, about latitude 37° N., longitude 72° E. Below Kila Wamar, the point of junction (seven thousand feet above the sea), various streams come in from both sides of the ever-broadening drainage basin, until, at Kilif (seven hundred and thirty feet above the sea), the Oxus passes into the desert region, through which no tributary penetrates at the present time. Of the tributaries above this point, the most important are the Waghesh, which forms the real northern boundary of the Pamir, separating it by a narrow deep valley from the Alai Tagh range, which is one of the main continuations of the Tian-Shan. In its upper tributaries this stream is fed by numerous glaciers which cap peaks on both sides, rising from fifteen thousand to twenty-two thousand feet above the sea. The headwaters of this stream in-

osculate at the summit with those of the Kashgar branch of the Tarim. Between these high mountain peaks are the difficult snow-covered passes leading on the east to Kashgar, and on the north to the fertile portions of Ferghana.

Two other streams of considerable length come down to the Oxus from the southern slope of this southwest projection of the Tian-Shan chain, besides two which come down from the northern slope of the mountains upon the south. All four of these have valleys of considerable width in their lower portions. The importance of the region of these rivers may be inferred from the prominence in the past history of the world of the city of Balkh, the ruins of which now occupy a space of twenty miles in circuit. Among the natives it is known as the "Mother of Cities." Before the Christian era it was the rival of Ecbatana and Nineveh and Babylon. It is also generally reputed to have been the burial-place of Zoroaster, and certainly it was for many centuries the center of the Zoroastrian religion, which prevailed throughout Persia.

In early history this region was known as Bactria, and is commonly reputed to be the center in which was developed the Aryan or Indo-European language and the rudiments of Aryan civilization. Not until the seventh century B. C., did it yield its independence to the Medes, and even then its monotheistic religion became dominant with the conquerors; so that in the time of Cyrus there was a natural affiliation between them and the Jews, and at the birth of Christ the wise men who brought their gifts were moved by impulses traceable to this central point both of the largest land mass in the

world, and of its earliest historical forces. Later Bactria became a part of Alexander's conquered territory and a seat of a Græco-Bactrian empire which has left many marks of its power and influence. But the Romans never penetrated so far.

For small boats the Oxus is navigable as far up as its junction with the Waghash; while Russian steamers have actually ascended to the vicinity of Kilif. About one hundred miles above the Aral Sea, at the head of an old delta of the stream, occurs the important oasis of Khiva, covering an area of about six thousand square miles, and dependent wholly upon irrigation for its fertility. Being surrounded by almost impassable deserts on every side (since, for two hundred miles above, the barren sands encroach so close upon the river that cultivation is impracticable), and with an area half as large as that of the cultivable portions of Egypt, this, too, has played an important part in history, and has great possibilities before it in the future. In ancient times it was known as Chorasnia. Protected by their desert environment, the Chorasnians were preserved from being conquered by Alexander, though from Baggæ (the present Bokhara) he sent a strong force to extend his conquests in that direction. It was, however, so ignominiously defeated that the attempt was discontinued.

Great interest attaches to the Oxus by reason of the instability of the lower portion of its channel. It would seem that all the plains south of the Aral Sea are composed of sediment deposited by the rivers coming down into them from the mountains on the southern border, and chief among the contribu-

tors, as being itself by far the largest stream, has been the Oxus; so that this whole plain partakes of the nature of a delta deposit, along whose axis the river flows at an elevation considerably above the general slope of the plain towards the Caspian Sea. There are many indications of a deserted channel leading from the Oxus, near where it is crossed by the road from Bokhara to Merv, westward across the Turkoman desert to the Caspian Sea south of Krasnovodsk. The theory that these old westerly channels crossing the desert were formerly occupied by the Oxus is supported by evidence of considerable strength, to the effect that the Murghab and the Tejend formerly joined the Oxus; while the Zerafshan, coming down past Samarkand and Bokhara, and now falling short of entering the Oxus by less than fifty miles, is almost exactly in line with them. Later, also, we shall have occasion to consider the numerous indications that all these rivers were once much larger than now.

But whatever may be thought of this old westward course of the Oxus along the fortieth parallel, it is beyond question that it formerly turned westward near Koja-Ili, at the head of the present delta, one hundred and ten miles south of the Aral Sea. Even from this point the slope of the deserted channels leading to the Caspian Sea is as great as that of the present one leading to the Aral; the descent to the Aral Sea being fifty-nine feet in the one hundred and ten miles; while that to the Caspian is three hundred and two feet in a distance of six hundred miles. The existence of this old channel to the Caspian Sea is very clearly marked through its entire distance;

so that Russian engineers have even contemplated building a dam at the head of the present delta to turn the river into the Caspian, and thus provide continuous navigation from the head of the Volga through the Caspian and up this old channel (called the Uzboi) into Central Asia. The main difficulty of the project lies in the fact that the present volume of the Oxus is probably not sufficient to fill so long a channel in this intensely dry and hot climate. Furthermore a large area around Sary-kamysh Lake, in the upper part of this old channel, is so much depressed, that it would absorb a large part of the waters of the Oxus to fill up its basin, and to supply the loss which would take place from evaporation over its broad surface.

But it seems clear, from the writings of Strabo, Pliny, and Ptolemy, that, from about 500 B. C., until some time after the Christian era, the Oxus did flow into the Caspian Sea, and that, as a consequence, the Aral Sea nearly disappeared, becoming in large part a marshy bed of reeds; about the year 600 A. D., the river was turned back again into the Aral. Of these facts there would seem to be little ground for question; but the cause of them is not so apparent. Probably the return to its old bed was due to the accumulation of silt on the western side, which gave advantage to some chance opening through the barrier leading to the Aral Sea. This process is steadily going on at the present time; so that the principal branch of the delta turns off towards the northeast nearly at right angles to the main course of the stream.

Some have supposed, however, that the change was effected

by an artificial dam which closed up the western branch, as the Russian engineers were proposing during the last century to close the eastern branch. Some of the most tragic events in history have been connected with the diversion of these irrigating channels from the west, whereby the central authority has starved into submission, or driven into permanent exile, large tribes who were dependent upon the water thus cut off.

5. *The Zerafshan* would be one of the most important tributaries of the Oxus but for the absorption of its water in irrigating the fertile plains of Samarkand and Bokhara. Issuing from a cluster of glaciers fourteen thousand feet above sea-level, near the Tasak Pass over the Alai Tagh range south of Kokand, it flows with a rapid descent in a narrow valley for about one hundred miles, when it is joined from the south by the Fan, whose chief tributary, the Yagnov, runs for sixty miles parallel with the main stream, but on the other side of the Zerafshan mountain ridge. After about forty miles' further descent, the stream issues into a rapidly enlarging fan-shaped plain at Pendjakent, at an elevation of 3,250 feet above the sea. Over this plain the water is spread out by means of irrigation canals, one of which is fifty miles in length; while the main stream separates into branches which, coming together lower down, surround a large and fertile island. It is in the center of this plain, at an elevation of 2,230 feet, that the famous city of Samarkand is situated, whose history goes far back of the Christian era. In the time of Alexander the Great it was called Maracanda, and was the capital of Sogdiana. It was then a well-fortified city, surrounded with walls ten



Russian Street in Samarkand.



Russian Street in Tashkent.

miles in extent. It was here that Alexander in a drunken fit committed the tragedy of killing his old friend Clytus; while the city was his headquarters for many months during the time he was engaged in conquering the Scythian and mountain tribes that mysteriously appeared to resist his course from the unknown regions beyond. About the year 700 A. D., Arab conquerors succeeded to the heritage of the Græco-Bactrian dynasty established by Alexander, which had long since passed away, and introduced the Mohammedan religion. Persian and Turkish conquerors followed in their turn, until, in 1221, Jenghiz Khan with his Mongol hordes conquered, and pillaged, and nearly destroyed the city. Out of one hundred thousand families said to be resident, only twenty-five thousand were left. At a still later date, in 1369, Timur, or as he is generally called Tamerlane, chose Samarkand as the capital of his empire and made it one of the most magnificent capitals in the world. Its population quickly rose to one hundred and fifty thousand, while the mosques and tombs and college buildings erected by him and his successors, even now, in their ruins, rival in beauty and magnificence those of Egypt, and do not fall much short of those of Greece and Rome.

In the lower part of its course the Zerafshan waters and fertilizes the oasis about the city of Bokhara, and fails of reaching the Oxus River by a space of only twenty-five or thirty miles. Indeed, were it not that its water is so extensively withdrawn for irrigation, the river would form an important tributary of the Oxus. But, as it is, it ends in various small lakes, which receive the fitful overflow of the stream in

times of flood. The name of the river signifies "gold-spreading." But gold is such a small ingredient of its sand that the name is more properly justified by the fertility which it spreads upon the deep envelope of loess which extends over the whole region from the mountains to Bokhara. Better than almost any other river, also, it illustrates in its situation the difficulty of adjusting riparian rights. The water, being so valuable for irrigation, is in danger of being cut off from the inhabitants in the lower part of the valley by excessive use in the upper portion; so that it is a constant bone of contention between the inhabitants of the lower and those of the upper part of the river valley. At the present time the people of Bokhara are suspicious lest the Russians should divert an undue amount of water as it passes through their territory.

6. *The Jaxartes*.—The Syr Daria (the classical Jaxartes, the Arab Sihun), is the most important of the two rivers running into the Aral Sea. It has a length of fifteen hundred miles, with a drainage area of three hundred and twenty thousand square miles, which is considerably larger than that of the Danube in Europe (three hundred thousand), and one third larger than that of the Ohio in the United States (two hundred and one thousand). Its longest tributary, the Naryn, issues from the Petroff Glacier, on the crest of the Tian-Shan chain, just south of Lake Issyk-kul, and 13,790 feet above the sea. After flowing westward for many miles through a narrow trough between ten thousand and eleven thousand feet above the sea, it descends by a series of rapids to a broad valley in which Fort Naryn is situated, but which

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is still, for a hundred miles, more than six thousand feet above the sea. This valley seems to be covered with the sediment of a long, narrow alpine lake, which has been left dry by the lowering of the channel of the river. By means of irrigation this is rendered extremely fertile, and capable of supporting a dense population.

During the next one hundred and seventy miles, between Fort Kurtka and the Ferghana Valley, it pursues a zigzag course, alternately crossing high parallel ridges and fertile intervening valleys, until it reaches the level of one thousand four hundred and forty feet.

In the Ferghana Valley, near Namangan, it is joined by the Gulsha River coming down from the Terek Pass, which affords the most feasible route to Kashgar, and lies on one of the most important of the ancient trade routes between China and the West. The Ferghana Valley, too, seems to be a dried-up lake basin. Covered with a fertile loamy sediment for a distance of one hundred and sixty miles, with an average breadth of fourteen miles, this valley is made, by irrigation from the mountain streams, especially those upon the south side, the richest garden spot in Central Asia. The river itself, however, is bordered by sandy and sterile strips. The total width of the valley is about sixty-five miles, and is easily entered by only one narrow pass between inclosing mountain spurs which concentrate upon the city of Khojent, where the elevation above the sea is eight hundred and forty feet. This valley supports nearly a million inhabitants, and contains the flourishing cities of Kokand, Margelan, Namangan, Andidjan, Uzgent, and

Ush, and is now penetrated by a branch of the Trans-Caspian railroad.

Below Khojent the Syr Daria pursues its course in a north-westerly direction for eight hundred and fifty miles, when it enters the northern part of the Aral Sea. In the first half of this course it keeps near the base of the western and north-western projections of the Ala-tau range, and receives from it tributaries which are of great value for irrigating purposes. The chief of these are the Chirchik, the Keles, the Arys, the Bugun, and the Karaifehek. The first two, interlocking and spreading out over the plains at the base of the mountain, water the rich oasis of loess in which Tashkent, the capital and at present the largest city of Turkestan, is situated. In a similar fertile oasis, amid the headwaters of the Arys, Chimkent occupies a strategic position whose importance has long been, and is still, recognized. From this point the great caravan route to Southeastern Russia puts off from the main line of travel which from the earliest ages has led from China to Persia. Fifty or sixty miles down this branch road is the flourishing city of Turkestan.

For the lower three hundred and fifty miles of its course the Syr Daria has at present no tributaries, though, as we shall see a little later, it probably at one time received from the east two or three of great size. At Perovsk the river carries about the same quantity of water as passes over Niagara Falls, namely, three hundred and twelve thousand cubic feet per second. Here begins the present delta of the river and a branch called the Yani Daria (New River) which formerly

put off to the left, and, after a course of nearly three hundred miles, reached the Aral Sea one hundred and fifty miles south of the northern mouth. The Kirghiz Tartars say that this was originally an irrigation canal. But, though, it may have been used for irrigation purposes, it is doubtless the bed of one of the channels which naturally course along the extreme margin of a delta deposit. At times this has been obstructed by an artificial dam, so that in 1820 the Russians found it to be a dry bed; while, upon reopening the channel, the water failed to reach the Aral Sea, losing itself in the sands after flowing about two hundred and fifty miles. In the days of Timur, however, this branch was in full operation, bringing one mouth of the Syr Daria near to the eastern mouth of the Amu Daria. In prehistoric times it seems probable that the Syr Daria left its bed in the vicinity of Tashkent shortly below Khojent and, running near the base of the Nura Tau range, occupied the elongated beds of Tuz-Kane and Bogdanata lakes, and, uniting with the Zerafshan, entered the Amu Daria three hundred or four hundred miles above its mouth.

7. *The Talas*.—This river rises between the western spur of the Alexandrovskii range and the much longer projection of the central Tian-Shan complex toward the northwest called the Kara Tau. It has a course of about three hundred miles in a northwesterly direction, when it ends in a number of small lakes surrounded by a sandy waste, nearly opposite the city of Turkestan, from which it is separated by the low range of the Kara Tau. Near the extremity of the Alexandrovskii Mountains, the city of Aulieata, like all the other principal

cities of this region, revels in the verdure produced by the unfailling waters of a mountain stream. From earliest times it has been a celebrated resting-place for pilgrims and armies moving backwards and forwards from Central Mongolia, though the present city is several miles distant from the ruins of the ancient site. The situation is so important that, upon its conquest by the Russians in 1864, it was first proposed to establish the administrative center of the province here instead of at Tashkent.

8. *The Chu*.—This is another stream of great importance, rising near the sources of the Naryn River, but on the north slope of the Tian-Shan range, south of Lake Issyk-kul, which, after a course of six hundred or seven hundred miles, ends in a desert-girt lake, in this case about one hundred miles east of Perovsk, on the Syr Daria River. Beginning thirty or forty miles west of Aulieata, there is a remarkably fertile triangle, with a base of about one hundred and fifty miles resting on the northern slopes of the Alexandrovskii range with its apex about one hundred miles north, at the junction of the Kurgati River, which comes in from the west, with the main stream of the Chu. At frequent intervals throughout the entire space enclosed by these branching arms, small mountain streams come down to fertilize the terrace of loess which is here continuous, making it a region of surpassing richness. The enthusiasm of the early Chinese travelers knew no bounds as they described this remarkable region, which they called the "Land of the Thousand Springs." It was in

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this region, also, that the celebrated Prester John is supposed to have had his residence, about the twelfth century of the Christian era.

This whole story is doubtless largely mythical, but it is interesting to observe how naturally the conditions here fit the seat of his reputed early empire "beyond Persia and Armenia," and in the line of the subsequent march of Jenghiz Khan. Prester John is identified with probable correctness with Yeliu Tashi, who took the title of Ghur-Khan, and had his capital at Bala Sagun, in the valley of the Chu. This distinguished leader, whose dynasty in Eastern Mongolia was overthrown in 1125 A. D., had received a Christian education, and fled with his body of faithful followers beyond the western bounds of Mongolia, where he established an empire known as that of Kará-Khitái (Black Cathay). He is reported to have become one of the most effective opponents of the Moslem forces which were then spreading over that region; having defeated Sanjár near Samarkand, September, 1141, in a battle which was reputed to be the most bloody ever waged with Islam. Naturally the fame of such a leader took on enormous proportions throughout the countries of Christian Europe. But all traces of the Christian influences which certainly marked this period of history in Central Asia have long since disappeared. Between the upper and the nether millstone of the Mohammedans on the west and the avenging hordes of the Tartars under Jenghiz Khan from the east, Christianity was destroyed, and other religious institutions came to pre-

vail. At the present time the population is spread pretty evenly over the upper valley of the Chu, being gathered, however, to some extent in the important cities of Merke and Pishpek.

Among the most remarkable features of this valley is Lake Issyk-kul, a body of water one hundred and twenty miles long and thirty-three wide, which was formerly supposed to be the source of the river Chu, but is now found to be without any outlet, though its western end is very near the upper branch of the Chu. This lake is five thousand three hundred feet above the sea, situated between the Ala-tau range and the main Tian-Shan near where it culminates in the lofty peak of Khan-tengri, which is upwards of twenty-four thousand feet above the sea. Though without present outlet, the water is only slightly salt; and the lake basin gives many evidences of great changes of the water level in former times. Terraces surround the basin two hundred or three hundred feet above the present level of the water; while there are foundations of walls and buildings clearly visible below the surface upon its eastern side, showing that it was once considerably lower than now. During the time when the upper terraces were formed, however, it must have overflowed into the Chu, from which it is separated by a narrow space of loose soil.

Thinking to lower the lake to its former diminished proportions, the tribes living upon its border dug not long ago a channel between the two; but, owing to miscalculations of level, it not only failed to accomplish the object desired, but actually turned the waters of the Chu into it; so that now, in times of flood, a portion of the water of the Chu continues

to run into the lake. The name Issyk-kul signifies "Warm Lake," a name originating, as it is thought by some, in the fact that many of the springs that feed it are warm; but more probably the name was suggested by the fact that the lake, though at such a high altitude, does not freeze over in the winter. Near the south end of Lake Issyk-kul, a military wagon road has been built over the mountain to Fort Naryn, about one hundred miles distant, in the fertile elevated valley already described in the upper part of the longest tributary of the Syr Daria. There are also caravan routes over a difficult pass across the Tian-Shan, both from Naryn to Kashgar and from the west end of Lake Issyk-kul to Aksu.

9. *The Ili*.—A still more important river is the Ili, which originates in the junction of three branching tributaries,—the Tekes, the Kunges, and the Kash,—descending from the junction of the Boro-khoro Mountains (a northern projection of the Ala-tau) with the Tian-Shan. Of these, the Tekes rises on the north side of Khan-tengri, and its valley forms an important part of the celebrated caravan route leading from Kuldja over the Muzart Pass across the glaciers on the eastern flank of the mountain, which has been so vividly described by early Chinese pilgrims. In 629 A. D. Hiouen-Tsang, a Buddhist pilgrim, wrote the following description:

"Passing through the border of Pa-lu-kia [Aksu], northeast, we crossed a stony desert, and arrived at an icy mountain [Ling-tchan, the Muzart Pass, close to the peak Khan-tengri], where snow had been heaped up from the beginning of the world, which never melts either in spring or in summer. Smooth fields of hard and glittering

ice stretch out unendingly, and join with the clouds. The way is often between icy peaks overhanging on each side, and over high masses of ice. These places are passed with great trouble and danger, with constant blasts of piercing wind and gusts of snow; so that even with warm boots and a fur coat, the cold penetrates to the bones. There is no dry place in which to lie down or to eat. You must cook your food and sleep on the ice.' 'One is often a prey to the ferocity of the dragons, which attack travelers. Those who follow this route should not wear red clothing, or carry calabashes, or cry aloud. Should these precautions be forgotten, the greatest misfortunes would come. A violent wind would suddenly arise, whirl about the sand, and engulf the traveler with a shower of stones. It is very difficult to escape death.' "

The total length of the Ili, measuring to the head of its longest tributary, is about seven hundred miles. In the upper portion of its valley it waters an expanded plain of loess about fifty miles wide and one hundred and fifty long, making it one of the most productive areas in the world. The oasis receives additional importance from its lying in the line of the main traveled road, and indeed almost the only wagon road, which from early times connected China and Mongolia with Western Asia. This great road, leaving China at about the middle of its western border, and crossing the Desert of Gobi to the eastern extremity of the Tian-Shan Mountains runs along their base as far as Turphan, where a southern branch turns off towards Aksu and Kashgar, while the northern branch crosses a low pass of the chain to Urumchi, which also might be reached by road upon the northern side of the chain. Thence it passes on to Manas, where it divides again,

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one branch striking off north to the Tarbagatai Mountains, and, passing through Chuguchak, comes out at Sergiopol, and thence onward meets the Irtysh River at Semipalatinsk. But the main line leads westward on the north side of the Borokhoro Mountains to Lake Baratala (or Ebi-nor), an inclosed basin about forty miles long and twenty broad, but which is only seven hundred feet above the sea. Here the road turns to the left and, after rising about six thousand three hundred feet in about seventy miles, reaches at the summit of the pass the remarkable Sairam-nor, (*nor* meaning "lake"), filling a bowl-shaped depression about thirty miles in diameter, and surrounded by lofty mountains upon nearly every side. The water is clear and of a beautiful blue color, and only slightly saltish, though it has no outlet.

The Chinese monk Chang Chung describes this lake and the pass thence down to Kuldja in the following language, which is as correct as it is vivid:

“After having left the sandy desert, we traveled five days, and stopped on the northern side of the Yin-shan. The next day, early in the morning, we proceeded southward on a long slope seventy or eighty miles, and stopped in the evening to rest. The air was cold; we found no water. The next day we started again, and traveled southwestward, and at a distance of twenty li [about seven miles] suddenly got sight of a splendid lake of about two hundred li in circumference, enclosed on all sides by snow-topped peaks, which were reflected in the water. The master named it the Lake of Heaven. Following the shore we descended in a southern direction, and on either side were nothing but perpendicular cliffs and rugged peaks. The mountains were covered to their summits with dense forests,

consisting of birches and pines more than a hundred feet high. The river winds through the gorge for about sixty or seventy li with a rapid current, sometimes shooting down in cascades. The second prince, who was with the Emperor at the time he went to the west, first made a way through these mountains, cut through the rocks, and built forty-eight bridges with the wood cut on the mountains. The bridges are so wide that two carts can pass together.*

“‘ We passed the night in the defile, and left it the next morning; we then entered a large valley which stretched from east to west, well watered, with abundant grass, and here and there some mulberry trees or jujubes.’ ”

It is said that with slight repair the wagon road down the Talki ravine from Sairam-nor to Kuldja could still be used. The fertile oasis of Kuldja was a favorite stopping-place for the hordes of Jenghiz Khan and his successors on their marches between the east and the west. It formerly had a population of three hundred and fifty thousand or more, but now is reduced to about one third that number. For a few years subsequent to 1870 the province was included within Russian territory, but was afterwards restored to China, when she became able to re-establish a settled condition of things upon the Mongolian border. At the present time the Russian boundary crosses the river about one hundred miles below the present city of Kuldja, where the elevation of the valley is two thousand, five hundred feet above the sea.

The most fertile part of the valley of the Ili below the Mongolian border is in the vicinity of Verni, where there is a shallow segment of a circle of rich loess which is well

* Turkestan. Vol. ii. pp. 191-192.



Artistic View of the Ala-tau Range from Verni.

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watered by streams coming down from the Western, or Trans-Ili, Ala-tau. In many respects this resembles the area of the Thousand Springs about the headwaters of the Chu, a little to the west. The river is crossed by a bridge at Ilisk, about thirty miles from Verni, whence the military road proceeds northward over the western spurs of the Eastern Ala-tau. From Kuldja to this point, and somewhat farther down, the river is navigable for small boats, but its bed is sunk so deep below the sands of the region intervening toward Lake Balkash, into which it empties, that irrigation without a very large outlay of capital is impossible, and Lake Balkash presents no inducements to commerce of any kind.

10. *The Seven Rivers*.—The province of Semirechensk receives its name from the fact that it possesses seven rivers, one of which is the Ili. The others are, proceeding eastward, the Koksū, the Karatal, the Aksu, the Sarkan, the Baskan, and the Lepsa. These are all streams coming down from the Ala-tau range, and of minor significance, except for the fertility which they spread over the narrow marginal border of loess. Only three of them reach Lake Balkash; the three others being tributary to them, or ending in the desert sands. In the lower part of their course the three streams which enter the lake run in such deep channels that, like the Ili, they are incapable of being used for irrigation.

11. *The Ayaguz*, coming down from the vicinity of Sergiopol, and entering the east end of Lake Balkash, has a length of about two hundred miles, but its sources are in the lower portions of the Tarbagatai Mountains, where the water-

supply is neither abundant nor constant, and the soil through which the river flows is not so fertile as that which borders the mountain chains to the westward which we have been considering.

12. *The Sarai-su* rises in the low watershed separating the Aral-Caspian basin from the Tobol and other tributaries of the Irtysh River. After taking a southwest course for a distance of about five hundred miles, it ends in a small inclosed lake not far from the termination of the river Chu, and only sixty or seventy miles from Fort Perovsk on the Syr Daria, from which point as already said, the Yani Daria formerly put off to reach the Aral Sea near its southern end. It seems altogether likely that these streams, joined also by the Talas, formerly united and reached the Syr Daria at Perovsk, and helped to send onward the strong current of water which then flowed from the southern end of the Aral Sea into the Caspian. But that was when the climatic conditions were considerably different from those which now prevail,—a subject which will require special attention in a subsequent chapter.

13. *The Turgai and Irghiz* rivers (each about three hundred miles in length) rise between two low branching spurs of the Ural Mountains which extend southward through the provinces of Akmolinsk and Turgai enclosing the northern portion of the basin of the Aral Sea. With a little increase of water-supply these united streams would reach the Aral, but now they terminate in a shallow irregular lake, surrounded by desert sands about one hundred and fifty miles from the Aral Sea—called Chel-Kar Tingez.

14. *The Emba*.—Still farther west, the Emba River rises in the western spur of the Urals, and, after a course of about three hundred miles in a northwestern direction, reaches the northern end of the Caspian Sea.

15. *The Ural* rises on the same watershed with the Tobol, and, after pursuing a westerly course for several hundred miles directly across the low southern projection of the Ural Mountains, in which the two former streams have taken their rise, turns to the south, and empties into the Caspian Sea one hundred miles west of the mouth of the Emba; its total length being about eight hundred miles. The lower two hundred and fifty miles of its course is through a level plain which is only from twenty to fifty feet above the level of the Caspian Sea, and has for a long time been a famous center for some of the Cossack organizations, where they maintained semi-independence, and still preserve in high perfection their communal organizations. Their chief industry is the sturgeon fisheries in the river.

16. *The Volga*, though not politically belonging to Asia, geographically, is Asiatic. Indeed the entire northwestern shore of the Caspian Sea, including the mouths of the Volga River, and all the intervening low plain as far as Samara, and the lower portion of the Don River, which empties into the Sea of Azof, is Asiatic rather than European. This entire region is but little raised above the level of the Caspian Sea, and is dotted over with salt lakes having no outlet, some of them even occupying depressions which are below that level. At Tzaritzin so short a space separates the Volga from the

Don that a canal has been projected to connect one drainage basin with the other; while it is thought by some that the Volga itself at one time kept straight on in its course to join the Don and empty into the Black Sea instead of the Caspian. So slight is the elevation of the land between the Azof and the Caspian seas that a depression of less than thirty feet would now permit their waters to mingle through the long marshy lake of Manytch. The Volga River also really belongs to this Aral-Caspian depression, draining into it, as it does, the larger part of European Russia, and having a length of two thousand three hundred miles, and drainage basin of five hundred thousand square miles. The Kuma and Terek rivers, coming down from the northern flanks of the Caucasus, also flow through this low plain for a considerable distance, and help to give character to the western shore of the Caspian; while the whole area of the plain which borders the northern end of the Caspian Sea, is still occupied by Kalmuck and Kirghiz Tartars, hemmed in by Ural Cossacks still farther north.

Besides these streams there is a large number ending in enclosed lakes, together with well-nigh innumerable small lakes having no permanent tributaries, scattered all along the 50th parallel, on the elevation connecting the Ural Mountains and the projection of the Tarbagatai range, which forms the southern watershed of the Obi basin.

General View

Aside from the interest attaching to these details in themselves considered, it was important to pass them under review

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as preliminary to a study of some general questions of absorbing interest relating to the entire basin considered as a unit. Including only the lower part of the Volga, from the point where it approaches nearest to the Don, this basin has a width from northwest to southeast of one thousand, six hundred miles, with an equal extent, measuring at right angles, from the southwestern corner of the Caspian Sea to the headwaters of the stream which enters the eastern end of Lake Balkash; while from north to south on the sixtieth meridian E., the breadth is fully one thousand two hundred miles. Taken all in all, this has been justly regarded by physical geographers, ever since the investigation of Humboldt, as the most interesting depression anywhere to be found on the face of the globe.

Excluding the upper portion of the Volga, it covers an area of nearly two million square miles; while for a distance of more than three thousand miles along the serrate edge of its southern border, it is shut in, as we have already seen, by the loftiest mountain chains of the world. Mount Elburz (18,526 feet above the sea); Mount Ararat (17,260); Mount Demavend, immediately south of the Caspian Sea (18,600 feet); Mount Dora and various other peaks in the Hindu Kush, in which numerous branches of the Amu Daria have their source (from 16,500 to 20,300); Mount Kaufmann in the Pamir (22,500), with numerous other surrounding peaks falling but little below that figure; Khan-tengri in the Tian-Shan range (24,060), with many others upward of 15,000;—these with their continuous, connecting mountain chains, all of which would be conspicuous anywhere else in the world,

and with their massive bordering plateaus nowhere to be equaled except in Tibet, present a spectacle to the imagination which it never wearies of picturing. Through this entire distance of more than three thousand miles, passes are infrequent, most of them being hazardous, while all of them are difficult, and everywhere the descent to the plains on the north is rapid and final. From the bordering mountains of Afghanistan, lines can be drawn in several directions to the Arctic Ocean, across forty degrees of latitude, or two thousand, eight hundred miles in actual distance, without encountering an elevation of a thousand feet. At the same time, from the lofty height of Mount Demavend the descent within one hundred miles to the bottom of the Caspian Sea, which is two thousand three hundred feet below the ocean level, is nearly twenty-two thousand feet. The physical changes which have taken place over this area in recent geological times, and even within the historical period, are of most extensive and significant character, both from the standpoint of physical geography, and of their effect upon the fortunes of man and of the plants and animals which preceded and have accompanied him.

Upon even a cursory examination, the whole area, to the height certainly of several hundred feet, gives evidence of being an ocean bed from which, owing to recent changes in level and equally significant changes in climatic conditions, the water has evaporated, until it is now everywhere dotted over with small enclosed basins of salt water, besides three large enclosures which merit the name of seas. Of these, Lake Balkash, on the eastern side of the basin, is crescent-shaped,

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and has a length of about four hundred miles and a width of from five to fifty. Its circumference is said to be nine hundred miles, and its area 12,800 square miles; or, nearly twice that of Lake Ontario, four times that of Great Salt Lake in Utah, and thirty-six times that of Lake Geneva. Though receiving seven mountain tributaries from the south, one of which, the Ili, is several hundred miles in length, it has not a single tributary from the north. Nowhere is its depth more than seventy feet; while upon the south side, into which the sediment from the mountains is brought by the rivers, it gradually merges into an impenetrable, reedy marsh, where for a long distance the water is so shallow, and the bottom so shelving, that a strong south wind lays it bare. Such are the conditions, however, that there are no settlements upon its banks, and navigation upon it is utterly impracticable. Its surface is at present, according to Mushketoff, nine hundred feet above the sea; but at no distant period, even historically considered, it covered an area many times its present size, extending eastward to Lake Ala-kul, and to the base of the Tarbagatai Mountains. The military road from Sergiopol to Kopal now leads for a long distance across the plains of fine silt, which settled over the eastern portion of the great extension. It is probable, also, that the water overflowed its western border, and, joining the Chu, entered with it the great Aral basin. But, notwithstanding its diminution in size, and its inland character, without any outlet, the water, along considerable portions of its southern and eastern shores, is so slightly salt that animals freely drink it, though in the western

end, farther away from the tributaries, it becomes salter, and is unfit for use.

The Aral Sea is two hundred and sixty-five miles long from north to south and about one hundred and fifty from east to west; its surface is one hundred and fifty-eight feet above the ocean level, and two hundred and forty-three above that of the Caspian Sea (which is eighty-five feet below that of the ocean), and has an area of twenty-four thousand five hundred square miles, which is considerably larger than Lake Michigan. Its greatest depth is little more than two hundred feet (thirty-seven fathoms), and that through a strip along its western shore. From here (according to Major Wood, whose account we may well give with considerable fullness), it shallows, though somewhat irregularly,

“to the north, south, and east shores, whose gentle slopes are occupied by rushy marshes, among which the edges of the lake are lost, and where sand dunes afford one among other indications of a fall in the level of the waterspread of Aral. A large sandy tract on the north is shown by a Russian map of the last century to have been under water at that time, and many bare, water-worn hills are also seen in this direction. Meyendorff states that at the commencement of the present century the water which is now forty miles distant, washed the foot of the hills beyond the peninsula of Kuk Tornak, near the northern extremity of Lake Aral; while a minaret upon the eastern shore, which is now many hours' walk from the edge of the water, is known by the graybeards of the Kirghiz to have been formerly close to it. These people also say that they can at present ford the Syr at points where it used to be impassable. It may be added that Admiral Boutakoff, who was the first to navigate Lake Aral, found the traces

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of waves upon the cliffs of Ust-Urt and of the islands, at a level far above that which could be reached during storms at the present day. . . . The configuration of the surrounding country shows that with a surface about sixty feet higher the waters of the lake would have overflowed at different places. Moreover, from the action of the northerly gales which blow in the Aral basin, it is tolerably certain that such overflow would finally have ceased at the head of the Abougir Gulf, which occupied the southwestern corner of the lake. The bed of this gulf was covered to a depth of three feet by water in 1848, but is now dry and under cultivation.

“These circumstances incontestably prove that Lake Aral has formerly been a much larger and deeper body of water, and a very few figures would show that about double the supply of water which it now receives would soon again raise its level to overflowing, while, on the other hand, if the present supply were cut off, about ninety years only would suffice to dry up the lake entirely. Replenished as this basin is with a very limited amount of rainfall, the existence of the body of water it contains practically depends on the single condition, that the quantity emptied into it by its tributary rivers shall equal that which is evaporated from its surface.* In historical times many rivers contributed their streams to Lake Aral which now stop short in the sand, while others have changed their courses and have so deprived their affluents of a passage to the natural receptacle for their waters. For these reasons, the lake has degenerated from an extensive and tolerably deep body of water, possessed of a

* “Water contained in Aral 1,233,434,000,000 cubic yards. Average receipt from Amu and Syr, 2,000 cubic yards per second, which would provide for an evaporation of about thirty inches annually from the surface of the lake. Probably the loss on this account is somewhat greater, though the level seems now to be maintained by the rainfall as well as by the earthy deposits made by the two rivers.”

copious overflow, to a shallow pool, which has at certain historical epochs been shallower still, or has even perhaps dried up sufficiently to have caused its practical disappearance from the map. Such, in somewhat general terms, is the explanation of the difficulties which have been experienced regarding the existence and history of Lake Aral in past times."

The Caspian Sea is the largest of all the inland bodies of water in the world which are without connection with the ocean. It has a length from north to south of seven hundred and forty miles, with an average breadth of two hundred and ten miles. Its total area is estimated to be about one hundred and eighty thousand square miles. The northern half of the sea projects into the region of the low plains to which we have already referred as forming the northwestern border of the great basin under consideration. Here, as already remarked, the land level is but slightly raised above that of the ocean, and gives abundant evidence of having been not long ago overspread by the waters of the Caspian,—the shells of Caspian species of mollusks being found up the valley of the Volga nearly to Saratof, up the Ural to the vicinity of Uralsk, and up the Emba throughout nearly half of its entire course.

Between the Caspian and Aral seas, however, which are separated by a distance of from two hundred to three hundred miles, occurs the plateau of Ust-Urt, which rises with precipitous sides of from five hundred to seven hundred and twenty-seven feet above the general level, and covers an area of about one hundred thousand square miles, ending near Krasnovodsk, in the great Balkan Mountains, which seem to be a connecting

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link between the Caucasus chain, upon the west, and the Kopet Dag, on the east, of the Caspian basin. As before stated, this connection seems also the more probable from the fact, that a line of shallow water crosses the sea from Krasnovodsk to the Apsheron Peninsula, in the vicinity of Baku, the depth of the water over this ridge averaging no more than one hundred and eighty feet. Between the Balkan and the Kopet Dag range, however, there is an opening twenty-five or thirty miles in width which is nearly at the level of the Caspian, and through which the waters of the Aral Sea when it stood at its former high level found ready passage into the Caspian. This channel, which skirts the Ust-Urt on the southeast for a distance of about five hundred miles, is called the Uzboi, and is so well marked that even the cursory observer cannot fail to see its significance.

The Caspian Sea is divided into three distinct parts. The northern portion into which the Volga and the Ural pour their heavy burdens of sediment, is shallow, and without any well-defined shoreline, the water being nowhere more than fifty feet deep. This extends southward to the mouth of the river Kuma, on about the forty-fifth degree of north latitude.

The middle basin extends from this point to the line of shallow water, already spoken of, extending from Krasnovodsk to Baku. The depth of this portion is everywhere greater than that of the northern, being in the center more than one thousand feet, and near the southwestern side more than two thousand feet deep.

The third portion, which lies south of the submerged ridge

spoken of, also descends, as we have said before, to a depth of more than two thousand feet, and that only a short distance from the lofty plateau of Northern Persia, whose summits run up to an elevation of more than eighteen thousand feet above the sea.

The total drainage area emptying its waters into the Caspian at the present time does not fall much short of one million square miles; being, indeed, not much less than that of the whole Missouri-Mississippi basin. Yet all the water thus received is evaporated from an area of about one sixth that extent. Here, also, as in the case of both Lake Balkash and the Aral Sea, we encounter the striking and significant fact, that the salinity of the water is only about one third that of the ocean. We are bound to state, however, that the saltness of the water differs in a marked degree in the different parts. In the shallow northern portions, when the Ural and the Volga are in their flood stage the water in the Caspian is so nearly fresh as to be drinkable far out from the shores. In the central and southern portions the water is stated by Von Baer to be about one third as salt as the ocean. In explanation of this an interesting process is found to be going on at the present time, constantly tending to reduce the salinity of the water, and helping us to understand both this and how the vast salt deposits underlying central New York, eastern Ohio, and southern Michigan might have been formed. The Caspian Sea is surrounded on its most arid sides by numerous and large bays connected with the main body of water by narrow and shallow channels through which currents are constantly

flowing from the sea, but not back into it. This is because the evaporation is so great that the inflowing currents are barely sufficient to supply the waste from that source. The consequence is, that an enormous amount of salt is carried off from the sea into these receptacles and there detained, forming a solid layer over the bottom. One of the largest of these is the Kara Bugas, or Bitter Water, a bay nearly one hundred miles in diameter, situated about midway on the eastern shore, and connected with the sea by a channel only five feet deep and four hundred and fifty wide. Through this the water of the Caspian is constantly flowing at a rate which is never less than a mile and a half an hour, and is usually three miles an hour. Von Baer, who has investigated the matter most carefully, estimates that through this channel alone three hundred and fifty thousand tons of salt are daily withdrawn from the central body of the sea. Many similar basins have already been filled with the salt which has crystallized from the water thus brought into them and evaporated.

The animal life of the Caspian presents, also, many striking peculiarities, since it includes a curious admixture of fresh and salt water types. Here are found seals and herrings, which are marine species belonging to the Baltic and Polar seas, rather than to the Black and Mediterranean. Curiously enough, also, the seal in the Caspian are of nearly identical species with those that are found three thousand miles to the east in Lake Baikal, whose waters are now fresh, and whose surface is at an elevation of nearly one thousand six hundred feet above the sea. It is related, also, that seal were formerly

found in the Aral Sea. But they disappeared from its waters a long time ago. Salmon also abounded in the Caspian, furnishing another indication of a former connection between its waters and those of the Arctic Ocean. Sturgeon, likewise, abounded in immense numbers, providing to the Cossacks on the Ural and to the government agents on the Kur the basis for enormous fishing industries. Indeed, at the present time the whole world is supplied with caviar and isinglass from the roe and the swimming bladders of sturgeon caught in these waters.

According to Bogdonoff, a complete connection in recent time between the Caspian basin and the Arctic Ocean is demonstrated by the sea-shells that are found continuously in the superficial deposits which cover the whole basin. Many of the animals now living in the numerous salt lakes extending from the Aral and Caspian seas across the watershed into the valley of the Obi belong to the polar fauna—the proportion of polar species increasing as the Arctic Sea is approached. Moreover, the shells of this ancient sea-bottom differ from those in the Caspian chiefly in their size, those in the Caspian being much smaller than those upon the area outside. This indicates that the water which submerged this large area had the saltiness of the ocean which tends to increase the size of the shell-fish living in it, making them larger than they would have been in less saline waters like those of the Caspian.



Scene in the Altai Mountains.

IV

RIVER BASINS OF THE ARCTIC OCEAN

1. The Obi

THE Obi and its tributaries occupy a vast plain sloping gently from the border of the Aral-Caspian depression and the Altai Mountains to the Arctic Ocean, having an area of nine hundred and twenty thousand square miles. This plain is separated from Europe by the Ural Mountains, but in its main physical features is similar to much of European Russia, being everywhere level except on its mountain borders, and deeply covered with alluvial soil,—advantages which make it the most important agricultural section of Siberia. Although this region is commonly known as the basin of the Obi, the main branch, the Irtysh, is four hundred miles longer than the Obi above their junction, and fairly deserves to be called the main stream. We will therefore put it first in our description.

The Irtysh River (2,520 miles in length) rises south of the Mongolian border, and after flowing five hundred miles by a comparatively gentle current through the Sungarian depression between the Great Altai and the Tarbagatai mountains, expands, soon after crossing the Russian border, into Lake

Zaisan, a body of water about sixty miles long and from twenty to thirty wide. From this point it turns eastward, cutting its way in a deep rocky gorge for a hundred miles or more across a spur of the Altai Mountains, when it reaches, at Kamenogorsk, the border of the great plain stretching to the Arctic Ocean. But on its way across the spurs of the Altai Mountains it has been joined by the Kurgum, the Naryn, and the Bukhtarma,—rivers which come down through narrow and deep, but fertile, valleys from the center of the Altai Mountains furnishing ready access to their mining wealth, and supplying rich agricultural products for the home market. Lower down, on the way to Semipalatinsk, the Uda River comes down in a similar manner from the northern portion of the Altai.

As far up as Semipalatinsk the river is readily navigated by steamboats, which in some stages of water can ascend considerably farther, while above Lake Zaisan steam navigation is practicable for a considerable distance, and rafts bring down the products from the entire upper basin.

Below Semipalatinsk the Irtysh has no tributaries for four hundred miles until reaching Omsk, where it is joined by the Om, a small stream from the east which imperfectly drains a portion of the Baraba Steppe. One hundred miles lower down, the Tara River comes in from the same direction, the city of Tara being near its mouth. One hundred and fifty miles still farther down it is joined on the west by the Ishim, an important tributary several hundred miles in length rising on the watershed between the Obi and Aral-Caspian basins, and



The River Om near Omsk.

watering the most productive portions of Akmolinsk. About two hundred and fifty miles above its mouth, the Ishim was early crossed by the old Siberian military road, and now by the railroad, at Petropavlovsk. One hundred and fifty miles below the Ishim, the Irtysh is joined by the Tobol, which is itself four hundred and twenty miles long, and which, with its branches, the Tavda, the Tura, and the Iset, waters a fertile and well-drained area of forty thousand square miles on the gentle eastern slope of the Ural Mountains.

A fair proportion of this area is covered with forests, especially along the streams; while the plains consist of rich black earth like that of the steppes of Southern Russia, or of the prairies of Minnesota and Dakota, which resemble it also in many other particulars. Along the water-parting between the Ishim and the Aral-Caspian depression, and in the upper portion of the valley of the Tobol, as well as upon the east side of the Irtysh between Omsk and Semipalatinsk, innumerable lakes occur, many of which are salt and without outlets, and all of which seem to be rapidly drying up. Indeed, numerous flourishing Russian villages are now standing upon what was the bed of Lake Chany in the early part of the last century, so rapidly is the desiccation of that region progressing.

The Obi River proper rises in the Altai Mountains, being formed at Biisk by the junction of the Biya and Katun rivers, whose headwaters are in the Altai Mountains on the Mongolian border, two hundred and fifty miles distant, and from seven thousand to ten thousand feet high. Lake Teletskoi, an enlargement seventy or eighty miles long of the upper part

of the Biya, is celebrated for the grandeur and beauty of its scenery. Before the Obi fairly emerges from the border ridges of the Altai Mountains, it is joined on the west side by the Churut and the Alea; while, below Barnaul, the Chumut, the Berdu, and the Ina come in from the east before it is joined by the Tom, the Tom itself having had a course of four hundred and fifty miles from near the Mongolian border. At some stages of water, the Obi is navigable to Biisk, and the Tom to Kusnetzsk.

A striking feature of the valley of the Obi is its close approach to the main stream of the Yenisei on the east. In fact, the Yenisei has practically no western branches, yet at several points the navigable branches of the Obi approach it so closely that the portages are short, and even furnish actual connection through a level swampy water-parting. A little more than a hundred miles below Tomsk, the Obi is joined by the Chulyum River. This branch has a very circuitous and zigzag course of several hundred miles from its headwaters in the mountains, bordering the Yenisei near the Mongolian frontier and passes in its lower portions through one of the best agricultural districts of Siberia. Near Chernoba, about halfway between Krasnoyarsk and Minusinsk, the Chulyum, which is navigable the whole distance below, approaches to within six miles of the Yenisei, but a difference of elevation of four hundred feet renders a canal project impracticable. A little over a hundred miles north of the Chulyum, the Ket joins the Obi after a course of two hundred and forty miles, and as it is navigable throughout this course it furnishes through

Lake Bolshoe, at the head of one of its tributaries, a convenient passage for a canal leading into the Kas, a tributary of the Yenisei joining it a little below Yeniseisk. Such a canal has already been constructed through which boats of considerable tonnage are able to pass from one river system to the other. Still lower down the valley there is another portage of only three miles, connecting the principal affluent of the Tym, a tributary of the Obi, with the Sym, which after a short course enters the Yenisei.

The broad plain extending for about two degrees each side of the fifty-sixth parallel north stretching from the Irtysh to the Obi is known as the Baraba Steppe. This includes more than fifty thousand square miles, and is covered with soil of the best quality; but the country is so flat, and the drainage so poor, that it is unfavorable for cultivation. Small lakes and marshes abound; so that, in the short hot summer, mosquitoes make life almost unendurable.

To the north of the fifty-eighth degree of north latitude, there are more than one hundred thousand square miles which are almost impenetrable in summer by reason of quivering marshes and dense thickets. These marshes are called *urmans*. Cedar trees of great size, together with larches, firs, pines, beeches, and maples, abound in clusters all over the region, but the underwood is so thick and the moist soil and the cool climate have so combined to preserve the fallen trees from complete decay as to render progress through the jungles well-nigh impossible. The numerous marshes are often barely coated over with a film of trembling soil covered with long grass, so

that they can be crossed only by the use of snowshoes in summer, while many of them are penetrable only on the ice in the dead of the winter. Much of this region remains still unexplored. Not over two per cent is under cultivation.

Farther to the north is the tundra where the soil is frozen to a depth of hundreds of feet, thawing to the depth of only a few inches during the summer. Scanty forests are found in the southern part of the tundra, but they rapidly disappear towards the north, until, in the most protected localities, they are represented only by scattering clumps of stunted trees, which at length give place to creeping birches and dwarf willows; while north of the Arctic Circle trees of every sort disappear. But this region will be described more fully in a special chapter on the Arctic Littoral.

2. The Yenisei

Both in its length and in the size of its drainage basin, the Yenisei River ranks among the largest of the world. If, as in the case of the Mississippi, we reckon the length from the sources of the longest tributary, the Yenisei will not fall far short of the combined length of the Missouri and the Mississippi, namely, four thousand two hundred miles; while in area its drainage basin is considerably in excess of that of the combined Missouri and Mississippi basins, the basin of the Yenisei being estimated at one million three hundred and eighty thousand square miles, and that of the Missouri-Mississippi at one million two hundred and fifty thousand square miles.

The Yenisei proper rises on an elevated plateau in Mongolia between the Tannu and West Sayan ranges, which branch off from the eastern side of the Altai Mountains. It is formed by the junction of the Shiskit and several other small streams, and for the two hundred or three hundred miles of its course over the Mongolian plateau is called the Ulu-kem, and runs nearly west. The Shiskit rises but a short distance from the elevated Lake Koso-gol (five thousand five hundred feet above the sea), which was formerly one of the sources of the Selenga River. About latitude 52° N., the Yenisei crosses the Russian boundary, turns abruptly to the north, and, after cutting its way through the Sayan Mountains in a precipitous, wild, and impassable gorge, enters the fertile prairie-region of Minusinsk. This consists of an ellipsoid area, about one hundred and fifty miles long and one hundred miles broad, which is watered, not only by the main stream of the Yenisei, but by the Abakan, which comes down from the Altai Mountains on the west, and the Tuba, which is fed by numerous spreading branches descending from the Sayan Mountains on the east. To the north, also, the Yeniseisk Mountains close in upon this secluded area, and compel the river to force its way between a long series of precipitous cliffs. Thus sheltered on every side by mountains, and watered by abundant streams, this oasis, as we may call it, forms one of the most attractive and fruitful areas in all Siberia. Indeed, so mild and dry is the climate of Minusinsk, that it has properly been called the Italy of Siberia.

The mountains surrounding this secluded area, though only

four or five thousand feet high, are almost impenetrable on every side; but they abound in gold-bearing rocks, whose slow disintegration has resulted in a large number of placer mines, which, though not relatively rich in gold, have been exceedingly profitable, by reason of the cheap living afforded by their proximity to the fertile districts of the oasis. At one point, however, namely on the fifty-fifth degree of north latitude, the Yenisei approaches, as already related, to within six miles of the Chulym River, a navigable tributary of the Obi. But though the project of a connecting canal at this point is not likely to be carried out, it must continue, as heretofore, to be an important line of portage, which very likely will eventually be connected by railroad.

Though so isolated, the history of the Minusinsk Oasis is of surpassing interest. Through the efforts, largely, of Dr. N. Martianoff, the pre-historic mounds of the region have been thoroughly explored, and have been found to yield relics of the greatest importance. These are preserved and carefully classified and arranged in a fire-proof museum constructed by the citizens. The number of specimens reported in 1900, amounted to upwards of sixty thousand. Here more fully perhaps than anywhere else in the world is displayed the progress of the human race, from the stone, through the bronze, to the iron age. Indeed, this museum contains the richest collection of bronze implements which has ever been made. Among the relics, also, are to be found many of Chinese origin dating from the Han dynasty in the second century before the Christian era. It is evident, also, that the iron

mines which are still worked in the district especially around the Abakan River were opened early in the pre-historic period.

Below Krasnoyarsk, on the fifty-sixth parallel, N. the Yenisei is a comparatively sluggish stream to its mouth in the Arctic Ocean, descending from barely four hundred feet at that point to sea level in a distance of about one thousand five hundred miles. About fifty miles below Krasnoyarsk (where in former times the great Trans-Siberian highway, and now the railway, crosses the river), the Yenisei is joined by the Kan, an important tributary from the east, but originating in the auriferous spurs which project northward from the Sayan Mountains, east of Minusinsk. The lower one hundred and fifty miles of this tributary passes through fertile rolling country, while the upper portion of the valley is rich in placer gold mines; thus, as in the case of Minusinsk, the agriculturalists about Kansk have found a ready market for all their products, even before the building of the railroad.

About one hundred and fifty miles below Krasnoyarsk, and close to the fifty-eighth parallel, N. the Yenisei is joined by the Angara, a tributary much longer than the Yenisei above this point. The Angara proper is one thousand one hundred miles long below Lake Baikal, but the extreme source is to be found far up on the Mongolian Plateau near the forty-seventh parallel in latitude N. in the headwaters of the Selenga River, which itself has a length of about eight hundred miles, receiving in Mongolia the drainage of a mountainous region, nearly two hundred thousand square miles in extent. Entering Siberia near Kiakhta, at an elevation of about two thousand five

hundred feet above the sea, it wends its way by a moderate descent between increasing mountain heights on either side to Lake Baikal, whose elevation is 1,561 feet above the sea. Through this entire distance it occupies a broad deep trough of erosion, indicating that it has been a line of drainage for many hundred-thousand years.

Inside the Siberian boundary, the Selenga receives a number of tributaries which are important, not for the facilities they furnish for navigation, which they do not do, but for their easy gradients for overland routes, and for the rich soil of their valleys, and their favorable climate, which early drew to them a tide of enterprising and industrious immigrants. From the west comes in the Dzhinda, after a course of something over two hundred miles; while from the east there come down from the southern part of the Yablonoi Mountains the Chikoi, the Khilok, and the Uda, each from three to four hundred miles in length. The Uda, being the most direct, has long furnished the natural channel for the great highway leading to the Vitim Plateau (five thousand feet high) from which water flows into the Yenisei, the Lena, and the Amur. But the Siberian railway, turning off at Verkhni Udinsk, crosses into the valley of the Khilok, and takes advantage of its gentle gradient to reach the summit a little south of Chita.

Lake Baikal, into which the Selenga flows, and from which the Angara emerges, is one of the most remarkable lakes in the world. It extends a distance of four hundred miles in a southwest-and-northeast direction reaching from the fifty-first degree north latitude nearly to the fifty-sixth. It is from twenty



The Museum at Minusinsk.



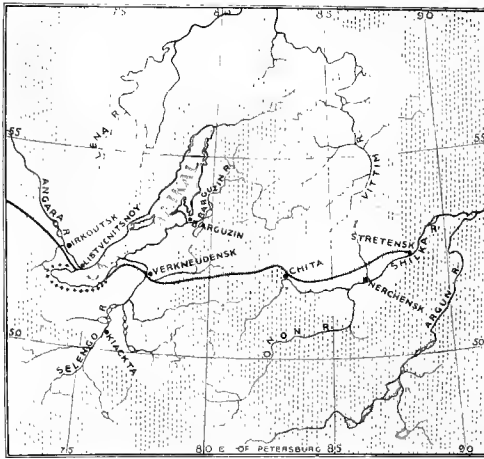
Prehistoric Pottery in the Museum at Minusinsk.

to sixty miles broad, and has an area of twelve thousand five hundred square miles. As just said, its surface is 1,561 feet above the sea, and it is remarkable, among several things, for having no western tributary of any length. For most of the distance upon its west side it is bordered by the Baikal Mountains which everywhere present a precipitous face toward the lake, but give rise on their western slope, a few miles distant, to the headwaters of the Lena River, which drains an elevated table-land separating Lake Baikal from the Angara. Upon the eastern side of the lake, however, there are, besides the Selenga, the Turka, the Bargusin, and the Upper Angara, the last two of which have a length of from two hundred to three hundred miles each, draining a considerable portion of the Vitim Plateau.

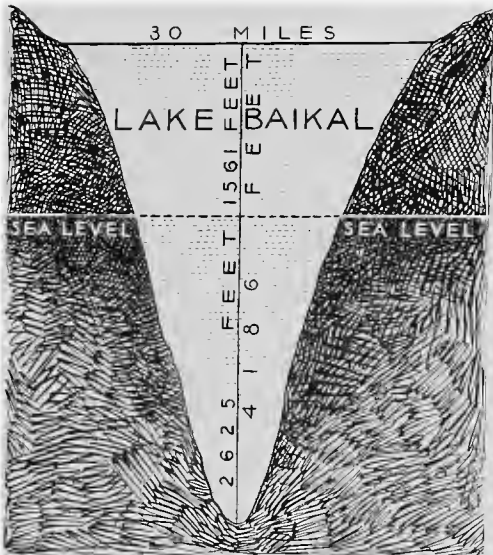
Lake Baikal occupies a trough of what is evidently one of the recent geological folds in the mountains bordering the northeast-southwest continuation of the Central Asiatic plateau reaching from Mongolia to Bering Strait. The lake is nearly divided into two portions by the Olkhon Mountains, which project from the southwest towards the Sviatoi Nos, a peninsula extending in an opposite direction from the Vitim Plateau near the mouth of the Bargusin River. Between these points the water is very shallow, showing the existence of a submerged ridge. The portion of the lake north of this is also comparatively shallow, having nowhere a depth of more than two hundred and ten feet, but the southern portion, called the Great Lake, has a depth towards the southwest of 4,186 feet, making its lowest point about two thousand six hundred

feet below sea-level. At the mouth of the Selenga, however, the silt from that drainage basin has formed a delta of considerable size, which causes the water to shallow gradually for a long distance on either side. As before remarked, the lake is inhabited by great numbers of seal (*Phoca annectata*), an arctic species found in the Caspian Sea, and nowhere else in Asia outside of the Arctic Ocean. There are, also, enormous quantities of salmon of various species, giving rise to fishing industries of great importance.

Surrounded as it is by rugged mountains on every side, and its ends connected with no practicable roadways, the lake is not, like the great system in North America, an aid to commerce, but rather a hindrance, since it projects itself squarely across the natural line of travel from west to east; while the southern portion can be avoided only by a long detour through a country presenting great difficulties to road-building. In the winter, however, for five months, it can be safely crossed upon the ice, which has helped to make that the favorite time of year for the transportation both of colonists and of merchandise. Indeed, a large part of the extensive commerce between China and Russia has availed itself of this winter route for two centuries past. A crossing can be effected in the summer by boats, but during a portion of the autumn and of the spring months there are a number of weeks in which the lake is utterly impassable. The ice, also, is so subject to the formation of crevasses at all times of winter, and is so liable to break up suddenly in the spring, that to cross on it calls for much care.



Map of Lake Baikal.



Section Showing the Proportion of Lake Baikal Below Sea Level.

The railroad has attempted partially to overcome the difficulty by putting on to the lake an immense steam ferryboat which transports thirty cars and a thousand men at one time, and which, it was hoped, would be able to keep a channel open through the ice during a part at least of the winter season. Up to the winter of 1901, however, the experiment had not been perfectly successful. The railroad therefore contemplates completing eventually the section around the lake, which will make the land communication continuous. As it is, the transporting capacities of the road are practically limited by those of the steam ferry; hence, when that is interrupted in the winter, the entire business is at a standstill.

The Angara River issues from the western side of Lake Baikal about forty miles from its southern end, and, after flowing several hundred miles to the north, turns westward near the fifty-ninth parallel, N., and joins the Yenisei a little above Yeniseisk, and about two hundred miles below Krasnoyarsk, having, as already said, a total length of one thousand one hundred miles, with a drainage basin of two hundred and seventy-five thousand square miles. The larger part of this great area, equal in size to the combined areas of Iowa, Illinois, Indiana, Ohio, Pennsylvania and New York, is well watered, and in every way as well adapted to pasturage and cultivation as are the central portions of Russia in Europe, which are in about the same latitude. Most of the tributaries to the Angara rise in the East Sayan Mountains on the Mongolian border, where are to be found numerous rich placer mines of gold. Of these streams taken in regular order from Lake Baikal, the

Irkut, the Kytok, the Urik, the Oka, and the Uda, are worthy of special mention, each of them furnishing a natural line of communication between the mining regions of the mountain border and the vast agricultural districts between the lower part of the Angara and the Yenisei. None of these tributaries are, however, navigable to any great extent, and even the Angara has so many rapids and shoals that navigation is difficult and hazardous. The Ilim River upon the east side, however, is navigable for small boats, and is separated from a navigable branch of the Lena by a portage of only forty or fifty miles.

Below the mouth of the Angara the Yenisei River has scarcely any tributaries on the west side, but, as already remarked, two of these, the Great Kas and the Sym, are important because they lead up to portages of only four or five miles, across which canals can be easily constructed connecting with the Ket and the Tym, navigable tributaries of the Obi.

The eastern side of the Yenisei in this portion of its course includes within its basin a mountainous country of no great height, about six hundred miles in width, much of which is unexplored. This is watered by the Podkamennaya (or Middle Tunguska) and the Lower Tunguska rivers; the Angara River being locally known as the Upper Tunguska. The Lower Tunguska has a length of about one thousand four hundred miles, and is navigable for small boats up to a point on the fifty-seventh degree of latitude, N., where it is only a few miles from the Lena River; thus, with its portage, furnishing another of the early natural lines of communication between these great river valleys. The mountainous region near the

Yenisei and between the Angara and the Middle Tunguska is another of the celebrated mining regions of Siberia.

North of the sixtieth degree of latitude, N., where it is already two miles in width, the Yenisei broadens out into a lake-like expanse of numerous islands and dangerous rapids, but narrows again into a regular channel below the mouth of the Middle Tunguska. Five degrees farther northward, near the Arctic Circle, below the mouth of the Lower Tunguska, the river becomes a stream six miles wide, emptying at length a little above the seventieth degree N., through a broad delta into an estuary forty miles in width, but which near the seventy-second parallel narrows to a width of twelve miles before finally emerging into the broad Yeniseisk Bay, thence into the Arctic Ocean.

The middle portion of the river between Yeniseisk and Minusinsk is freely navigable to river steamers of large size. But the difficulty of penetrating the ice of the Kara Sea, and the shortness of the period during which, even at the best, the outlet of the river is free from ice, for a long time prevented any serious effort to secure direct water communication through this river between Central Siberia and European ports. For, although early English and Russian navigators had frequented the Kara Sea during the sixteenth century, the opinion had come to prevail that it was impossible to enter with safety the Siberian rivers,—an opinion which we shall see later was not far from correct.

In 1853, however, a wealthy Siberian named Sidoroff revived the idea of establishing direct communication between

Russia and the great river systems of Siberia. It was not until after more than twenty years of vigorous agitation that this enterprising patriot accomplished his object. In the year 1874, the English Captain Wiggins, after many preliminary efforts, succeeded in reaching the mouth of the Obi River; while in 1875 Nordenskjöld, the distinguished Swedish savant and explorer took his ship into the mouth of the Yenisei. In the following year Captain Wiggins not only reached the mouth of the Yenisei, but ascended it several hundred miles, to the junction of the Kureika, where he arrived only two or three days before the formation of ice stopped navigation for eight months. In 1877 Sidoroff himself succeeded in descending the Yenisei from Yeniseisk. Here a vessel had been built to his order, and he navigated it around to St. Petersburg. The same year, another steamer ascended the Obi and the Irtysh as far as Tobolsk, and still another arrived at the mouth of the Yenisei. In 1878, also, steamers again reached the mouths of these two rivers, and one ascended the Yenisei as far as Yeniseisk. It was in this same year, also, that Nordenskjöld set out upon his famous exploring expedition with the *Vega*, *Lena*, *Fraser*, and *Express*. The last two of these ships turned up the Yenisei, while the second ascended the Lena River one thousand eight hundred miles to Yakutsk, and the *Vega* kept skirting along the northern coast until it was stopped near Bering Strait by winter ice, but during the following summer reached the Pacific.

The success of these voyages aroused great expectations as to the establishment of profitable lines of direct commercial

intercourse between Europe and the interior of Siberia. In 1897 a cargo of tea was billed to Siberia by the way of London, to be trans-shipped from there to some of the river ports of the interior. Later a company was formed to ship supplies from England up the Yenisei River, for the construction of the Siberian railroad from Krasnoyarsk. This town was made, also, a depot for the distribution of agricultural and mining machinery to be transported by the same route. But these projects did not prove ultimately to be profitable or even practicable, for the success of Nordenskjöld and Wiggins had been due to the favorable conditions of an exceptionally mild summer. In many years the ice of the Kara Sea is altogether impassable, while the long passage up the Yenisei, the stiffness of the current, and the general difficulties of navigation have interposed so many obstacles that in 1900 it was definitely decided to abandon the enterprise and dissolve the company. A year later the Russian ice-breaker which was sent to open a way to the mouth of the river was compelled to turn back, after entering the Kara Sea. It is likely, therefore, that the foreign commerce of this entire interior region will be dependent in the future upon the capacity of the railroads.

The great drawback to the commercial value of the Siberian rivers is the fact that they all flow to the north and empty into the Arctic Sea at high latitudes, so that their navigation is at best limited to three months of the year. In the middle and upper portions, however, they are open for a longer period, thus furnishing internal navigation for two or three additional months. But, during much of this time, regularity

of communication is greatly impaired by reason of low water. The long northerly direction of the Siberian streams, also, produces a condition of things, upon the breaking up of the ice, which well-nigh baffles the imagination to conceive. The eminent ornithologist Seebohm, one of Captain Wiggins's companions, has described the scene as he witnessed it in 1877, in language which will apply to the Obi and the Lena as well as the Yenisei.

He, in company with Captain Wiggins, was awaiting the break-up on the ship *Thames*, which, for winter quarters, had put into the mouth of the Kureika, almost exactly on the Arctic Circle. At the appointed time, June 1, the waters from the melting snows in more southern latitudes began to exert such a pressure underneath the ice, that large fields swelled up and at length burst away, and by the enormous pressure from behind, were pushed outward upon the banks and projecting points, forming miniature ice-mountains fifty or sixty feet in height, with many blocks several feet in thickness and several times as long, standing upright in the midst of the general confusion. These blocks had all the variety of color belonging to ice in its various stages, from the white of the partly melted masses to the transparent turquoise blue of the more solid portions. In the course of the night, though in this latitude there is no darkness at that time of year, the whole icy mass across the entire breadth of the river was in tumultuous motion, the fragments crashing together, and giving forth resounding noises that were as terrible as they were indescribable. The rising waters of the main stream, mean-

while, set backwards into the Kureika, whose basin had not yet been affected by the slowly rising summer sun. Piles of ice like an Arctic floe soon surrounded the *Thames* in its winter resting-place, and even lifted it up upon their backs considerably above the water line. Mr. Seebohn reckons the velocity of the pack-ice passing down the Yenisei to have been at times as much as twenty miles an hour.

The conditions described continued for a fortnight, while masses of ice measuring many miles in superficial area moved backwards and forwards, up and down the Kureika, according to the various stages of the water in the main stream, which were determined in some cases by the forming and breaking away of partial ice-dams across the channel. As the ice gorges broke and the upper portions were carried onward, uncovering the loose masses below, these miniature submerged icebergs often rose rapidly to the surface with a splash, vibrating for a considerable period before attaining their equilibrium. For seven days more, the straggling masses of ice kept hurrying past the scene, when it was found that the river had risen seventy feet, and spread out like a vast lake over all the bordering lowlands. It may well be believed that the annual occurrence of scenes like these must permanently interfere with the maritime trade of these great Siberian rivers.

3. The Lena

The third great river of Siberia is the Lena, which has a length of three thousand miles and a drainage basin of six hundred thousand square miles, or about twice that of the

Danube, and one half that of the Missouri-Mississippi. As we have already seen, the headwaters of the Lena are found for a distance of two hundred miles along the western slope of the mountains which form the precipitous shore line of Lake Baikal. After flowing in a northeastern direction for about six hundred miles, it is joined by the Vitim, which rises upon the Vitim Plateau east of Lake Baikal, about five thousand feet above the sea, and, after a course through a wild and unexplored region of one thousand four hundred miles in a northwesterly direction, joins the Lena at the town of Vitim, where the elevation above the sea is but six hundred and seven feet.

Proceeding thence to the northeast for four hundred or five hundred miles, the Lena is joined by the Olekma, whose headwaters are upon the eastern side of the Vitim Plateau, not over fifty miles from the main line of the Shilka River, the most important tributary of the Amur. After flowing for eight hundred miles through a wild and mountainous country, famous for its rich gold mines, it reaches a level of three hundred and seventy-five feet at its junction with the Lena, near Olekminsk. About four hundred miles down, the city of Yakutsk is the central trading-point for all this vast region. Situated at the enlargement of the river where it is several miles in width and studded with islands, it is connected by navigation with both the lower and middle portions of the Lena, and by roads with the most of its main tributaries, though these roads are but a little improvement over the ordinary trail.



Tunguses on Vitim Plateau.

Several important trails also branch off from here in different directions; one leading to the west penetrates the valley of the Viliui, which itself has a length of one thousand three hundred miles, and is joined by a great number of spreading tributaries which come in from the mountainous and little explored region of the interior. In its upper portion the Viliui is separated by only short portages from the Lower Tunguska, a principal tributary of the Yenisei.

Eastward from Yakutsk, trails radiate to the Sea of Okhotsk about five hundred miles distant in a straight line; and, farther north, to the basin of the Kolyma, a large river which enters the Arctic Ocean nearly a thousand miles east of the Lena. Up to the middle of the nineteenth century, these trails furnished the only post routes by which the central government of St. Petersburg kept itself in communication with its provinces upon the Pacific coast.

A hundred miles below Yakutsk, the Lena is joined by the Aldan, which has a length of one thousand three hundred miles, and, owing to its spreading branches, a drainage basin much larger in proportion. The headwaters of this stream almost interlock with those of the Zeya and of the Olekma upon the eastern border of the Vitim Plateau, while its eastern branches penetrate to within forty or fifty miles of the Sea of Okhotsk. Of the tributaries of the Aldan, the Utchur is three hundred and fifty miles long; the Amga, eight hundred miles; and the Maya, four hundred, with numerous wide-spreading branches.

Below the mouth of the Aldan, the Lena has a course of one thousand two hundred miles, with an average fall of only

about two inches to the mile. Throughout this course it is a majestic stream from four to seventeen miles in width, and studded with innumerable islands. Its delta, which is two hundred and fifty miles wide on the coast-line, begins one hundred miles from the sea, and is traversed by seven or eight main channels, one of which is six miles broad. The bar at the mouth affording only about eight feet of water, is a serious impediment to the entrance of ocean ships; while here even more than at the mouth of the Yenisei, the spring, or rather summer, freshets upon the breaking-up of the ice are terrible in the extreme. The ice from the upper portions of the river breaking up earlier than that near the mouth is piled upon that of the lower course, while it is still several feet in thickness. Large portions of the bank are annually torn away and the navigable channels completely changed.

A short distance to the west of the Lena, and indeed through the same delta, the Olenek River enters the Arctic Ocean after a parallel course of one thousand two hundred miles. About two hundred and fifty miles east of the Lena, the Arctic Sea is entered by the Yana River, which rises in a mountainous region a thousand miles to the south, and not over a hundred miles from the mouth of the Aldan, flowing in its middle course through the interior plateau of Verkhoyansk (latitude $67^{\circ} 34' N.$, longitude $134^{\circ} 20' E.$), which has the reputation of being the coldest place in the world, the thermometer sometimes standing as low as -90° Fahrenheit, and averaging -54.4° during December and January. In the short summer, however, it sometimes rises to 90° above, thus giving the re-

markable range of 180°. The soil is frozen to a depth of six hundred feet, and never thaws out more than a few inches from the surface. The Jana River is free from ice for only one hundred and five days in the year, while there are only seventy-three days in which it has no snow, and only thirty-seven intervene between the latest frosts of spring and the earliest of autumn.

Four hundred miles farther east, the Indigirka River, and four hundred miles still farther the Kolyma, enter the Arctic Sea after having pursued a course in each case of about a thousand miles through valleys of considerable breadth and importance. The Kolyma has a single tributary, the Omolon, which is seven hundred miles in length. All these rivers rise in the Stanovoi Mountains, which, while sloping gradually to the northwest, for more than a thousand miles present a precipitous slope toward the Okhotsk Sea, and form the boundary line between Yakutsk and the Maritime Province of Siberia.

The Land of the Chukches is the name given to the north-eastern projection of the great Asiatic continental plateau ending at Bering Strait. This triangular area, six hundred or seven hundred miles long, and with an average width nearly as great, consists for the most part of a barren plateau from one thousand to two thousand feet above the sea, ending abruptly in promontories of that height about longitude 190° E., from Greenwich. In the northern part of the peninsula, however, there is a bordering chain of mountains which rises to an elevation, in Matichinga Peak, of eight thousand two

hundred feet, the highest known point within the Arctic Circle.

The peninsula is penetrated by two large bays from the Arctic Ocean, and three from the Pacific. The Chaunskaya Bay reaches from the seventieth degree of latitude, on the one hundred and seventieth meridian, southward about one hundred and twenty miles, with an average width of about half that amount. The Koliuchin Bay, about four hundred and fifty miles farther east, is a long fiord-like basin projecting one hundred and twenty miles into the interior towards a similar projection from the Pacific side. It was in this that Nordenskjöld wintered with the *Vega* in his celebrated voyage around Northern Asia. On the Pacific side of the peninsula the principal bays in this section are those of Mechigme, St. Kresta, and Anadyrski. The latter receives the Anadyr River, which has a length of about five hundred miles, and, with its spreading branches, a drainage basin of about fifteen thousand square miles. Though this plateau is barren of forests and for the most part covered with mosses, it supports a population of about twelve thousand Chukches and kindred tribes, who seem to be an intermediate ethnological link between the Mongols of Central Asia and the Eskimos and Red Indians of North America. In the interior, vast herds of reindeer abound; while on the shores and neighboring islands, especially upon Bering Island, fur-bearing animals furnish an abundant source of profit to hunters, both native and foreign.

From the main northeastern peninsula of Siberia, the peninsula of Kamchatka projects in a southwesterly direction be-



Volcano Springs, Kamchatka.

tween Bering Sea and the Sea of Okhotsk. This has a length of about nine hundred miles, with an area estimated at 237,266 square miles, or about half the size of Alaska. It consists chiefly of a range of mountains which towards the middle bifurcates so as to cover the larger part of the more expanded portion of the peninsula. In the southern part there are no less than twelve active volcanoes with twice as many extinct craters, nearly all of which are upon the eastern side. The highest of these volcanoes, Kluchevskaia Sopka, is fifteen thousand and forty feet above the sea. Its eruptions bear comparison with those of Mount Etna. It was active from 1727 to 1731, and again as late as 1854. Hot springs also abound.

The main basis of the mountain rock is granite and porphyry, but it is flanked by sedimentary rocks of as late age as the Tertiary period. The Kamchatka River flows in a northerly direction for a distance of three hundred miles through the middle of the peninsula, and empties into Bering Sea, watering in its course a valley of considerable fertility in which is supported the chief part of the population. This, however, taken altogether, does not amount to more than six thousand or seven thousand. The weather upon the western coast is much more severe than on the eastern, while the summers everywhere are characterized by frequent rains and fogs. Vegetation, however, is in places remarkably luxuriant, the grass occasionally growing to a height of five feet, and requiring to be cut three times in the season. Of the inhabitants, about two thousand are Kamchadales, an inoffensive, strong,

hardy race, who in winter live in underground houses to which they descend by means of ladders. The settlements upon the coast are infrequent, but a naval station of considerable importance was long maintained by the Russians on the eastern coast, at Petropavlovsk. This figured somewhat prominently at the time of the Crimean War, when the Russians succeeded in maintaining and even strengthening their hold upon the Pacific coast.

Northwest of the Sea of Okhotsk, there is a comparatively narrow strip of rough and almost impenetrable land extending for a length of more than twelve hundred miles, which is separated from the rivers flowing into the Arctic Ocean by the Yablonoï Mountains, the continuation of the Stanovoi range, which forms the eastern border of this northeastern extension of the Asiatic plateau. The mountains here are not more than six thousand or seven thousand feet in height, but they approach so close to the Pacific basin that the slope is very steep, and consequently the short streams have everywhere worn very deep and almost impassable gorges. The town of Okhotsk, situated at the mouth of the Okhotsk River, has from the time of the earliest Russian exploration been the chief port upon the sea of the same name, being connected by trail both with the Lena at Yakutsk, about five hundred miles to the west, and with the valleys of the Indigirka and the Kolyma to the north. In reaching Yakutsk the trail on account of the circuitous course of the river crosses the broad valley of the Aldan, but it is not able to make use of the stream itself as a line of communication. From Okhotsk, also, a trail

follows along the shore northeastward to the head of the peninsula of Kamchatka, and thence downward on the western shore, making a circuitous post-route of more than three thousand miles. Until lately this trail has been through most of the year the only route by which communication has been kept up with this far-off dependency.

The Uda River, which has a length of about two hundred and fifty miles, comes into the southwestern corner of the Sea of Okhotsk, and occupies a basin about two hundred miles in width, which is bounded upon the west by the Yablonoi Mountains and on the east by the Little Kinghan range. Its headwaters inosculate with those of the Zeya (an important tributary to the Amur), whose upper drainage basin lies in the low plateau joining that of the upper Uda, and extends southwest an indefinite distance along the base of the Yablonoi and Stanovoi Mountains. These mountains for more than a thousand miles form a sharp line of demarcation between the elevated Vitim Plateau, whose waters flow into the Arctic Ocean, and the great valley of the Amur.

V

ARCTIC LITTORAL

THE Arctic Littoral includes the great tundra belt that extends around the coast of the Arctic Ocean, and the intermediate ground between this and the forest belt, whose northern boundary is, roughly speaking, coincident with the sixty-ninth parallel of north latitude, although along the great rivers it is considerably extended towards the north. The appearance of the country is that of an endless plain of moss and lichens, with shrubs, dwarf birches, willows, and stunted pines in the southern part. The general level is relieved in places by low hills and in the Taimur Peninsula by the Biranga Mountains. Towards the east along the coast the strip of level tundra becomes much narrower.

In connection with the Arctic Littoral of Siberia the islands off its coast should be included, the principal of which are Beli or White Island, the New Siberian Islands, Wrangel Island, and the Medvid or Bear Islands.

The coast is deeply indented by the Gulf of Obi, sixty to seventy miles wide, five hundred and fifty miles long, and its branch, the Gulf of Taz, extending south to latitude 65°, which is six hundred miles from the Arctic Ocean; by the

Gulf of Yenisei, much narrower, and only three hundred miles long; by Khatanga Bay, which extends into the Taimur Peninsula one hundred and eighty miles; by Borkhaya and Yana Bays, just east of the Lena Delta; by Chaun Bay and many other smaller indentations, for the coast is everywhere very irregular. The main projections are Yalmal Peninsula, between the Kara Sea and the Gulf of Obi; and Taimur Peninsula, which terminates in Northeast or Chelyuskin Cape, the most northern point of Asia.

It is not known when the Russians first visited the Yalmal Peninsula; but it was certainly from the south that traders and hunters first worked their way thither by the Obi River and the Gulf of the same name. In 1593 there was a Cossack station established at Berezof, on the Obi River, latitude 64° N.; so that it is probable that, during the early part of the seventeenth century, Russians had pushed down the river to the Yalmal Peninsula to trade with the Samoyedes. The first surveying party of which we have a record is that under Selifontof, who in 1737 went by reindeer sledge along the west coast of Yalmal, crossed by boat to Beli Island, and then returned and surveyed the coast of the Gulf of Obi, mapping it with fair accuracy.

During the next hundred years a few expeditions touched on Beli Island, or the northern part of the Yalmal Peninsula. The best accounts of the country, however, are given by Nordenskjöld, who visited the west coast of Yalmal in 1875. He landed in latitude $73^{\circ} 18' N.$, longitude $68^{\circ} 42' E.$, and describes the region thus: "The land was bounded here by

a low beach, from which at a distance of one hundred paces a steep bank rose to a height of from six to thirty meters. Beyond this bank there is an extensive, slightly undulating plain, covered with a vegetation which indeed was exceedingly monotonous, but much more luxuriant than that of Vaygats Island or Nova Zembla. There is no solid rock here. The ground everywhere consists of sand and sandy clay in which I could not find a stone so large as a bullet or even as a pea, though I searched for a distance of several kilometers along the strand bank."* At this time, none of the Samoyede inhabitants were seen, but there were many traces of men, reindeer, and dogs. On a slight promontory they found a sacrificial mound, consisting of a pile of, "forty-five bears' skulls placed in a heap, a large number of reindeer skulls, the lower jaw of a walrus," and other bones. Some were fresh, and still had flesh clinging to them, while others were overgrown with moss and lichens. In the middle of the heap were four erect sticks of wood, three feet long, and decorated with bear and reindeer skulls.

The low sandy coast here offers no inducements to sea fowl, and, as there are no cliffs near by for breeding, Arctic bird life is almost entirely wanting. There are, however, some of the larger animals on the island, for Nordenskjöld saw a herd of reindeer when he landed.

In 1878 the *Vega* expedition also made an excursion on Beli Island, which Nordenskjöld found to be low, flat and sandy, scarcely rising more than nine feet above the sea. Back from

* Voyage of the Vega. pp. 157-160.

the water the sand is, "covered with a black and white variegated covering of mosses and lichens; scattered among which at long intervals are small tufts of grass. First somewhat higher up, and properly only round the marshy margins of the numerous small freshwater lakes and in hollows and bogs, is the ground slightly green. The higher plants are represented by only seventeen species, all small and stunted, most of them rising only some few lines [one line is one twelfth inch] above the sand. Very few plants reached the height of fifteen centimeters [about five inches]. No kind of willow was found, nor any flower seen of any other color than green or white."*

In the southern part of the Yalmal Peninsula there are some low hills which are really a northeastern branch of the Ural Mountains. Just south of Kara Bay the Ural Mountains proper begin as low hills, but increase in height and ruggedness; so that they have an elevation of over three thousand feet on the Arctic Circle. This extreme northern portion is barren, and entirely destitute of trees.

The region between the Gulf of Obi and the Yenisei River is better known than the Yalmal Peninsula, because more frequented by hunters, and more easy of access. The land is low, and full of swamps and lakes, which are frozen the greater part of the year; while the ground never thaws out to a depth of more than a few inches. There are almost no permanent settlements here, except along the Yenisei River.

The first mapping of the Gulfs of Obi and Taz, and Gyda

* Voyage of the Vega. pp. 153-155.

Bay, which branches off to the southeast from the extreme northern end of the Gulf of Obi, was done by Owzyn between the years 1734 and 1737. During these four years he attempted three times to sail from the Obi to the Yenisei River. The first two expeditions were made on a "double sloop, the *Tobol*, seventy feet long, fifteen feet broad and eight feet deep," built at Tobolsk. This carried fifty-three men with two cannon, and was accompanied by several small craft with provisions. Soon after entering the Gulf a storm wrecked one of the small boats, which delayed the expedition so that he only reached 70° N. Lat., when he had to return to Obdorsk for the winter. The next spring he started again, but all but seventeen of the fifty-three men on board were suffering severely from scurvy; so that he had to turn back, and take his men to Tobolsk. The next year he tried again, with the same result; but in 1737, with a new ship, he sailed successfully out of the Gulf of Obi and up the Yenisei to $71^{\circ} 33'$ N. Lat., where he wintered.

A good description of the lower Yenisei River and the Gulf is given by Nordenskjöld, who visited the region in 1875.* At the very mouth of the Gulf of Yenisei is the large island of Sibiriakof. This is so low that it cannot be seen from the channel in the east arm of the river, which is usually taken by vessels. For this reason it was never mapped till after the *Vega* expedition had landed there in 1875. In fact, it had never been mentioned before that time, and Nordenskjöld

* Voyage of the *Vega*. pp. 285-291.

found no signs of man's having lived on the island or even visited it. He found it covered with typical tundra vegetation, and saw reindeer pasturing on the "low grassy eminences."

The east shore of the Gulf at the northern end is high, and hills of from four hundred to six hundred feet can be seen in the interior from the water. Ascending the river, the vegetation quickly changes from the typical Arctic Ocean flora. Where the river banks are of loose earth, the west strand is low and marshy, while the east "consists of a steep bank ten to twenty meters high, which north of the limit of trees is distributed in a very remarkable way into pyramidal pointed mounds. Numerous shells of crustacea found here, belonging to species which still live in the Polar Sea, show that at least the earthy layer of the tundra was deposited in a sea resembling that which now washes the north coast of Siberia." *

Only the upper part of the tundra thaws out here in summer. In places, sections show that the earth alternates with layers of pure rock ice, as the natives call it. In this frozen strata, mammoth carcasses with the flesh still unputrefied have been found, and new stores of ivory are opened up every year as the river cuts into its eastern bank.

"Besides there are to be seen in the most recent layer of the Yenisei tundra, considerably north of the present limit of actual trees, large tree-stems with their roots fast in the soil, which shows that the limit

* Voyage of the Vega. pp. 286-287.

of trees in the Yenisei region, even during our geological period, went further north than now, perhaps as far as, in consequence of favorable local circumstances, it now goes on the Lena."*

Most of the tundra is scantily covered with moss, and has but little grass. The valleys, however, are very rich in vegetation. Nordenskjöld says that in places as far north as 71° there were "actual thickets of flowering plants." At the very mouth of the Gulf of Obi there are a few exceedingly small willows, and in latitude 72° 8' dwarf birch and cloudberries. However, the limit of trees does not begin till the great bend of the river in latitude 69° 40' N., is reached. Here the trees are "half-withered, gray, mossgrown larches, which seldom reach a height of more than seven to ten meters, and which much less deserve the name of trees than the luxuriant alder bushes which grow nearly two degrees farther north." † Not far south of here, however, the pines begin, and mark the northern border of the enormous forest belt of Asia.

In 1879 the region north of Goltschicha was uninhabited, but there were many deserted houses, showing that it had once been settled, probably when hunting and fishing were better. The climate here is very uncomfortable. The winters are cold, and the summers exceedingly short, and subject to almost continual fogs.

The region east of the Yenisei has been very little explored, except along the rivers, the principal of which are the Piasina

* Voyage of the Vega. p. 287.

† Ibid. p. 289.

and Taimur on the peninsula of Taimur, the Khatanga River and Gulf, which form its eastern boundary, and the Anabara and Olenek, which flow into the Arctic Ocean west of the Lena delta. All these rivers rise within or near the Arctic circle. But, while most of the region is level or slightly rolling tundra, the low range of the Biranga Mountains runs across Taimur Peninsula. These start at the Piasina River, and extend with a northeasterly trend to a point somewhat east of the Taimur River, where they turn due north and end in North-east or Chelyuskin Cape.

Although native hunters come north from the forest belt to these arctic tundras, we have no record of any naturalist or European explorer having crossed overland from the Yenisei to the Lena rivers previous to the expedition of Mr. Stadling, who traversed the region in 1898 on a futile search for some traces of Andree. From the Lena delta he crossed north of the forest line to Rybnoie, on the Khatanga River, then in a crooked line still north of the forest belt to Dudinskoe, on the Yenisei River, about 69° N. Lat. The total distance traveled from the Lena to the Yenisei was one thousand eight hundred and sixty miles which he accomplished in fifty-one days. With the exception of the western end of his course, which Middendorff covered in traveling from the Yenisei to Lake Taimur, the journey was through a section never before trodden by a civilized man. The usual course across country here is in the forest belt further south.

Concerning the tundra in the central part of the Taimur district Stadling says:

“This Nosovaya tundra, the highest tundra on the Taimur, is flat and abounds in marshes and lakes, making traveling easy in good weather. . . . At one place near a lake we found to our surprise, a thin forest of small and stunted larch trees, forming an island in this boundless, frozen ‘sea’ as the natives in their picturesque language call the tundra. In this same lake region we came upon a number of very poor native families of various races, occupying themselves with fishing and trapping foxes.”*

Most of the natives on the Taimur Peninsula, are Shamans, pure and simple, and have not become even nominal Christians. In this they differ from the tribes in general, who, as a rule, have outwardly accepted the beliefs of the Orthodox Church, but inwardly stake their faith in Shamanism.

Along the Khatanga River there are a number of prosperous native villages or camps. Here is found a race of people called Dolgans, who have a mixture of Yakut and Tungus blood in their veins. Throughout all this region the natives are cheated and fearfully maltreated by the merchants, who keep them in poverty by selling them alcoholic drinks, and paying them almost nothing for the furs they buy.

On the Khatanga River, in latitude 72° 46' N., Stadling found a cluster of “dwarf and stunted Siberian larch trees” which he thinks forms the most northern forest in the world. On the tundra between the Khatanga and Olenek rivers he observed what is more interesting, a quantity of “ancient driftwood in a stratum of soil from four to seven feet thick, resting on pure ice of unknown thickness, here playing the part

* Through Siberia. By J. Stadling. pp. 240-243.

of rock."* Further reference to this will be made later in speaking of similar deposits on the Lena River.

The delta of the Lena and the mouth of the Olenek River, which flows into the Arctic Ocean but a short distance from the western branch of the Lena delta, has been the arena for two of the most tragic events in the history of Arctic exploration; Prontschischev's attempt in 1737 to sail from the Lena to the Yenisei River around Taimur Peninsula, and the loss of De Long's party in 1881.

Lieutenant Prontschischev tried to sail from the mouth of the Lena around to the mouth of the Yenisei. He reached, after much difficulty, the most northern point of Taimur Peninsula and had he had steam would have succeeded in his object, but his sail boat could not work its way through the ice, so he had to turn back to the mouth of the Olenek for the winter. Contrary winds and ice kept them off shore for six days, during which time they were almost in sight of their haven. Before they reached it, however, Lieutenant Prontschischev died and, two days later, his wife, who had accompanied him. Both were buried near the mouth of the Olenek, where a rude cross still marks the spot. Nordenskjöld says:

"To Prontschischev's melancholy fate there attaches an interest which is unique in the history of arctic exploration voyages. He was newly married when he started. His young wife accompanied him on his journey, took part in his dangers and sufferings, survived him only two days, and now rests by his side in the grave on the desolate shore of the Polar Sea." †

* Through Siberia. By J. Stadling. p. 209.

† Voyage of the Vega. pp. 541-542.

The remaining members of the expedition, under Chelyuskin, succeeded in returning to Yakutsk.

The fate of De Long's party, which is well known, was even more tragic. His steamer, the *Jeannette*, was wrecked on June 12, 1881, considerably northeast of the New Siberian Islands, in latitude 77° 15' N., longitude 154° 59' E. By working their way over the floe ice and through the open water in three boats, his party all succeeded in reaching a point ninety miles northeast of the Lena delta, where they were overtaken by a severe storm. The boat under charge of Chipp with its crew was lost, and the other two boats, under De Long and Melville, were separated.

Melville and his party reached the mouth of the Lena safely, and proceeded up the river to get aid to search for their missing companions. The first of November at Bulun they found two of De Long's party, Nindemann and Noros, whom De Long had ordered on October 9, 1881, to march ahead and try to get aid and food for the remainder of the party. They told him that, after fearful suffering and struggling, they two had reached a deserted hut on October 19. Here they found some half-rotten fish remnants, which they ate, and then tried to proceed, but lacked the strength. On the 22d they were discovered by a native, Androssoff, who brought them food, and then took them to Bulun. They tried by gestures to get them to understand that there was a party down the river who were starving. The natives only hurried them on up the river all the faster, so it was not till after Melville found them that aid was started to De Long's party. Had

Nindemann and Noros succeeded in making the natives understand at first, De Long might have been saved. As it was, the last camp of De Long's party was not found till March 23d, 1882, when Melville discovered De Long's arm sticking out of the snow. From the position it was evident that he died while trying to move his records back from the river to higher ground, where the spring floods would not wash them away. The last entry in his journal was, "Oct. 30, (1881) Sunday—Boyd and Görtz died during night. Mr. Collins dying." A large wooden cross on Monument Cape marks the spot where Melville buried De Long and his companions, but the bodies were later removed to this country. The cross over the spot bears an inscription to the "Memory of twelve of the Officers and Men of the U. S. Arctic Steamer *Jeannette* who died of Starvation in the Lena delta, October, 1881." Then follow the names of De Long and his companions.

The delta of the Lena is intersected by a labyrinth of channels which divide the fan-shaped projection of land which it has built up, into thousands of islands. The larger of these are fine hunting-grounds, for the wild deer come up here by thousands to escape the heat and mosquitoes of the mountain region further south. In returning, the deer have special places where they swim the different channels, and here the natives reap their harvest, spearing them while they are swimming. Foxes and bears, as well as fish and sea birds, abound here; so that it is in every respect a first-rate hunting-ground, and hence much frequented by the native tribes during the summer and early autumn.

Stadling, when on the delta in 1898, learned from one of the chiefs, that

“formerly the inhabitants of the delta had numbered about 1,000 souls, but about ten years ago nearly half that number had perished from the terrible smallpox, so that the whole population at present is not much more than 500. These are divided into groups, each under an ‘elder,’ somewhat after the fashion of the Russian peasant communities.”*

They are nomadic, living on the mainland during the winter, and on the islands during the summer and early autumn.

The most western branch of the mouth of the Lena flows along the edge of a low mountainous region in a northwesterly direction. The most eastern branch is like a long broad bay, which describes a semicircle around the northern spur of the Kara Ulak range, which terminates in “Stolb” or Pillar-Mountain, a “weird-looking lonely” peak rising one thousand feet above the water. After flowing north around this point, the channel turns to the southeast, and enters the Arctic Ocean a little below 72° N. Lat. The mountains, one of whose ridges pushes up into this curved branch of the river’s mouth, are one thousand three hundred feet high; and, although called the Kara Ulak range, are really a continuation of the Verkhoyansk Mountains. In fact, the lower mountains extending northwest and lying just south of the delta belong to this range, and terminate abruptly in the Arctic Ocean, about 73° N. Lat., 123° E. Long. Included between these two great arms of the river’s mouth is the enor-

* Through Siberia. By J. Stadling. p. 169.

mous archipelago of the delta. Its western part, according to the latest Russian map, is composed of a few large islands. The largest of these is Khaigalagsky, which has an area nearly equal to that of Connecticut, and along its northern coast is permanently inhabited; there being a number of native huts and small villages upon it. The western part of the archipelago is a wilderness of small low islands and ramifying channels.

Above the delta the Lena flows through a rather narrow channel, which it has cut through the Kara Ulak Mountains. In this section, Mr. Stadling made some very interesting discoveries which bear on the recent geological history of the country.

"On the west side of the river, where Bulkur is situated, the ancient beaches of the gigantic river form terraces for a distance of about ten miles or more inland, and through these old river-banks the tributaries of the Lena, like the river Bulkur, have cut their way. One day, following the latter river some six miles to the west, I left its valley and ascended to the highest of these terraces or ancient beaches. Here, ten miles from the Lena, and about 600 feet above its present level, in a layer of soil composed of turf and mud mixed with sand, resting on a foundation of solid ice as clean and blue as steel and of unknown depth, I found large quantities of drift wood, evidently brought down by the river at the remote period when it had its course here." *

The significance of this does not seem, however, to be, as Mr. Stadling suggests further on, that the terraces were made before the river had cut through the Kara Ulak Mountains,

* Through Siberia. By J. Stadling. pp. 158-161.

but rather that this rock ice of "unknown depth" had been formed during a subsidence of the land. Over this the river deposited the soil and driftwood, which has since been raised, and through this ice and frozen soil the river has cut the valley which it now occupies. The deposit of rock ice seems to be general along this section of the Arctic Littoral at least; for, on the tundra west of Olenek, Stadling found this rock ice also covered with wood and soil. The height of it above the sea is not given, but must be considerable, as the location is a long distance south of the Arctic Ocean.

From the Russian geological map published in 1899, it appears that the rocks along the west bank of the lower Lena are of an age between the Jurassic and the Cretaceous; that is, they correspond to the Volga formation of Russia. These rocks extend along the coast to the west as far as the mouth of the Anabara River. At the mouth of the Olenek River there is a small patch of Triassic rocks. Going up the Anabara River, there is a series which starts with a small area of Lower Jurassic at the Arctic Ocean. South of this is a narrow strip of the "Volga" formation, followed by Cretaceous, and later by Lower Jurassic. The mountains between the Lena River and Borkhaya Bay are largely composed of Upper Carboniferous rocks, some Triassic appearing near the head of the delta. In the central part of the delta there is marked a patch of Quaternary.

To the eastward the Arctic Littoral as far as mapped, that is to the mouth of the Khroma River, is mostly Quaternary, except the recent deltas of the rivers, which are quite extensive.

Where the mountains to the south begin, about 70° N. Lat., Tertiary rocks are found. Sviatoi Cape, which projects towards the New Siberian Islands, is a dyke of diabase, several isolated knobs of which are found in that vicinity, and also on the New Siberian Islands.

The New Siberian Islands consist of four large and several smaller islands. They were often sighted, especially Liakhof, the most southern one, by early voyagers, among whom was Bokhoff, who saw it in 1761, and described it as a high-lying island. The first to actually land there was Liakhof, who in 1770 visited the island which bears his name, and also Maloi and Kotelnoi islands.

“On this account he obtained an exclusive right to collect mammoth tusks there, a branch of industry which since that time appears to have been carried on in these remote regions with no inconsiderable profit. The importance of the discovery led the government some years after to send thither a land surveyor, Chvoinov, by whom the islands were surveyed, and some further information obtained regarding the remarkable natural conditions in that region. According to Chvoinov the ground there consists at many places of a mixture of ice and sand with mammoth tusks, bones of a fossil species of ox, of the rhinoceros, etc. At many places one can literally roll off the carpet-like bed of moss from the ground, when it is found that the close, green vegetable covering has clear ice underlying it, a circumstance which I have also observed at several places in the Polar regions. The new islands were rich not only in ivory, but also in foxes with valuable skins, and other spoil of the chase of various kinds. They therefore formed for a time the goal of various hunters' expeditions.”*

* Voyage of the Vega. p. 552.

Concerning Liakhof Island Dr. Bunge remarks that so much of the island is ice mixed with mud that if the temperature of its soil should remain above freezing a number of years all of the land would melt into mud and flow off into the sea leaving four rock hills standing to mark the old site. The Chancellor of Russia later ordered Hedenstrom, a Siberian exile, to explore and map the New Siberian Islands. Assisted by Sannikof, he began the task in March, 1809, and during the following two years made a fairly accurate map of the main islands of the group, Sannikof made several excursions to Kotelnoi Island. Here he found

“on the heights in the interior . . . skulls and bones of horses, oxen, buffaloes (Ovibos?) and sheep in so large numbers, that it was evident that whole herds of gramminivora had lived there in former times. Mammoth bones were also found everywhere on the island, whence Sannikof drew the conclusions, that all these animals had lived there at the same time, and that since then the climate had considerably deteriorated. These suppositions he considered to be further confirmed by the fact that large, partially petrified tree-stems were found scattered about on the island in still greater numbers than on Nova Sibir. Besides he found here everywhere remains of old ‘Yukaghir dwellings’; the island had thus once been inhabited.”*

In one place on the New Siberian Islands, Hedenstrom saw, in a walk of less than a mile, ten tusks sticking out of the ground, which gives an idea of their abundance.

From the early part of the nineteenth century until near

* Voyage of the Vega. pp. 555-556.

its close the islands were often visited by tusk hunters, but there was no adequate scientific exploration till the latter part of the century. In the chapter upon the Geology the specific results of the researches of Schmalhausen, Baron Toll, and Tscherski, who have made extensive studies of the plants and animals, will be given.

According to the Russian geological maps, the sedimentary rocks of Liakhof Island are entirely Quaternary, through which protrude five knobs of diabase. The island of Maloi is all Quaternary. The large island Kotelnoi has Devonian rocks along its west coast. Its extreme eastern coast is Quaternary. The northeast is Middle Devonian, and the southeast Triassic. There are several outcrops of diabase in the southern part of the island. The remainder of the group has not been well mapped geologically. Fadievskoi is partly Quaternary, and the western part of New Siberian Island is Quaternary and Miocene.

The Arctic Littoral east of the delta of the Khroma to Bering straits is indented by several bays, the principal of which are Chaun and Koliuchin. There are two good-sized rivers, the Indigirka and Kolyma. The northern spurs of the Stanovoi Mountains come near to the Arctic Ocean here, so that the tundra region is very much restricted. Nijni Kolymsk, at the mouth of the Kolyma River, is the only settlement of any size.

Off the mouth of the Kolyma River lie the Bear Islands, which are mostly "formed of a plutonic rock, whose upper

part has weathered away, leaving gigantic isolated pillars. Four such pillars have given to the easternmost of the islands the name of Lighthouse Island." *

This region was first visited by the Russians in 1639, when a Cossack, Elisei Busa, worked along the coast from the mouth of the Lena as far as the Yana River collecting tribute of the Yukaghir tribe whom he found living in earth huts. Not till 1644 was the Kolyma River discovered, and the town of Nijni Kolymsk founded by the Cossack Michailo Staduchin. He collected tribute from the natives, which cost him considerable fighting. However, it must have been a lucrative business, for several Cossacks petitioned immediately for a post on the Anadyr River, further east, to collect tribute.

The extreme eastern part of the Arctic Littoral was first visited by Bering in 1725, when he passed through the straits bearing his name.

* Voyage of the Vega. p. 323.

VI

THE PACIFIC BASIN

The Amur

THE Amur River, being one of the latest of Russia's acquisitions as well as one of the largest and most magnificent rivers of the world, has properly excited the greatest interest both of the Russians themselves and of all others who have observed the steps taken for its possession, and reflected upon its ultimate significance to the development of the Russian Empire in the east. This river, if we trace it to the sources of the Onon, its farthest tributary, rises on the Mongolian Plateau south of Lake Baikal not far from the city of Urga, and traverses in its course to the sea a distance of fully two thousand seven hundred miles, draining a basin of about eight hundred thousand square miles. In recent years its drainage basin has been somewhat curtailed by the diminished rainfall in Mongolia which has caused the Kerulun River, a former tributary, to stop short of reaching the Amur, its waters at the present ending in the enclosed basin of Lake Dali Nor.

Unlike most of the Siberian rivers, the main course of the Amur is east and west between definite parallels. Rising in

latitude 49° N. and longitude 109° E., it flows eastward in a series of great bends which cross the fiftieth parallel at three different points, but unfortunately at last turns northward into a narrow, ice-bound strait, which connects the Sea of Tartary with the Sea of Okhotsk, near the fifty-third parallel, thus interfering to a large degree with its value as a channel of communication with the sea. But its importance for internal commerce, and the vast resources of every sort furnished by the basin which it waters, make it a possession of inestimable worth,—the navigable waters of the basin being scarcely less than five thousand miles; while in the winter season its frozen surface furnishes an even more rapid line of communication by means of sledges.

A little above Nerchinsk, the Onon River is joined by the Ingoda, which, after rising in Mount Chokondo, where the short Daurian range of mountains joins the Yablonoi, runs northward at the base of the latter chain to the city of Chita, where it is joined by the Chita River, which comes down in an opposite direction for about one hundred and fifty miles along the eastern base of the same mountain chain. Here both streams, turning eastward, unite and become the Ingoda for a distance of about one hundred and fifty miles. Below the junction of the Onon, it goes under the name of the Shilka. At Nerchinsk, the Shilka is joined by the Nercha, which has had a course of about three hundred miles across this same low plateau which characterizes the region east of the Yablonoi Mountains. This plateau is called Dauria, and differs strikingly in its climatic conditions from the Vitim Plateau,

which is separated from it by so narrow a margin. But the difference of elevation is sufficient to account both for the difference of climatic conditions and for the great change in vegetation which is encountered on descending from the eastern border of the Vitim Plateau. As before remarked, this plateau has an average elevation of about five thousand feet, while that of Dauria, through which the head waters of the Amur have cut their channels, is only about two thousand five hundred feet above the sea. As one looks westward from Chita, the Yablonoi Mountains present an abrupt and unbroken wall to the right and to the left as far as one can see, giving one a very impressive sense of the abruptness of the change in physical conditions which here takes place.

Shielded by this wall from the cold northern winds, and facing the more genial rays of the southern sun unimpeded by the fogs which envelop the higher plateau, Dauria is rich in vegetation, and is well entitled to be called, as it is, the granary of the basin of the Amur. Here, in the words of Kropotkin, "in the spring the traveler crosses a sea of grass from which the flowers of the peony, aconite, *Orobus*, *Carallia*, *Saussurea*, and the like, rise to a height of four or five feet." Early frosts, however, make agriculture somewhat uncertain, so that cattle-breeding has from time immemorial been the main occupation both of the native Buriats and of the Russian colonists who have not been engaged in mining. But ever since the early part of the seventeenth century, this region has been best known on account of its mining industries, which have been mostly owned by the government and worked through penal

colonies. In the earlier part of the period, silver mines were chiefly worked, but in later times gold has been found in numerous rich placer deposits. Unfortunately, the unfriendly critics of Russia have been in the habit of transforming the words silver into quick-silver, and have never been weary of expatiating upon the horrors of the quick-silver mines to which exiles of various kinds were assigned. It is due to the truth, however, to state that there are no quick-silver mines in Siberia, and that the silver in the Nerchinsk region is found in conditions similar to those in which it is mined in other parts of the world.

The present head of navigation upon the tributaries of the Amur is fixed at Stryetensk, where the Siberian railroad also, for the present, has its terminus. But from the earliest occupation by the Russians the stream has been extensively used for transportation all the way from Chita, where innumerable barges have been built to be floated down with their cargoes upon the rising waters of the spring floods.

Two hundred and fifty miles below Stryetensk, the Shilka is joined by the Argun, a river of nearly equal length, which, in former times, when fed by the Kerulun, was of even greater length than the Shilka with its longest tributary, the Onon. The Argun up to the vicinity of Lake Dali Nor forms the boundary between Russia and Manchuria, and in high water is navigable throughout this portion of its course. Below the junction of these two rivers the stream is known as the Amur, and forms the boundary from Manchuria to its junction with the Usuri, one thousand two hundred miles below. For the



Typical Scene in the Upper Amur.

first five hundred and fifty miles of its course, it has cut a tortuous channel across the Great Kinghan Mountains, and occupies a deep trench which seems to have little available bordering land suitable for cultivation. So rough, indeed, is the region, that for the most of the distance the Russians have not made a wagon-road; so that, when it is impracticable to follow the river on account either of low water or the breaking up of the ice, communication except on horse-back is absolutely interrupted.

At Blagovestchensk the Amur is joined by the Zeya, a river eight or nine hundred miles in length, with wide-spreading tributaries, one of which, the Silinja, has a length of nearly four hundred miles. The Zeya is navigable for steamboats for three hundred miles of its course, and comes down from a region which is rich in gold mines. Blagovestchensk is less than four hundred feet above the sea, from which it is separated, as the river runs, by a distance of about one thousand three hundred miles, giving to the river below this point a gradient of less than four inches to the mile. It is, therefore, the natural stopping-place of the larger steamboats, though boats of smaller size have no difficulty in traversing the whole length of the river. Below Blagovestchensk, also, the main course of the river is through a level country with wide-expanding plains on either side, except where it crosses the Bureya, or Little Kinghan Mountains, about three hundred miles farther down. About midway between these points, the Amur is joined from the north by the Bureya, a navigable stream, which has a length of fully four hundred miles.

The channel which the river has cut across the Bureya Mountains is celebrated for its picturesque and beautiful scenery. The majesty of the slow geological forces which have produced this channel is appreciated by a little reflection. The Bureya range consists for the most part of stratified rocks which have been thrown up across the valley in a north-and-south line to a height of several thousand feet. The channel of the river across this range is mainly one of erosion. As the rocky barrier slowly rose, the river was successful in sawing a channel down as fast as the mountains rose, so that now there is scarcely any change in the gradient of the stream where it crosses this mountain chain from what it is both above and below.

Sixty or seventy miles east of the Bureya Mountains the Amur is joined by the Sungari, a river of so much importance that the Chinese have claimed it as the real extension of the Amur. This river with its branches drains all the northern and central part of Manchuria, and is navigable for steamboats of large size as far up as Harbin, a distance, as the river runs, of nearly five hundred miles, while smaller boats make use of it as far up as Kirin and Tsitsikar, on branches coming in from the north and south, each terminus being as much as four hundred miles from Harbin. The total length of the river is not less than a thousand miles, with a drainage basin of more than two hundred thousand square miles, or two thirds that of the Danube. A large part of this basin consists of fertile prairie land still open to cultivation. The new Chinese Eastern railroad, which is the proper extension of the

Siberian railroad, bisects this valley in both directions, thus making it especially significant with respect to the Russian interests.

At Khabarovsk the Amur is joined by the Usuri, whose sources are four hundred miles to the south, and only a short distance from the Pacific Ocean. This river now forms the boundary between Manchuria and the Russian province of Usuri, which has the Japanese Sea for its eastern boundary for a distance of nearly a thousand miles. The Usuri is navigable for steamboats about three hundred miles to Busse, where it is joined by the Sunsala, a navigable tributary, connecting it with Lake Khanka, which is partly in Russian and partly in Chinese territory. Southward from Lake Khanka the boundary line follows irregular spurs of the Long White Mountain, of Manchuria, to the mouth of the Tuman River, which separates the Russian possessions from Korea, about one hundred miles south of Vladivostok. The southern part of the province of Usuri is watered by rivers of no great length; the principal one, the Suifun, being less than two hundred miles long. The watershed between these streams and the Usuri is less than a hundred miles from the Japanese Sea, and is only a few hundred feet above sea-level.

Vladivostok has a magnificent harbor in the Gulf of Peter the Great, in latitude 43° N. Naturally this has been made a point of great importance to the Russian government, both because of its capaciousness and protected position (being completely enclosed and capable of containing the navies of the world) and because of its low latitude, though even here

the harbor is ice-covered during three months each winter. There will, however, be no serious difficulty in keeping the harbor open by the use of ice-breakers of modern construction. Vladivostok, therefore, is likely to maintain its importance, notwithstanding the possession of Port Arthur, for it is nearer to Central Siberia by two or three hundred miles, and is the natural outlet to all the lower part of the Amur Valley and of the province of Usuri. The beauty of its situation, the relative mildness of the climate, and the fertility of the Suifun Valley, together with the proximity of coal mines of considerable importance, are sure to give to the city a permanent and increasingly important position in the future.

The area included between the sea and the Usuri and the lower part of the Amur River is about nine hundred miles long and two hundred miles wide. The Sikhota-Alin Mountains fill the larger part of the area, the main ridge, about five thousand feet in height, being considerably nearer the sea on the east than to the river valley on the west. This mountain ridge is without any natural passes until reaching nearly the fifty-second degree of North latitude, where it is penetrated in its narrowest part by Lake Kizi, which reaches nearly all the distance from the Amur River to the Bay of De-Kastri, which sets in westward from the Strait of Tartary. It is thought that the Amur formerly emptied into the strait along this opening, which is about one hundred and fifty miles south of its present mouth. The Sikhota-Alin Mountains are covered with dense forests through which it is almost impossible to work one's way except by cutting a path. But

the broad valley of the Usuri presents extensive tracts of alluvial soil, which are rapidly attracting a large body of emigrant peasants from the plains of Russia; but the climatic conditions are a serious drawback to the prosperity of the settlers, the winters being cold, and the summers so wet as to interfere with harvests. The Usuri and the Amur are here frozen in November, and heavy rains are likely to occur in August.

The lower part of the Amur is also subject to enormous inundations. Though the ordinary channel is two miles wide, the water in consequence of these storms sometimes rises fifteen feet in a few days, and spreads out over a breadth of fifteen or twenty miles, rendering navigation for small boats extremely difficult. It is not an unheard-of thing for a river steamer in time of high water to be stranded on the flood-plain some distance from the main channel and find itself, upon the subsidence of the flood, high and dry upon the land, where its only hope of deliverance is a similar flood in the following year, or perhaps in the same season. Both the Usuri and the Amur are favorite resorts of salmon, and, in the month of August, fairly swarm with these fish ascending from the ocean to their spawning places farther up. The plants and animals of the region present a unique combination of species belonging both to the warm climates of the south and the colder regions of the north. The vines here are found clinging to the northern larch and the cedar-pine, and the tiger of the south mingles with the bear and sable from the north.

The principal island in Asiatic waters belonging to Russia is that of Sakhalin. It is separated from the main land by the Strait of Tartary, and stretches along nearly parallel with the main shore for a distance of about six hundred miles, extending from latitude $45^{\circ} 54'$ N. to $54^{\circ} 21'$. It has an area of something over thirty thousand square miles. The island cannot be said to be desirable as a place of residence, for the climate is both cold and damp, the average temperature, though in the latitude of Northern Italy, being about the same as that of Archangel; while, at the principal port in the south end of the island, two hundred and fifty days of the year are said to be foggy or rainy, with even a worse record for the eastern shore. The island consists, essentially, of a low mountain range, none of whose peaks are above the limits of perpetual snow and which up to a height of one thousand five hundred feet is covered with coniferous trees, and higher up, toward the summit, with birches, willows and creeping shrubs. In most respects the plants and animals resemble those of the bordering mountain region of the Usuri. The tiger, even, is said at times to cross on the ice at the Strait of Mamia Rimso. Nevertheless, the native population is estimated at fifteen thousand, and the island has become noted, since the Russian occupation, as a center to which prisoners of the worst class have been exiled, and set to work in the coal mines; coal being found here in considerable quantities, and being especially valuable in supplying the wants of the Pacific coast.

PART II
Russian Occupation

VII

THE CONQUEST OF SIBERIA

Yermak

SIBIR was the name of the small city on the Irtysh River occupied in the sixteenth century as a capital by the Tartar prince Kutchum. The capture of this place in October, 1582, was the first step in the conquest by the Russians of the vast area now known as Siberia, and later of the still larger area which can be included under no less general phrase than Asiatic Russia.

It was early in the autumn of 1582 that Yermak with his followers set out to cross the Ural Mountains for the conquest of the mysterious regions beyond. The most they knew of the country was that the friendly and innocent tribe of Ostiaks who inhabited the northern and middle parts of the Obi Valley, and who might easily be made to pay annual tribute of valuable furs to the Tsar, was being pressed northward by a powerful Tartar tribe advancing from the south. The triumphal progress of the Tartars had already curtailed the revenues of the Russian government from that quarter and was likely to curtail them still more.

As remarked at the outset, Yermak was supported in his daring adventure by the Strogonofs, a rich and powerful family of merchants who lived near Perm in the valley of the Kama River on the western flanks of the Ural Mountains. The Strogonofs provided Yermak and his fellow Cossacks with a reinforcement, bringing the total command up to eight hundred men, equipped with the best firearms obtainable at the time. They provided them also with a large stock of provisions to meet the unknown contingencies which might arise in an unexplored country inhabited by vigilant enemies. Three priests, likewise, and a runaway monk were sent along to look after the spiritual wants of the company. With these preparations the expedition started from Perm upon the 1st of September (old style), which, according to the Russian calendar at that time in use, was the first day of the year.

The Ural Mountains are here so broad and low that they offer no real obstacle to the passage from Europe to Asia. Only a few peaks in this vicinity attain a height of more than 2,000 feet above the sea, while the approach to the lower passes from both sides is so gradual as to be almost imperceptible. At the present time the railroad has no difficulty in finding an easy grade in its passage from the valley of the Volga to that of the Yenisei. Yermak, therefore, could easily begin his journey with a fleet of boats, which was rowed and poled and towed up the Chusovaya and its tributary, Serebrianka, as far as the supply of water would permit.

Over the shallows Yermak is said to have forced his heavily laden boats by damming the stream with his sails to provide

a sufficient depth of water. When the utmost limit of navigation even by these means had been reached, the party dragged their boats over the short portage separating them from the headwaters of the Taghil, which leads into the Tura, upon which the important city of Tiumen now stands.

While passing down the Tura, the expedition was attacked by the Tartars; but, as they had only bows and arrows, the firearms of Yermak gave him a great advantage, terrorizing the enemy as much by what they thought to be manufactured thunder and lightning as by the actual injury inflicted. When at last the Cossacks succeeded in capturing a Tartar, they impressed his imagination with the power of their firearms by showing how thick a plate of mail could be penetrated by a musket ball. From the terrorized prisoner, they learned that they were in the territory ruled by the celebrated Tartar chieftain, or khan, Kutchum, who at a previous time had put to death an envoy of Ivan who had been sent to ask tribute from the Tartar. Kutchum, who, like all other Tartar princes, gloried in being a descendant of Jenghiz Khan, was now indeed old and blind, but he was still energetic, and had the loyal support both of his tribe and of his kinsmen, whom he had trained to follow in his footsteps. But the Tartars were unpopular with the Ostiaks, because of their efforts to convert the natives to Mohammedanism.

Kutchum, however, was not at all dismayed by the reports which reached him concerning the power of the firearms possessed by his enemy, and made vigorous efforts to resist their progress. At a narrow place in the river he stretched iron

chains across to stop the progress of the boats, while he prepared to make a vigorous attack from the bank. But Yermak outwitted his enemy by a clever device. Dressing up bundles of sticks to resemble Cossacks, he had them placed in the boats with a few pilots to steer them in their progress down stream, and thus made the Tartars believe that he was descending to meet them in their chosen line of battle. In the meantime, however, the larger part of the Cossacks had been landed above to attack the Tartars by a flank movement in the rear while they were upon the bank awaiting the opportune moment for destroying Yermak's fleet when it should strike the iron chain. So perfect was this surprise that Kutchum's men fled with scarcely any resistance.

But on approaching Sibir, which was not far from the present city of Tobolsk, the Cossacks found a large army thirty times their own number gathered, not only to resist the invaders, but prepared to take the initiative and attack them with cavalry, which they did with great force. The Tartars, however, like the Mexicans in their conflict with Cortez, were not prepared to stand against an army provided with firearms which sent invisible missiles with deadly force to unheard-of distances, and which by effects resembling thunder and lightning, made their possessors seem to be in league with supernatural powers. The Cossacks inflicted a crushing defeat upon the Tartars, but at the loss of some of the bravest of their number.

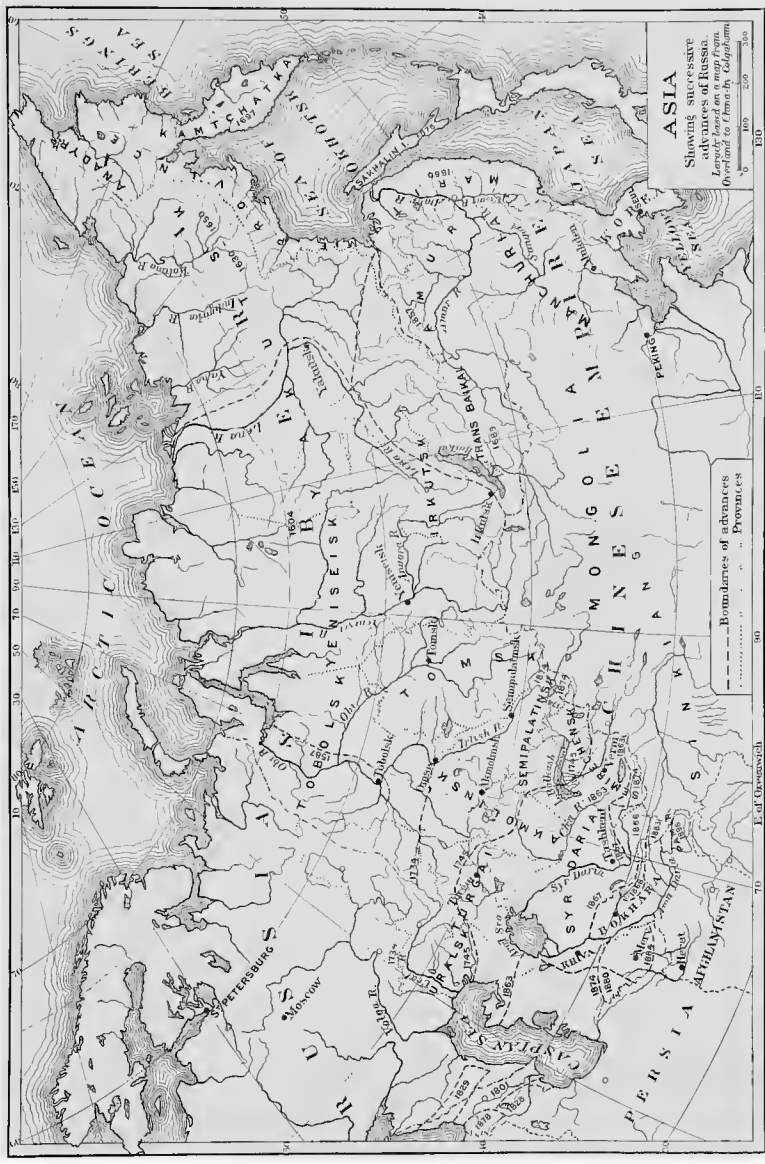
Descending now still farther upon the river Tobol, the Cossacks were continually harassed by unseen enemies on the

bank, but at last they reached the Irtysh River, and advanced to Sibir, where Kutchum had made preparations for a final defense. The Cossacks were now fifty days' journey from their starting-point in the Kama Valley, and the season was so far advanced that ice would soon begin to form upon the Siberian rivers. So far their success had been so problematical and purchased at so great a price, that they naturally hesitated at the prospect of risking everything upon a single battle so far away from their base. But Yermak pointed out to them that there was really nothing else for them to do. The near approach of winter precluded retreat; their only hope lay in fighting and winning a decisive battle.

The Tartars were well intrenched behind a bristling abattis. Nevertheless, on the morning of October 23d, (o. s.) 1582, the Cossacks boldly began an attack. Such was the number of the Tartars, however, that, rushing out from their intrenchments, they completely surrounded their enemy, so that the Cossacks seemed to be able to do little but sell their lives as dearly as possible in a forlorn hope. Fortunately for them, Mahkmetkul, a near relative and chief lieutenant of Kutchum, whose leadership was absolutely essential to the party, was hit by a bullet in the early part of the battle, and incapacitated for further part in the contest. Thus deprived of their leader, the Tartars were defeated, and Kutchum, on hearing of it, fled southwards, both to save his own life and to do what he could toward repairing the fortunes of his tribe.

This third victory was, indeed, most important to the Russians; but it also had cost many lives and greatly weakened

their force. Nevertheless, there was nothing for them to do but to remain and brave the rigors of the approaching winter. On the 26th of October, Yermak took possession of the town which was to become the nucleus for the expansion of the Russian Empire in Asia, and to give to the Empire its euphoni-ous name. In the captured city it is reported that the Cossacks found rich treasures of silk and fur and gold; but their own provisions were nearly exhausted; and no food had been left in the town. The defeat of Kutchum, however, had won for the Russians the favor of the Ostiaks, who, as we have seen, were already disaffected towards the Tartars. On the 30th of October, they offered their allegiance to the Russians, and brought tribute of various kinds, including food. Nor was it long before the Cossacks, having taken advantage of the present lull in the contest with the Tartars, had formed fishing and hunting parties to add to their stock of provisions for the long winter which was approaching. These parties, however, did not find themselves as secure as could be desired. In December, a company of twenty were massacred by the Tartars. Upon hearing of it, Yermak at once set out from Sibir to avenge the outrage, when he found that Mahkmetkul had recovered from his wound, and was the leader of the attacking party. Yermak was, however, able at this time to inflict upon him so severe a defeat that he suffered no further disturbance during the winter. But in April, 1583, Mahkmetkul again approached his ancient capital, though with only a small force; so small, indeed, that a company of ten Cossacks took them by surprise both dispersing them and capturing



ASIA
 Showing successive
 advances of Russia.
 Limits based on a map from
 Overland to China by Colquhoun.

Mahkmetkul. The power of Kutchum was thus completely destroyed, and Yermak had succeeded beyond all reasonable expectations in accomplishing the object of his expedition. He promptly sent parties down the Irtysh and the Obi who easily secured the submission of the native tribes, and collected from them large tribute.

After so successful a completion of his arduous and daring task, Yermak not only sent his congratulations to the Strogonofs for their encouragement, but even ventured to address a letter to Ivan the Terrible, who had passed sentence of death upon his chief lieutenant for his early misdeeds and robberies. In this letter, he offered to Ivan the land of Sibir as the fruit of his venture, and laid it at the feet of the Tsar as he begged pardon for the past misconduct of his followers. The messenger who carried this letter was none other than Ivan Koltso, his companion chief who was under sentence of death for his former misdeeds. But with the letter Koltso delivered, likewise, the captured Mahkmetkul into the hands of the Tsar, together with many valuable presents. This speedily allayed the wrath of Ivan, and aroused the greatest enthusiasm throughout Moscow. Yermak was at once exalted to the position of a hero of the first degree. His monument now fittingly occupies the most conspicuous place in Tobolsk, the commercial center of Western Siberia, and his exploits form the basis of innumerable popular songs and legends, while the houses of the Russian peasants are everywhere adorned with his pictures.

But the labors of Yermak were not yet ended. and he sadly

needed reinforcements. These, however, laden with rich presents to the surviving Cossacks and a fur mantle for Yermak selected from the imperial wardrobe, were speedily sent to reinforce the depleted ranks of the successful Siberian adventurer. But the five hundred *strielitz*, or ordinary soldiers which the Tsar sent, were not adequate to the occasion. They had not been inured to privations as had been the Cossacks who formed the original company, nor did they know so well how to take care of their health. The hardships of the following winter led to a violent outbreak of scurvy. The commander of the reinforcements himself died of the disease, together with many of his soldiers. Through craft and deceit, Yermak's favorite lieutenant, Koltso, with a party of Russians, was surprised and put to death by the Tartars. Whereupon the tribes which had so readily yielded their allegiance revolted and besieged the Russians in Sibir. Quickly surrounding the city with a line of carts, they both prevented the Russians from coming out for the attack and protected themselves from their firearms. But on a cloudy night (June 12, 1584), the Russians by stealth penetrated the line of wagons, and surprised the Tartars in their sleep, killing them in great numbers. Whereupon Karatcho their leader fled southward to the Steppes of the Ishim to join Kutchum, who was still alive, and meditating revenge upon the Russians.

The opportunity for revenge came all too soon. Yermak, on learning that a party of merchants from Bokhara were endeavoring to reach Russia for purposes of trade but were prevented by the opposition of Kutchum, promptly set out

with a party of fifty Cossacks to open the way for the caravan. Encamping for the night on the banks of the Irtysh, with the boats moored near by, the Russian party, while in a deep sleep, was surprised by Kutchum. In a storm which arose during the night chosen for the attack, the boats broke loose from their moorings and drifted down the river, and the Russians were prevented from hearing the approach of the enemy. Finding an unguarded entrance to the Russian camp, the Tartar cavalry entered without opposition, and butchered all but three of the company.

One of these was Yermak, who, seeing the desperateness of the situation, rushed for the boats to effect his escape. Finding that they were gone, he attempted to swim the river, but was dragged to the bottom by the weight of his armor, and drowned; thus ending his eventful career. His two companions, however, managed to elude the enemy and bring away the disheartening news. A little later Yermak's body was found by the Tartars, who, after subjecting it to unworthy indignities, at last buried it with special honors, distributing his armor among the Tartar chiefs. Seventy years afterwards, however, the Russians regained his coat of mail, and preserved it as a souvenir of a heroic and successful chieftain who had accomplished for Russia more than any other single individual had ever done. He had in deed and in truth laid the foundations of that greater Russia whose vast proportions and inspiring possibilities, after four hundred years have elapsed, are only now beginning to attract the attention which they properly deserve. Up to the time of Yermak, the

policy of Russia had been one merely of defense. So far, she had been satisfied to drive back the Tartar hordes, and timidly maintain for herself a partial independence, if that indeed can be called independence which is only obtained by the paying of tribute. But Yermak had succeeded in putting the Tartars upon the defense, and in making Russia an aggressive power in the East.

The death of Yermak had for the time a depressing influence upon the Cossacks, who inconsiderately resolved to return to Russia, and actually commenced the retreat by withdrawing from Sibir. But before they had made much progress they met a hundred reinforcements who had been sent on by the Tsar for their relief. It was, however, too late for them to regain their abandoned position at Sibir, since it had been quickly occupied by the mobile and ever-watchful Tartars. But meanwhile Kutchum had lost hold of his followers, and had been driven from power by another chieftain. While the Tartars were thus weakened by internal dissensions, three hundred new reinforcements, commanded by Tchulkoff, joined the Russians. But even then, instead of risking an attack upon Sibir, the Cossacks contented themselves with building (1587) a new town upon the present site of the city of Tobolsk, about twelve miles distant from Sibir, where, after a short period of disturbing conflicts with the Tartars, they ever after lived in peace. It is interesting to note, also, in passing, that Kutchum, after he was cast out from the Tartar capital in his old age and blindness, appealed to the Tsar for protection, and for a time received it. But when, after a

little, his pride drove him back to his countrymen, he was murdered, and his old capital gradually lost its importance, until now nothing but a few uncertain ruins mark the ancient site.

The conquest of the central valley of the Irtysh by Yermak was speedily followed by an attempt at colonization. In 1586 a number of peasants were settled in the country and encouraged to develop its agricultural resources. The most of these, however, were soldiers who were compelled to combine with their agriculture the duty of collecting tribute, of traffic, and of self-defense, the last of which was by no means easy or unimportant. As there was no natural boundary line between their territory and that of the Tartars, who roamed over the broad steppes stretching southward to the Aral and Caspian seas, the Russians were constantly subject to raids from their mobile and remorseless neighbors. A line of forts was built by the Russians to afford partial protection. These, like the early block houses in the United States, consisted of inclosures surrounded by pointed beams firmly set in the ground, which very well served to give protection against sudden attacks, and to give shelter to a considerable band of Cossacks with their families.

In 1594 the town of Tara, about two hundred miles above Tobolsk, on the Irtysh River, had its origin in such a fort, or *ostrog*, as it is called. Originally this consisted of a rectangle one thousand four hundred feet long, and one thousand and fifty feet wide, surrounded by a palisade, inside of which were log houses for the accommodation of the Cossacks and their

families; while in the center there was a smaller inclosure, about three hundred feet square, which contained the church, the governor's residence, the powder magazine, and the public storehouses. Twenty years later Kusnetzk, in the Altai Mountains, at the head of navigation, on the river Tom, four hundred miles to the southeast of Tara, and five hundred and seventy miles from Tobolsk in a straight line, was founded in a similar manner, and the small company of Cossacks in these two fortresses were expected to protect the whole intervening area between the Irtysh and the Obi River known as the Barabinsk Steppe. Naturally, however, so weak a force could afford but indifferent protection. Though the fortresses were supplied with cannon and the Cossacks with firearms, they were unable effectually to stop the inroads of the Kirghiz and Kalmuck Tartars. The outlying stations were frequently burnt; while, sixty years after the conquest of Yermak, the Tartars advanced far enough north to endanger the Russian settlement in Tobolsk. Indeed, it soon became evident that the Tartars in their normal home south of the fifty-fifth degree of latitude, were too numerous and too warlike to admit of the further expansion of Russian settlements in that direction. This obstacle upon the south continued for two hundred and fifty years to be the means of diverting Russian enterprise from further efforts in that direction, and of turning it to the more inhospitable northern portion of Siberia, where it has accomplished such remarkable results.

Yermak's Successors

Interest in the occupation of Siberia was maintained and stimulated by the opportunities for trade which were soon opened. In Mexico and Peru it was gold and silver which stimulated the Spanish explorers. It was the valuable fur-bearing animals scattered over the vast wastes which excited the cupidity of the Russian adventurers in Siberia. Of these the most highly valued was the sable, now almost exterminated by the hunters, but which in 1640 yielded no less than six thousand eight hundred skins, being in fact so common that the Siberian Cossacks used its fur for their coat linings; while already in European Russia they had become so scarce as to bring an exorbitant price. Not only sable, but foxes, snow foxes, ermines, squirrels, bears, reindeer, and hares provided a great store of furs which it was profitable to transport to the mother country. To obtain these treasures, independent hunting and trading parties of Cossacks set out in all directions, oftentimes interfering and quarreling with each other when they chanced to meet in the same locality. A large tribute of furs was also exacted from the Ostiaks and Samoyedes. As early as 1593, or a year before the founding of Tara, the Cossacks had descended the Obi River to the sixty-fourth degree of latitude, N., seven hundred miles below Tiumen, and founded the trading-post of Berezof, which is still an important Siberian town.

Following the lines of water communication offered by the wide-spreading branches of the Obi, the Russian adventurers reached the Yenisei River in 1620, though probably sporadic

expeditions had visited the river two or three years earlier. In order to appreciate the enterprise which carried the explorers thus far, it is necessary to note the length and the difficulties of the journey by which the passage is made from one river valley to the other. First, after having crossed the Ural Mountains by a journey of not less than four hundred miles to reach Tiumen, they must descend the Tura and Irtysh rivers for a distance of five hundred miles to the Obi, at about the sixty-first degree of latitude, when they must ascend the Obi for a distance of fully six hundred miles, to the mouth of the River Ket, which in turn must be ascended for a distance of three hundred and sixty-five miles, where the explorers, turning aside into the Lomovataya, must ascend it and its principal tributary, the Yazevaya, until, after fifty-five miles, they reach Lake Bolshoe, four miles in length. From the end of this lake, a portage of five miles brings them to the head of the Kas, which, after one hundred and thirty miles, joins the Yenisei about one hundred and fifty miles below Yeniseisk, the first important settlement effected upon that river.

It is possible, however, that the first explorers ascended the main stream of the Ket to a point more nearly opposite Yeniseisk, and made a longer portage of forty or fifty miles. The entire distance by the only practicable route of travel was not far from two thousand two hundred miles, one half of which in either journey, going or coming, must be made up stream. The boats used were of the most primitive kind,

often being nothing but rafts, while their one-masted vessels with decks upon them were less than one hundred feet long, put together without the use of iron, their anchors, even, being made of wood loaded with stone sinkers. Their ropes and their sails were made of the skins of animals. Nevertheless, with these rude conveyances communication was kept up between a line of settlements scattered along this whole distance of more than two thousand miles, and with others established at feasible points upon either side. The junctions of nearly all the streams, as well as the portages between the headwaters of the different drainage areas, were naturally the favorite places of settlement.

But years of experience and the occurrence of repeated catastrophes of floods were needed to teach the settlers to build upon the bluffs rather than upon the low banks of the stream, whose floods, owing to the obstructions of ice in the higher latitudes of the river course, were phenomenal and terrific in their extent. The distance was so great from their starting-point that these settlements were compelled to be somewhat permanent in their character and to serve as winter quarters to which the hunting parties could retire upon the close of the season. Here in a commodious but rude log hut, with an earthen stove to furnish heat and the most primitive arrangements for admitting light, the hunters would cluster together to await the opening of spring. Oftentimes these huts would be completely enveloped in the snow, their presence being betrayed solely by the column of smoke which continuously

arose from the chimney. But wherever the Cossacks went, a rude cross of wood was erected to distinguish their houses from those of the natives.

As time went on and success attended the exploring parties, settlers of a more permanent order followed in the wake of the early adventurers. To some extent the first explorers intermarried with the natives, but the number of such marriages is surprisingly small; much less, for example, than those which took place between the French trappers and the Indians of America. Then, as at all times in Siberia, Russian women were ready to follow their husbands and lovers wherever they went. In 1630, one hundred and fifty women and girls emigrated to Tobolsk at one time. Still the men were always somewhat in excess and in advance of the women, and the efforts of the home government, both to protect the natives, and to preserve the morality of the explorers and adventurers, were not altogether successful. The exercise of justice and humanity was always freely enjoined upon them; but, in the absence of oversight, many irregularities occurred, and the traders often degenerated to the level of freebooters, robbing the natives of what they should have obtained only by fair purchase. As late as 1662, the patriarch of Moscow complained to the archbishop of Tobolsk that his subjects were grossly neglecting their religious duties, and violating the plainest rules of morality in their associations with native women, even going so far, it was alleged, as to sell them and exchange them in a most scandalous manner.

On the Yenisei River, the Cossacks met the Tunguses, a

branch of Mongols, related to the Manchus, who extend from the Yenisei to the Pacific Ocean. These stoutly resisted the collection of tribute, and were brought into subjection only by several years of war; while the Buriats, another Mongol race, occupying the upper portions of the river, succeeded in maintaining their independence for twenty or thirty years longer, and temporarily turned the tide of Russian emigration from the upper part of the Yenisei Valley into that of the Lena. It was not until 1648 that the Russians succeeded in following up the Angara River to Lake Baikal, and in establishing a fort on the east side at the point which is now known as Verkhni Udinsk.

Meanwhile, in 1628, the enterprising adventurers had crossed from the Yenisei to the Lena, and established a fort at Yakutsk in 1637. This they accomplished only by a long and most tedious route up the Angara and its tributary the Ilim to a difficult portage near the fifty-sixth degree of latitude. The distance from Yeniseisk to this portage is not less than seven hundred miles, which had to be made against numerous rapids where the water was often insufficient, so that the Cossacks were compelled to resort to the old device of Yermak of securing a sufficient depth by damming the streams with their sails. The portage also, was long and difficult. For thirty or forty miles, the sledges had to be hauled overland, and each sledge could convey only about one hundred and fifty pounds of provisions.

An even longer route was established by going down the Yenisei six hundred miles from Yeniseisk to Turukhansk, at

the mouth of the Lower Tunguska River, and thence, following up that stream for a thousand miles, to where it approaches near Kirensk, still closer to the Lena than the Ilim does, the portage here being but ten miles. After reaching the Lena River, however, by either of these portages, it was still nearly one thousand miles down the river to Yakutsk. To increase the difficulty, the Russians were bitterly opposed at these portages by the Buriats, and were compelled to carry on a long and expensive warfare before they were freed from molestation. In 1641, and soon after, two expeditions were sent against them,—one under Vassil Vlasieff, and a later one under Vassil Bugor,—which succeeded in accomplishing their objects only by the total annihilation of the existing force of Buriats. Vassil Bugor, in reporting upon the success of the one hundred and thirty Cossacks under his leadership, says, “By the grace of God and the good luck of the Emperor, the imperial soldiers stood firm, and the Bretski (they were five hundred) were all destroyed to a man.” Such was the vigor of this resistance that, as already remarked, it was not until 1648 that a fort was established on the east side of Lake Baikal at Verkhni Udinsk; while Irkutsk was not founded until 1651, fourteen years after the establishment of Yakutsk.

With their headquarters now in the valley of the Lena, about four thousand miles away from their starting-point in the valley of the Kama, the restless Cossacks continued their explorations in almost every direction beyond. In 1630, two years after reaching the Lena, we find them following up the channel of the Aldan River to its sources in the Stanovoi

Mountains, from which they could almost look over into the waters of the Pacific. Here the difficulties of farther progress were greatly increased by the rapidity of the descent upon the eastern side; for, as we have seen in describing the country, the entire descent was made in a distance of twenty or thirty miles in the narrowest place, and even where the distance is greater by streams that were utterly unnavigable. Nevertheless, in 1639, they succeeded in crossing the mountains and in descending the Ulia River to the Sea of Okhotsk, about fifty miles south of the present town of that name.

Meanwhile, in 1636 a company of ten Cossacks were sent out from Yeniseisk to explore the lower part of the Lena River. They wintered at Olekminsk, at the mouth of the river of that name, and about half way down towards Yakutsk. Here they were joined by forty trappers, and with them, upon the breaking-up of the ice, descended on the bosom of the swift current of the Lena so rapidly that they reached the Arctic Ocean in ten days. Having passed through the western branch of the delta, they were not far from the mouth of the Olenek River, a stream nearly one thousand miles in length, which in the lower half of its course, as already described, is nearly parallel with the Lena, and only from twenty-five to one hundred and fifty miles distant. After having found a direct pathway across the space between these two rivers (coming out upon the Lena two hundred and fifty miles above its western mouth), and having spent the winter in safety in one of the secluded bays, the leader of the expedition (Elisei Busa) set out in 1638 with two vessels to explore

the country farther to the eastward. Passing around the broad delta of the Lena, after five days' favorable sail, he reached the mouth of the Yana, about three hundred miles east of the Lena. This river, whose headwaters are near the mouth of the Aldan, and connected with it by a favorable portage, has a length of about six hundred miles and affords a favorite hunting-ground for the aboriginal inhabitants. Ascending it for some distance, he spent three weeks in collecting tribute, and returned to Yakutsk before the close of the season.

But in 1639 Busa was despatched again to carry on explorations upon the Arctic coast still farther eastward. This time he easily reached the Indigirka, which enters the Arctic Ocean considerably east of the New Siberian Islands, and about four hundred miles in a straight line east of the Yana River. This river, also, has its sources not far from the great bend in the Aldan River, with which it is connected by an easy portage. Its total length is fully seven hundred miles, and its valley is a favorite hunting-ground for the natives. Here he found in the interior a new tribe, called the Yukagirs, intervening between the Tunguses on the coast and the Yakuts in the interior. With them he remained on friendly terms for three years, building a fort on the river's bank.

In 1642 Busa returned to Yakutsk, and created much excitement, not only by the great success he had had in trading with the natives and in collecting tribute from them, but in the glowing reports which he gave of the country, and especially by the news obtained from native sources which he brought, that there was another river still farther to the east

which could be reached from the Indigirka by reindeer sledges in a week's time, and which was rich in silver mines. As the vigorous hunting of the fur-bearing animals had already begun to reduce their numbers, the additional prospect of obtaining silver as well as new hunting-grounds whetted the appetite for adventure beyond all control. Under the lead of one Bugor the Cossacks speedily set out for the new Eldorado, but did not find what they expected. The silver was a myth. To recoup themselves for their losses they added more zeal in the collection of furs from the natives, and grew less and less scrupulous in their means of obtaining them. Their exactions at length so exceeded all bounds that the Yukagirs revolted, and, having surreptitiously obtained firearms, were at first a match for the Cossacks. The insurrection was not quelled until 1645.

The hardships of border life, and freedom from central control, produced in the Cossacks of the region many undesirable characteristics, and led to atrocities which detract much from the pleasure of the story. It took a year for a messenger to go from Yakutsk to Moscow, and another year to return; so that it was almost impossible to redress any evils that were reported to the Tsar. Nor was it merely the natives who suffered from these irregularities. Bugor, who had won the victory over the Buriats already referred to, set out from the upper part of the Lena for the reported silver mines of the northeast district, but he carefully avoided passing through Yakutsk, though the commander there was his military chief to whom he was under obligations to report. In explanation

of this irregular conduct he wrote to the Tsar that he had already suffered so many indignities from the commander at Yakutsk that he did not feel it was safe to trust himself again in his hands. We have endured, he says, from him, "knout and fire and exposure and cold" and sufferings that are beyond all endurance. If it was thus with the Cossacks, how must it have been with the natives! Unable to escape to the south, on account of the more warlike tribes in that direction, the Yukagirs retreated to the northeast to the very extremity of the continent, where they were hemmed in between the Russians and the icy sea of the north, until at length their power was completely broken. The atrocities that accompanied the victory of the Cossacks are probably far from being fully reported, but can easily be imagined.

The discovery and exploration of the last of the Siberian rivers flowing into the Arctic Ocean were reserved for Michailo Staduchin, who in 1644 entered the Kolyma, whose mouth is about three hundred and fifty miles east of the Indigirka, and nearly one thousand miles east of the Lena. This river he described as rivaling the Lena in size and importance, as well he might when one considers the extent of its delta and the primitive means he had of exploration; for, though the river has not a length of more than seven hundred miles, it is fed by so many wide-spreading branches that its volume near the mouth is exceptionally large. In the delta of this river the Cossacks first found the tusks of the mammoth, which occurred in large heaps, and furnished a most valuable article

of merchandise, thus beginning a trade in this region which even in our own times continues to have great importance.

Up to this time the trade with the river valleys east of the Lena was all conducted by water, the rude river vessels descending the Lena from Yakutsk, and then braving the hazards of the Arctic Ocean for a coast voyage of several hundred miles. Frequently these expeditions involved untold dangers and hardships. Timothy Buldakoff was the leader of one such. In 1649 he left Yakutsk, but failed to reach the ocean before winter. On June 2 of the next year he reached the sea only to find that the winds blowing from the north had brought so much ice with them as almost effectually to impede navigation. After waiting, however, for a month, the wind changed and he made progress for a while, getting as far as the Bay of Omoloeva, about one hundred miles from the mouth of the Indigirka, where, after being drifted about for two weeks by adverse winds, he found the season so late and his boat so disabled, that he returned to the mouth of the Lena. Finding here eight other Russian vessels bound on their way to the east, he started back with them. But by the end of August they had succeeded only in reaching Cape Sviatoi, about half way between the Yana and the Indigirka, and exactly south of the New Siberian Islands.

Here the whole fleet was frozen in, notwithstanding the desperate efforts which were made to break the thin ice and to force their way through it when first it began to form, while on the 1st of September a change of the wind from land-

ward to seaward drifted them out into the ocean for five days, when the whole sea froze over. Not knowing the direction of the land, they here abandoned their vessels, converting portions of them into sledges, and set out to find their way to a place of safety. As Buldakoff had been intrusted with government stores, he directed his efforts to the saving of them; but the trappers and traders of his party were more anxious to save their own effects than they were to save those of the government. "We do not know," said they, "where to find the land, or whether we shall live to reach it; we cannot carry those things without sledges and dogs." But Buldakoff set them a noble example by burdening himself with twenty pounds of government stores, and persuading the soldiers to carry three pounds each, and the traders one pound. Before reaching land they were attacked by scurvy, and only after nine days of exhausting labor in dragging their sledges did they get ashore. Their shoes were worn out, their clothes were in tatters, and they were shivering from cold and well-nigh perishing from hunger. In this plight they found themselves at the mouth of the Indigirka, which they were still compelled to ascend for some distance before reaching a comfortable wintering place, where a company of tax collectors were stationed some distance up the river.

Human nature being the same in Siberia that it is in all other parts of the world, the refugees came near being starved to death in this lonely place by the inhumanity of the speculative provision dealers. Though there was in the hands of one of these a stock of twenty thousand pounds of wheat and flour,

it was reserved for profitable barter with the natives. As the Cossacks had nothing but credit to offer, they were unable to purchase anything from the dealer, even though they offered to sell themselves to him as serfs. They were hence compelled to move on, with nothing but "larch-prickles" to satisfy their hunger. On the strength of such food, they traveled for a month longer, until they reached more humane specimens of humanity on the river Mazeya.

The Northeast Territory and Kamchatka

Up to this time no one had advanced along the coast beyond the mouth of the Kolyma, but on June 20, o. s. (June 30, n. s.), 1648, Simon Dejneff set out from the Kolyma to discover another river which was supposed to exist still farther east beyond the Stanovoi Mountains, which here project themselves abruptly against the northern ocean. But finding no great river, he continued his course until he came to Bering Strait, which he boldly passed through, and then turned westward along the southern shore. This was long before Bering the reputed discoverer of the strait was born, being in fact eighty years before the passage of the strait by the German navigator. Had his expedition been adequately reported at the time, this important connecting link between two seas would have been named Dejneff Strait, instead of Bering Strait.

Proceeding along the barren and deeply indented coast upon the south side of the peninsula, Dejneff's party came at length to the broad Gulf of Anadyr, and following up the bay of the same name, supposed that they had accomplished the object

of their journey when they found the mouth of the Anadyr River. Whereupon half the party, twelve out of twenty-five, were commissioned to explore the valley. But the country was found to be so rough and inhospitable that not even a path could be found, and after three days' absence, the men became so weary and depressed in spirit that they sank down helplessly to sleep in the snow. The most vigorous efforts to arouse them were unavailing. The leader, Permiak by name, with one trapper hastened back for relief, which was speedily sent, but all too late. Their companions could not be found; they had perished, and the drifting snows had so completely covered them that their last resting-place was never known.

Winter being now at hand, Dejneff established his quarters upon the land, and laid the foundations for the modern fort (or *ostrog*, as it would be called in Russian) of Anadyrski, which still remains the most distant Russian post in Asia, being nearly seven thousand miles by any practicable route from Moscow. But even here he was not beyond the reach of jealous rivals. Staduchin, with whom we have already become acquainted as the explorer of the Kolyma, had coveted for himself the privilege of exploring the country still farther to the east, and felt keenly his disappointment at being anticipated by Dejneff. He, therefore, set out on an independent expedition, and, passing from the valley of the Kolyma over the Stanovoi Mountains to the headwaters of the Anadyr, had followed that stream down to its mouth, where he arrived shortly after Dejneff's party had established themselves there for winter quarters. The character of Staduchin, however,



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had sadly deteriorated under the influences of irresponsible frontier life, and, taking advantage of the weakness of Dejneff's party, he robbed them of their furs and of their provisions, and went so far as to humiliate their leader by striking him in the presence of the natives. Not content with this, he put forth the claim that it was he, and not Dejneff, who had first passed around the Great Cape which formed the eastern extremity of Asia. Thus humiliated, Dejneff was compelled to lead a wandering life upon these inhospitable shores for the rest of his days. For six or seven years he was known in the region as a successful trader and hunter, when he disappeared, about 1654, from the knowledge of the civilized world, illustrating in his whole career the hardships attending the class of pioneer explorers to which he belongs.

During the progress of these events in the northeastern extremity of the Asiatic continent, other Cossack adventurers were slowly making their way from the middle valley of the Lena over to the Sea of Okhotsk, one thousand five hundred miles in a straight line southwest of the Anadyr. In 1647 Ivan Athanasieff, with a company of fifty-four Cossacks, crossed the valley of the Aldan River, a distance of five hundred miles in a straight line eastward from Yakutsk, and, having descended the short eastern slope of the Stanovoi Mountains, permanently intrenched himself on the bay of Okhotsk. Here he was vigorously resisted by the Tungusian warriors, who outnumbered him twenty to one, but the superiority of his arms and of his discipline gave him the advantage, and they were speedily brought into subjection, and

compelled to pay exorbitant tribute. Infuriated by the exactions of their conquerors, the Tunguses made repeated efforts to free themselves from the yoke, and maddened the Cossacks by mutilating the bodies of those whom they had slain in battle. It is to be deplored, yet not to be wondered at, that the Cossacks retaliated by the practice of similar barbarity.

The result is the same whether in the wilds of Siberia or of America: the pioneers who are far beyond the reach of the central government become a law unto themselves, and in dealing with the aborigines descend to their methods and manners. The story of the Cossacks in their dealing with the native races of Siberia can be easily enough equaled in that of the frontiersmen of the United States, who have by similar means gradually wrested the continent of America from the improvident hands of the Red Indian. At Okhotsk, however, the contest was long and bitter, and without any prospect of establishing in the place any important center of civilization. The resources of the country are too scanty for the maintenance of anything higher than the conditions of barbarous life. In 1654 the Russian settlement was burned, and the settlers only saved from extermination by the arrival of reinforcements from Yakutsk. At the close of the nineteenth century the place is reduced to a few rude houses with scarcely any permanent occupants.

A little later than this, there followed the discovery and exploration of Kamchatka. For some time the settlement at Anadyrski was the sole representative of Russian power on

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the Pacific coast east of Okhotsk. Though the advance of Russian occupation from the Urals to Bering Strait had been accomplished in less than eighty years, it was nearly fifty years after the settlements of Anadyrski and Okhotsk before Kamchatka was occupied. This, however, does not seem so strange when one takes into account the unattractiveness of the region, and the difficulties of moving from point to point along that inhospitable coast. The means were not at command to build sea-going ships, while the coasts were too rugged either to furnish shelter for the navigator or to permit of roads or even respectable trails for the traveler by land. The enterprise which finally led to the exploration of Kamchatka surpasses the ordinary conceptions of even the novelist.

The Russian hero of Kamchatka is Vladimir Atlasoff. He was a peasant boy who had emigrated with his father from the valley of the Kama in European Russia, and spent his early years on the Lena River, where he entered the Cossack organization, and at length became a commander of fifty. Early in the season of 1695, he was commissioned with thirteen Cossacks to go from Yakutsk to Anadyrski and take control of the collection of tribute at that point. They set out across the country, a distance of one thousand, five hundred miles in a straight line. There was no trail, and the party had to find their own way through forests and swamps and over mountain ranges and across river valleys. Part of the way they went by water, and part of the way by horseback and reindeer, but much of the way on foot. Nearly four months were

consumed in the journey. Late in the summer, however, the party arrived at their destination with unimpaired health and in good condition.

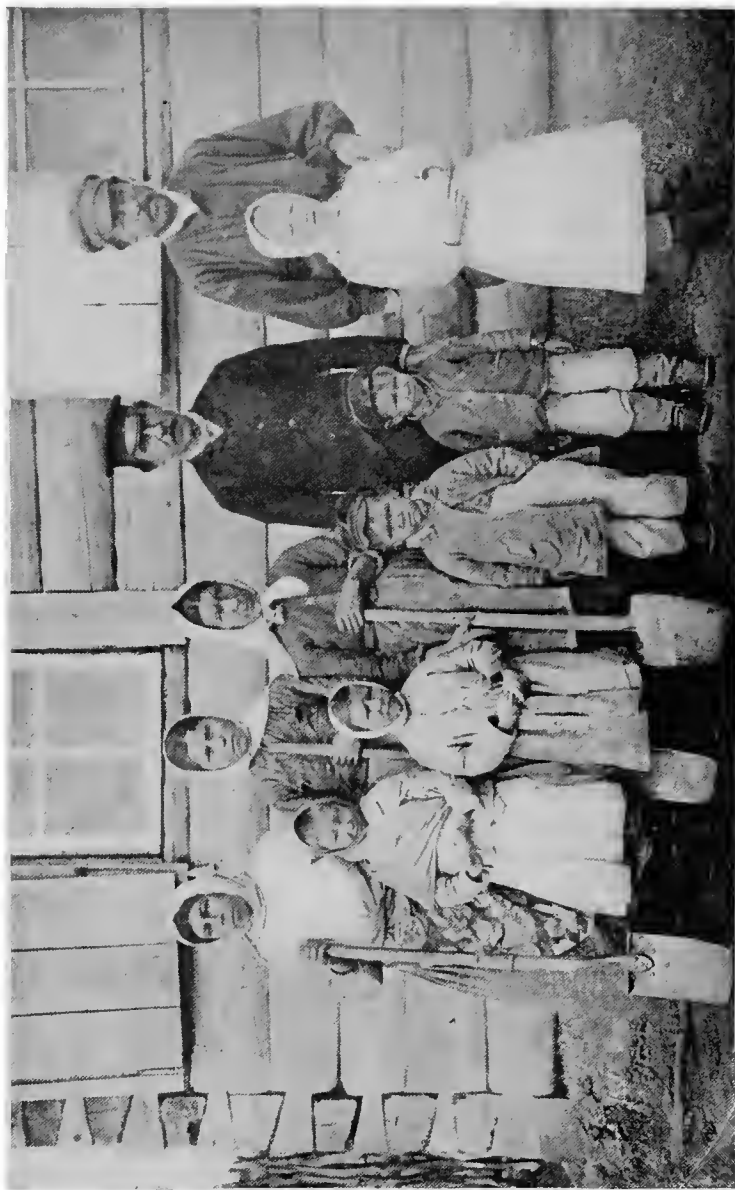
Such success naturally bred contempt of danger, and all through the long winter Atlasoff and his companions occupied themselves, as it is said the Russian pioneers are always much in the habit of doing, with discussing great plans for the future. Erman tells us that in Berezof, far down upon the Obi River, he found in the winter season that

“instead of the system of contracting for services usual in the mother country, recourse is had to an avocation quite as shifting and as various. This business is very significantly noted in Siberia by the term *promuist*, a word hardly known in European Russia which . . . signifies every kind of inventive and active care for the future. . . . The first Russian adventurers took a pride, and with good reason, in the new-found appellation of *Promuishleniki*, or ‘discoverers,’ as they dispersed themselves through countries little known to them, and occupied by aboriginal tribes who were their deadly enemies. . . . The talent of the fathers has descended on the sons, and to this day the expression to ‘find out something’ (to discover some new art or resource) is the general watchword of all the men in Siberia.”*

Later Erman well remarks that “the downright necessity of maintaining without intermission a struggle with the rigors of the climate, has developed here, as in every sequestered spot in Siberia. the true genius of *promuist*, and with it the faculty of theoretical speculation among all classes of society.”

In the Ostrog of Anadyrski in the winter of 1695, the

* Travels in Siberia. Vol. i. p. 332.



Russian Inhabitants of Northern Kamchatka.



exercise of "promuisl" was practiced with most fruitful results. It was reported by a native woman that forty years before, a companion of Dejneff had been stranded upon the shores of Kamchatka, and that he found it filled with all the valuable furs which were the chief inducement to Russian exploration. But, unfortunately, he with his party had been massacred, and nothing but vague reports of his discoveries had reached his companions. These, however, were diligently collected, and formed the substance of many a conversation during the long winter at Anadyrski; while Atlasoff gathered together much further information confirmatory of the dim earlier tradition. To such an extent was their curiosity excited by these winter conferences that, in the spring of 1696, Luke Morozko was sent off with a small party to determine the truth of the vague reports, and to add, if possible, both to the wealth and to the renown of the whole official settlement. With little difficulty Morozko succeeded in penetrating to the center of Kamchatka, and returned with a large amount of tribute collected from the Koriaks, and reported that there would be little difficulty, even with their small force, in conquering the country and making it a permanent acquisition for the Russian Empire.

After whiling away another long winter in the pastime *promuisl*, Atlasoff himself early in 1697 set out with a larger force to make a permanent conquest of the partially explored peninsula. All the force that he could muster was sixty Cossacks and sixty Yukagirs. Dividing these into two parties, he himself followed down the western coast of the peninsula,

while Morozko with the rest followed the eastern coast. Atlasoff was unfortunate in his allies, who mutinied, and attempted to kill all the Cossacks, but succeeded only in killing three and wounding fifteen, Atlasoff himself being one of the wounded. But this did not hinder the expedition; the party proceeded to Cape Lopatka, at the south end of the peninsula, having marched a distance of one thousand four hundred miles. He then set out to return, but paused on the Kamchatka River to build a fort near the head of the valley, where a settlement is still known as Verkhni (Upper) Kamchatka. Here he left a small garrison and returned himself with the rest of the party to Anadyrski. The garrison, however, became discontented, and, in endeavoring later in the season to follow their leader, were all murdered by the Koriaks.

In hopes of obtaining adequate reinforcements for the conquest of Kamchatka, Atlasoff returned to Yakutsk in the summer of 1700. He carried with him, as a token of the wealth of Kamchatka, the large amount of tribute which had been collected. This and the story which he told aroused great enthusiasm among the Russians on the Lena, and he was sent on to Moscow to try the effect of his story upon the Tsar and his counselors. His expedition was successful even beyond his expectation. It had been so long since any important discoveries had been made in Eastern Siberia that all Moscow was excited over what they now saw and heard. The furs brought home as tribute were pronounced to be of the most valuable kinds, and they were certainly great in quantity. Atlasoff was honored on every hand, and was provided, both

in men and provisions, with all the reinforcements he could reasonably ask from the central government.

Leaving Moscow, Atlasoff paused at Tobolsk to recruit a larger force for his contemplated expedition. But on reaching the River Tunguska on his way to Yakutsk, he attempted to treat a Russian merchant named Loghin Dobrynin as he had been in the habit of treating the natives of Kamchatka. This merchant was coming down the river on a raft with a load of Chinese goods. Atlasoff proceeded to plunder his cargo; whereupon the trader entered a complaint against him at Yakutsk, which led to the arrest and imprisonment both of him and of the Cossacks who had been most intimately associated with him in the robbery, and here he was kept in prison for the next five years.

Meanwhile Kobeleff, his successor in Kamchatka, had continued to carry out the original plans for the occupation of the peninsula, and had rebuilt Verkhni Kamchatka, and established a new fort on the shore of the Sea of Okhotsk. This was in 1700. Two years later, Kobeleff's successor, Zinoveff, established a fort near the mouth of the Kamchatka River called Nijni (lower) Kamchatka. Two years later still, in 1704, Kolisoff explored the Kurile Islands, which form a continuous line between Kamchatka and Japan. But all these efforts at settlement proved abortive. In their isolation the Cossacks deteriorated and their discipline relaxed, so that in 1706 the natives were able to drive them out of the country, burning their settlements and committing wholesale massacres upon the intruders.

When things had come to this pass, the Russians began to think of Atlasoff in his prison at Yakutsk. Believing that he had already made sufficient atonement for this crime, they released him, and restored him to the command of the Cossacks in Kamchatka, where he was given almost unlimited authority. Thus armed and equipped he set out for Anadyrski, but on the way the Cossacks bitterly complained of the severity of his discipline, and sent charges against him back to Yakutsk. These complaints, however, did not prevent the progress of the party. In 1707 Atlasoff had reached Kamchatka again, had restored the posts destroyed upon the Kamchatka River, had defeated the natives in two important battles and so had re-established Russian authority in the peninsula. Still the severity of his discipline was such that the Cossacks mutinied, and, having seized Atlasoff, imprisoned him, and took possession of the goods which he had collected for himself, in addition to that collected as the government tribute during the few months of the occupancy. According to report these "consisted of one thousand two hundred and thirty-five sables, four hundred red foxes, fourteen grey foxes, and seventy-five sea-otters," which is in itself a striking commentary upon the richness of the country. In their complaints against Atlasoff, the Cossacks made various charges which seem to imply that, whatever cruelty their chief was guilty of was chiefly in the interest of good order and discipline, and for such protection of the natives as would tend to secure their good-will.

The authorities of Yakutsk scarcely knew what to do, for Atlasoff had the crowning merit of being successful in a

most difficult and dangerous enterprise where others had notoriously failed. Besides Yakutsk was so far away from Kamchatka that it took a year for news to come and go, and during that time no one could tell what changes had occurred. In the five years following 1707 as many different commanders were appointed at Kamchatka only to fail each in his turn. In 1710 indeed there were three commanders at once, Atlasoff had broken away from confinement and set up a government of his own at Nijni Kamchatka, while the new appointee had arrived upon the scene before the old one was willing to vacate his office. The Cossacks solved the difficulty by murdering Atlasoff and both of the regular appointees and electing a chief of their own.

But the new chiefs, Antzyphor and Kozyrefski, were no more successful than the regular appointees. Under their oppression the natives became desperate, and broke out in open rebellion, which was put down only after a number of desperate battles in which the losses of the natives were terrific. What they could not obtain by open force, however, the natives at length obtained by treachery. In the winter of 1712 Antzyphor with a small number of Cossacks endeavored to collect tribute at Avacha, near where the fortress of Petropavlovsk was subsequently established. Amidst mutual professions of friendship the transactions began; the Kamchadales readily surrendering a number of their principal men as hostages for their good behavior. At night these retired with the Cossacks to the principal building for sleep. But the natives had planned to burn the building in the night and with it all

the inmates. A secret passageway, however, had been prepared by them through which they expected their own men to escape. But after the building was fired, they learned, to their horror, that their hostages had been chained by the Cossacks, so that escape was impossible. The hostages, however, plead with their kinsmen outside to let the holocaust go on, if only, by perishing themselves, they could secure the destruction of the enemy. And so all in the building perished together.

Up to this time the immense distances to be traveled overland through inhospitable regions to reach Kamchatka, effectually prevented any oversight of the Russian forces despatched for the conquest and government of the country. A fort had been built on the river Penjina in 1708 midway between the Anadyr and the central portion of Kamchatka, where this river empties into Penjina Gulf, at the head of the peninsula. In 1714 a fort was built at Kintorsk to facilitate somewhat the passage from Anadyrski to the peninsula. At the same time expeditions were started out from Yakutsk to find a shorter way to the country by means of a direct route to Okhotsk and passage across the sea. Going up the Aldan River to the Maya, and turning from that into the Yudomo, they reached the Stanovoi Mountains near one of the branches of the Urak, which leads directly down to Okhotsk. The length of this trail was nearly one thousand miles, but that was short compared with the other. The rivers were indeed difficult to navigate, the mountains crossed were rugged, and the descent upon the eastern side too precipitous to admit of any naviga-



Two Kamchatkan Princes.



Kamchatka Female Faces.

tion upon the stream. But it was a great improvement upon the old way; while with seaworthy boats of moderate size built at Okhotsk, the communication with Kamchatka was direct. As a consequence of opening this new route, quiet soon reigned in Kamchatka, and it has ever since remained, if not a very valuable, at least a most interesting, portion of the Russian possessions in Asia.

Isolated as Kamchatka seems, it has been the stepping-stone to still larger and more important acquisitions. It was from the Sea of Okhotsk and harbors of Kamchatka that the Russian adventurers set out to discover Alaska, and to add it to the Russian domain; while between 1807 and 1812 settlements were actually founded on the Columbia River and in the vicinity of San Francisco; thus anticipating by more than a third of a century the advent of the United States upon the Pacific coast. The story of the transfer of Alaska to the United States in 1867 is too well known to need repetition, but the reminders of Russian occupation are still with us in the names of many of the islands, and in the provisions of the treaty with Great Britain in 1825 defining the limits of the territory, which, since the discovery of gold in the Yukon district, have become a bone of contention between the two great Anglo-Saxon nations. It was from Kamchatka, also, that finally, after two hundred years, the advance was made to the mouth of the Amur. But the story of that belongs to later times.

VIII

STRUGGLE FOR THE AMUR

IN order to complete the story of the occupation of the extreme portions of Northeastern Asia, we have anticipated other and more important events which were going on in the exploration of the upper basins of the Lena and Amur rivers. As already seen, the Russians in the second quarter of the seventeenth century had come in contact with the Buriats about Lake Baikal, and had met in them most vigorous resistance, but had succeeded in 1648 in establishing a fort at Verkhni Udinsk, on the east side of the lake. From the Buriats the Cossacks obtained vague reports concerning the headwaters of a great river some hundreds of miles east of Lake Baikal upon the other side of the mountains. Similar reports also came to the explorers in the Lena Valley of a great river to the south that could be reached by following up the Vitim and the Aldan. By consulting the map, one will see that, as already described, the headwaters of the Shilka, one of the principal tributaries of the Amur, interlock on the Vitim Plateau with both those of the Uda and of the Vitim; while the headwaters of the Aldan come from the same swampy plateau west of the Stanovoi Mountains from which issue those of the Zeya, which joins the Amur at Blagovest-

chensk. Among the ornaments which the Russians found in the possession of the Buriats, and even of the Tunguses, were many of silver, which presumably came from the vicinity of the celebrated Nerchinsk mines.

To get further light, an exploring expedition commanded by Maxim Nerphilieff, who had been prominent in circulating exciting rumors about the region, set out from the Lena Valley to follow up to its sources the Vitim River, thus hoping to reach the valley of the Shilka. After toiling the whole season to make his way against the stiff current of the river as it comes down from its elevation of five thousand feet on the Vitim Plateau, he was compelled to go into winter quarters not far from Lake Oron. Resuming his journey in the spring, and probably not being able to determine which was the main stream and which the tributary, he turned up the Tzipa, which comes in from the west, and so was led away from his object of search. But even here he gained much additional information from the Tunguses, learning that the Buriats in Dauria, on the east side of the Yablonoi Mountains, possessed firearms, and raised cattle and grain, and had silver which they exchanged with the Tunguses for furs and with the Chinese for silk. Even this information amply justified the expedition, and created much excitement upon his return to his compatriots on the Lena.

As a result of the report by Nerphilieff, Vassil Poyarkoff, a name almost as distinguished as that of Yermak himself, set out, in 1643, with one hundred and thirty-two men, mostly soldiers, to make a more thorough exploration of the coun-

try. But he took another route to reach his destination. Descending the Lena from Yakutsk to the river Aldan, he ascended this for a month with his boats to the Utchur, which he reached about the middle of July. This stream was found to be so rapid that it was with great difficulty that they could make any headway up it at all. But after ten days of arduous labor they succeeded in reaching the Gonom, which they ascended with even greater difficulty, losing one of their boats and spending five weeks, without attaining the object of their journey. Winter coming on, they established themselves in comfortable quarters, while Poyarkoff, with ninety of his men, pushed onward to cross the mountain and reach the more genial climate upon the other side. Those who remained behind were left under orders to follow him in the spring.

Crossing the low mountains on snowshoes, the advancing party descended a small tributary into the valley of the Zeya, thinking it to be the Shilka, having gone as much to the east of the point aimed at as Nerphilieff had to the west of it. However, he was really in the valley of the Amur, and had the prospect of its exploration before him. Building boats upon the Zeya during the winter, he descended the stream as soon as it was clear of ice in the spring of 1644, but did not care to venture upon the Amur until the companions he had left behind should arrive with their store of provisions. Erecting a fort, therefore, he quietly awaited their arrival, occupying his time meanwhile by attempting to get information from the natives. But naturally, being so far below the Nerchinsk region, he could get little information concerning the mines

or precious stones of which he was in search, while the rich placer gold mines of the Zeya region awaited discovery two centuries later. At first the Daurians, as the natives were called, received them cordially and furnished them food; but before long they became wearied of the friendship, and especially of the continued demands for food, and attacked the party, killing ten of their number. Through sickness and lack of food, forty more also soon died.

But at last Poyarkoff was joined by his companions with their stock of provisions, and all together descended to the Amur, still supposing it to be the Shilka. The region now entered differed greatly from any with which the Cossacks had heretofore been acquainted. On reaching the mouth of the Zeya, where the city of Blagovestchensk now stands, the Amur has emerged from the rugged area covered by the Great Kinghan Mountains, and has entered upon a part of its course where it rolls in slow but majestic volume through broad prairie regions, interrupted only by the Bureya (or Little Kinghan) Mountains, two hundred and fifty miles below, the elevation of the river at Blagovestchensk, one thousand, two hundred miles from the mouth, being less than four hundred feet above the sea. The climate, also, is mild in comparison with that of the Lena basin, and the plants and animals all wear a more southern aspect. The tribes living upon the river there owed allegiance to the Manchus, who had recently become the rulers of China, and were in the height of their power. But the natives, either from fear of their firearms or from indifference, offered no resistance to the progress of the

Russians. Delighted thus with these favoring conditions, and forgetting as far as possible the hardships from which they had so recently escaped, Poyarkoff and his party descended the river, quietly passed the mouth of the Bureya, threaded the tortuous gorge, one hundred miles long, through which the Amur crosses the Little Kinghan Mountains, and reached the Sungari River after three weeks of pleasant sailing, or rather floating.

The Sungari is of so much importance that, as we have said, the Chinese regard it as the main stream, and so Poyarkoff at first thought, believing that, so far, he had been upon the Shilka. He now paused at this important place to reconnoiter the situation, sending a party of twenty-five men for a short distance down the stream, all but two of whom were massacred on their way back. Nothing daunted, however, Poyarkoff went down the river with the rest of his party, and after a few days reached the mouth of the Usuri, and a little later ventured to go the rest of the distance to the very mouth of the Amur, where he established winter quarters, and the party by dint of great perseverance in hunting and fishing managed to keep themselves from starving until spring, when for a time they were compelled to live on roots and grass.

The return voyage, moreover, was beset with difficulties which were well-nigh insuperable. They had floated down the Amur in two months, but it would take many months more, indeed the entire season, to return by this route, even if, in their weakened condition, they should be unmolested by the natives who had displayed such hostility the previous summer.

In view of these difficulties, therefore, they resolved boldly to venture northward along the shore of the sea to Okhotsk, which had been discovered nine years earlier. But they had no boats, except those which they were able to build during the winter, nor did they have a compass or any means of mathematically determining their position, while none of them had ever been upon the ocean. Nevertheless, they made the venture, and, after hugging the shore for three months amid untold hardships, they were at last driven ashore at the mouth of the Ulia, about fifty miles south of their destination, where they were forced to spend the winter in an abandoned fort that had been used by the Cossacks at some previous time.

When spring opened, Poyarkoff, with a portion of his party, crossed the Stanovoi Mountains to the valley of the Aldan River, descending into it through the Maya. He reached Yakutsk, July 12, 1646, after an absence of a little more than three years, his party having traveled nearly five thousand miles. Two thirds of his men, however, had died, and all of them endured hardships which are too terrible to narrate. Even some of those who survived, it is said, had been compelled to resort to cannibalism. He had, indeed, discovered the mouth of the Amur River, but this was of no present advantage to Russia because of her inability at that time to take permanent possession. Poyarkoff, however, reported that a force of three hundred men would be sufficient to establish Russian rule over the entire region which he had traversed. Being a man of some literary pretensions, he has also left an intelligible account of the expedition, though, as already re-

marked, his entrance to the Amur through the Zeya led to serious geographical blunders, since he represented that the Shilka was a branch of the Sungari, and mistaking the Sungari for the Amur, thought that he had only reached the main river when he had reached the junction of the Sungari.

Though the government did not respond to Poyarkoff's appeal to send out a more formidable expedition for the possession of the Amur, private enterprise was not slow in taking advantage of the newly opened opportunities, and a name appears upon the scene which has been properly immortalized in that of the important city of Khabarovsk. Erothei Pavlof Khabaroff had emigrated from northeastern Russia to Siberia in 1636, reaching the Lena in 1638. There he engaged in hunting and trapping, sending parties up the Vitim and Olekma rivers, who spent their winters in these regions in capturing the sables and other fur-bearing animals which then abounded. His enterprise prospered, and he spent large sums of money in its extension and in trade, establishing meanwhile an important business on the portage between the Lena and the Yenisei at Ilimsk, and engaging in other profitable enterprises. The commanders of his various expeditions up the southern tributaries of the Lena brought back much information concerning the country, so that at last he learned of the short route from the Lena to the Amur which could be taken by following up the Olekma to its sources, where an easy pass at an altitude of less than three thousand feet leads to the head of the Amur, at the junction of the Shilka and the Argun. On making this known to the authorities at Yakutsk,

he was permitted in 1649 to enlist one hundred and fifty men for the purpose of exploring the region on his own account. The only conditions enjoined upon him were that he should build a fort on the Shilka, that he should not use firearms except in the case of necessity, that he should treat the natives kindly, that he should keep a record of his dealings with them, and should furnish the government with whatever information he might obtain.

Early in 1649 Khabaroff set out with a party of seventy men. Ascending the Olekma, he encountered the usual difficulties from the rapids which obstructed his way, so that the entire summer was spent in the effort, and he was then compelled to go into winter quarters before reaching the summit. In January, however, he succeeded by the use of sledges and snowshoes in crossing the mountains and reaching the Amur River through the Urka, which enters it fifty or sixty miles below the Shilka. But on descending the river a short distance, he found several of the native cities deserted, and that a general alarm had been raised which had put the whole population into a state of defense. Khabaroff therefore prudently returned to the mouth of the Urka, and, having fortified the position, left his party to defend themselves during the season, while he himself returned to Yakutsk to convey the information already obtained. This was specially important, since it revealed a shorter route to the Amur than had heretofore been found, and described a portion of the valley which had not before been visited, where the climate was mild and the conditions were favorable for the raising of agricultural products;

barley, oats, buckwheat, peas, millet, and hemp—all objects of necessity to the Russians—being here freely grown, while in the valley of the Lena almost everything of that sort had to be imported.

But Khabaroff estimated that it would require a force of six thousand men to conquer and hold the district. To enlist such a number in Siberia was, at that time, however, entirely out of the question. Khabaroff therefore was compelled to be content with a detachment of only one hundred and seventy men, though he had the promise of further assistance if it should be needed. With these reinforcements he returned in the autumn to find that the Daurians had rallied to resist further encroachments upon their territory, and that they had, with their rude warlike implements, attacked the party he had left behind, though with unsatisfactory result. Speedily taking up the offensive, the Russians, now reinforced, descended the river, and fought a decisive battle at the town of Albazin, which subsequently played so important a part in the history of this region. The Russians suffered little loss in this battle, and obtained large stores of grain, and a position commanding a short route to the best portage between the Amur and Olekma rivers.

Repairing the fortifications at Albazin, and settling down there for the winter, Khabaroff employed his time in various minor expeditions which accomplished the object both of terrorizing the natives and of enlarging his knowledge of the country. In glowing terms he forwarded a report to the governor of Yakutsk describing the country and the people, whom

he said numbered fully twenty thousand, and urging that he be reinforced with a body of men sufficient not only to conquer the Amur, but the whole of Manchuria. When these reports reached Moscow, the government immediately forwarded one hundred and thirty-two men with ammunition and supplies of every sort, and at the same time sent an embassy to the Khan of Manchuria suggesting that, in view of the greatness of the Russian Empire, it would be to his advantage to come under its protection, and to obtain the advantages by immediately beginning to pay tribute. The answer, however, was the massacre of the entire embassy.

Before the arrival of reinforcements, in the spring of 1651, Khabaroff descended the river with such force as he had, until he came to a strongly fortified town only three or four days' distance from the mouth of the Zeya. Here he found Chinese envoys who consorted with the Daurians, but would hold no intercourse with him. The cannon of the Russians enabled them easily to make a breach in the walls of the city, and though there were three enclosures, one within the other, they were all rapidly broken down, the people slaughtered, the princes taken as hostages and the town captured, with a large quantity of supplies, including one thousand cattle. Only four Cossacks were killed and fifty wounded. Here the Russians rested for six weeks, when they floated down the river as far as the Zeva, where Poyarkoff had preceded them a few years before.

The Daurian tribes of this region, although acknowledging allegiance to the Khan of Manchuria, and through him to the

Emperor of China, had a great degree of independence. Caring little for the princes whom Khabaroff held in his hands as hostages, the people left them to their fate, and fled in every direction, deserting the entire country to the invaders. This made it impossible for the Russians to establish winter quarters at that point, on account of the lack of provisions. Therefore they descended the river, until, upon the fourteenth of September, they were at the mouth of the Sungari, their only means of obtaining food being by plunder from the natives. Descending the river still farther, Khabaroff reached the mouth of the Usuri, where he selected for his winter quarters the picturesque promontory upon which the present city of Khabarovsk is built. On the extreme point of this promontory, which protects a cove where his boats could anchor in safety, Khabaroff erected his fort. The work was commenced as late as the twenty-fourth of September, and the season was so far gone that it was necessary to take immediate measures to supply themselves with a stock of food. Hunting and fishing parties were at once sent out, and an expedition ascended the Usuri to collect provisions of every sort. As this end was largely accomplished by plunder, the natives took alarm, and with the evident co-operation of the Manchurian government attacked the party, and endeavored to intercept their passage down the river. To accomplish this, a complete line of boats was stationed across the stream below the Russians, but Khabaroff, skillfully concentrating his attack upon the center of the line, broke through and escaped without serious loss.

Meanwhile, the natives in the vicinity of the fort took advantage of the absence of the party up the Usuri, and made a vigorous attack upon it, endeavoring to burn the fort by collecting straw around it and setting it on fire. But they were not prepared for the volley of musketry with which they were greeted, and were so effectually driven back that they offered no further molestation for some months.

Before the opening of spring, however, the Manchurians appeared before the walls of the Russian fort and subjected it to a vigorous siege, having at their command two thousand men with many guns and with ingenious devices for blowing up the walls with gunpowder. The hostile forces were commanded by Prince Isinei. Fortunately for the Russians the Chinese then, as now, were poor marksmen, and therefore accomplished but little, and were at length totally defeated. Khabaroff's account of the defeat was so lively that it is worthy of repetition.*

"On March 24, at daybreak, the Bogdoi (Chinese) army, horsemen and armored men, came upon us Cossacks in the town of Atchansk, and our Cossack *esaul* [lieutenant], Andrew Ivanoff, shouted in the town; 'Brother Cossacks, arise quickly, and put on your strong breastplates!' and the Cossacks, in their shirts only, rushed to the town wall, and stood to the guns and muskets, and fired on the Bogdoi army. And we Cossacks fought with them, the Bogdoi people, from dawn to sunset; and the Bogdoi army fired on the Cossack huts, so that we Cossacks could not go about in the town, and the Bogdoi people with their flags surrounded the town wall. The Bogdoi men broke down the wall of our town to the ground, and then the Bogdoi Prince Isinei

* Russia on the Pacific. pp. 120-121.

and all the great Bogdoi army shouted: 'Do not burn or strike the Cossacks, but take them alive!' and our interpreters repeated these words of the Prince Isinei to me, Erothei, and hearing these words of the Prince Isinei, we Cossacks put on our armor, and I, Erothei, and the regular and the volunteer Cossacks, praying the Saviour and our Blessed Virgin and Saint Nicholas, took farewell of each other. And I, Erothei, and Andrew Ivanoff, and all our Cossack army, said: 'Let us die, brother Cossacks, for the Christian faith; let us stand by the Saviour, the Virgin, and Saint Nicholas; let us serve the Emperor Alexis Mikhailovitch, Grand Duke of all Russia; and let us Cossacks all die to the last man against the Tsar's enemies, but never shall we fall alive into the hands of the Bogdoi men.' And the Bogdoi people were talking near the fallen walls, and we Cossacks wheeled up to the breach of a large brass gun, and we began to fire cannon and muskets, while from the walls they fired some iron guns upon the Bogdoi people. And, by the grace of God and the Imperial good luck and our efforts, many of those dogs were killed. And as the Bogdoi men retreated from our cannon and the breach, at that moment 156 men, regular and volunteer Cossacks, in armor, sallied forth upon the enemy, while fifty men remained in the town. As we sallied forth upon them, we captured two iron guns; and by the grace of God and the Imperial good luck we fell upon the enemy, capturing the muskets of their best men. And a great fear came upon them, our force seeming innumerable, and the remaining Bogdoi men fled from the town and our arms. And we counted the dead around the town of Atchansk; of the Bogdoi men there were 676 killed, and of our Cossacks ten, but wounded in that battle there were seventy-eight men."

But, notwithstanding this decisive victory, Khabaroff's situation was exceedingly critical. It was evident that the Manchurians were fully aroused, and that they could easily overwhelm him with numbers, and match him with arms nearly

equal to his own. He, therefore, speedily abandoned his winter quarters at Khabarovsk, and in April, 1652, began his retreat up the river. Meanwhile, the reinforcements which had been sent out from Moscow, under the command of Trenka Tchetcheghin, having reached the Amur and found that Khabaroff had descended the river on the preceding year, and had not been heard from, sent a party down for his assistance. But amid the numerous channels and islands which characterized the stream below the mouth of the Zeya, the reinforcing party passed the other without finding them. They continued their downward progress until they reached the mouth of the river, where after great hardships they followed the example of Poyarkoff and set out to reach Okhotsk by sea. They were, however, drifted ashore after a few days, but finally succeeded in crossing the mountains by an unfrequented trail, and returned to the Lena Valley.

Nor did Tchetcheghin remain idle on the Upper Amur; he also descended the river and, fortunately, met Khabaroff in the gorge where the river cuts across the Little Kinghan or Bureya Mountains, to which point the retreating Cossacks had made their way amid great difficulties and against great odds. For, on reaching the mouth of the Sungari, they had been confronted by a Manchu army of six thousand men, well provided with artillery and firearms; but as the river is here a broad stream a mile or more in width, Khabaroff was saved by a fortunate circumstance. A wind was blowing up stream with sufficient strength to enable him to keep in the middle of the river and make progress against the current. Putting on all

the sail possible, he succeeded in safely running the gauntlet, and so had reached the point where assistance was obtained.

It was evident, however, that further efforts to hold the Lower Amur would be useless, especially since the six thousand men from whom they had just escaped were soon to be augmented by forty thousand more. Khabaroff, therefore, hastened to the mouth of the Zeya, which he reached on the first of August (o. s.), 1652. Here, also, further troubles awaited him. More than one third of his men having seized some of his boats and government stores, deserted him, and set out upon a marauding expedition of their own. The atrocities committed by them still further infuriated the natives, and still further embarrassed the situation. In fact Khabaroff was able to accomplish nothing more, and sent back his last report on August fifth, setting forth the difficulties of his position and his need of immediate reinforcement.

The descriptions of the Amur forwarded by Khabaroff had aroused great interest, both in Siberia and in Moscow, and it was proposed to send three thousand soldiers to help him accomplish what two years before he had said would require six thousand. But even these were not sent, and the small force that finally reached him under Zinoveff was far from being an aid. The commander abused Khabaroff, charged him with appropriating to his own use treasures collected for the government, put him under arrest and sent him to Moscow for trial, where he arrived in the winter of 1665. The charges against him (whatever they were, for nobody seems to know exactly), were not sustained. On the contrary, he was re-

warded as a hero, and appointed to an important official position on the Lena River, where he died soon after, and to this day his name and Yermak's are coupled as the two most successful founders of the Siberian Empire.

The struggle for the Amur was not, however, confined to these expeditions upon the middle and lower portions of the river valley. As already seen, the Russians as early as 1648 had crossed Lake Baikal, and built the fort of Verkhni Udinsk, about one hundred miles up the Selenga River, where it is joined by the Uda. This led to the speedy colonization of the Transbaikal region, which was in every way well fitted to furnish homes for the Russian peasantry. In 1653 Peter Beke-toff went up the Khilok River, which is now followed by the Trans-Siberian Railroad, and built a fort near the crest of the Yablonoi Mountains, on Lake Irghen. In 1654 he descended the Vitim Plateau to the more attractive Daurian region, following the Ingoda and Shilka rivers as far as the mouth of the Nercha, where he founded what became the important city of Nerchinsk; thus opening what has ever since been the main line of communication between Western Siberia and the valley of the Amur, and leading to the permanent organization of the Russian province of Transbaikalia, with the capital at Nerchinsk.

But during this decade important events were taking place on the Lower Amur after the recall of Khabaroff. The new commander, Onuphrius Stepanoff, ascended the Sungari River in 1654, and gave battle to the Chinese army, which was there in great force. The Chinese were victorious, and compelled

Stepanoff to retreat. In returning up the Amur, however, he met Beketoff coming down from Transbaikalia through the new road which he had opened. Thus reinforced, the Russians erected fortifications at Kumarski, about one hundred and fifty miles above the mouth of the Zeya, where the Kumara River comes in from the Manchurian side. A Manchu army of ten thousand men followed them, and on the thirteenth of March (o. s.), 1665, laid siege to the new fortification. They were provided with abundant artillery and all other known instruments of attack, which they used to good effect. On the twenty-fourth of March they assaulted the place, but were kept at bay by the five hundred desperate Cossacks who defended the place. For a week longer the Manchus kept up a continuous cannonade, but on April fourth, they suddenly gave up the effort and retreated.

The Russians, however, were compelled to abandon the position on account of the lack of provisions. The violent methods of the Cossacks had continued to estrange the natives, leading them to withhold supplies, while the Chinese authorities had forbidden the cultivation of the land in the region, and ordered the people to abandon the country, and leave it a waste. Whereupon Stepanoff resorted to the desperate plan of carrying the war into Manchuria. He boldly ascended the Sungari River, pillaging as he went, and actually succeeded in penetrating the country as far as Ninguta. Afterwards he again descended the Amur nearly to its mouth, where he built a fort near its junction with the Amgun. From this point Stepanoff continued for two or three years regularly to ascend

the Sungari River, committing depredations as he went; but on June 30, 1658, he found himself surrounded with the Chinese as he was coming down the river, and was unable to extricate himself. In the contest he and two hundred and seventy of his men were killed, and the remaining two hundred effectually dispersed. Thus the Russians lost their prestige, so that they were no longer considered invincible, and the Lower Amur remained in the hands of the Chinese for the following two hundred years.

In the upper part of the valley, also, Albazin, which had been resisting a siege for the whole year, was abandoned in 1658; thus freeing the entire valley of the Amur from the presence of the Cossack. But in 1665 a Polish exile named Nikiphor Romanoff Tchernigofski, who had been guilty of both mutiny and murder since being in Siberia, persuaded a company of eighty-four men to accompany him and rebuild the fort of Albazin, which thereupon became the general rendezvous for all the freebooters who had remained in the region. The necessities of the case, however, compelled them to maintain some show of order, and in 1669 they appealed to the Tsar for protection, and humbly offered to submit themselves to his authority. This was readily granted, and the sentence of death upon the whole company was remitted in 1672. So glad indeed were the Russian authorities to regain Albazin that they gave a reward of two thousand rubles to the outlaws who had brought them again in possession of it. In 1674 the place was again well provided with barracks and government officers.

The pardoned outlaw then set about the task of reconquering the Lower Amur and Manchuria. This he prosecuted with such vigor that in 1681 he had re-established Russian forts at all the most important places on the Amur and upon the Usuri and Sungari rivers. But again the Russians failed to send reinforcements sufficient to maintain their hold upon the country; so that when, in 1684, the Chinese set out to regain their territory, they had little difficulty in driving the Russians from the Lower Amur, and on June of the following year (1685) they were again before the walls of Albazin with fifteen thousand men and one hundred and fifty cannon. But, although the Russians had only four hundred and fifty men inside the fortifications and but three guns, they maintained so vigorous a defense that nothing but the final failure of ammunition induced their gallant leader, Tolbuzin to surrender, and this he succeeded in doing on honorable terms; he with his Cossacks retiring with their arms and being allowed to ascend the river to Nerchinsk. The Chinese, however, instead of attempting to hold Albazin, burned it, and went down the river to Aigun, a fortress a little below Blagovestchensk which has played a prominent rôle in recent times, but which had then just been built as a defense against the encroachments of the Russians.

No sooner, however, had the Chinese left Albazin, then Tolbuzin returned. This was on August 7, 1685, which was so early in the season that he was able to restore the fortifications before the winter set in. Consequently the following year, in June, 1686, the Chinese returned and commenced an-

other siege, with an army of five thousand foot and three thousand horse. Tolbuzin however, had taken the precaution to enlarge his garrison, so that it consisted of eight hundred men, and to increase his cannon from three to eight. In the course of the siege Tolbuzin was killed, but the defense was carried on by Athanasius Beiton so successfully that the Chinese retired for the winter. In the spring of 1687, however, they returned to the attack, but the Cossacks maintained a stubborn resistance, even when but sixty-six of the eight hundred remained alive, and when their supplies were nearly exhausted; so that the Chinese were compelled again to retire. Whereupon peace negotiations began between Russia and China, and hostilities were suspended, until in 1689 the treaty of Nerchinsk was signed, which permanently closed the contest, and secured peace along the whole border between China and Russia for the next one hundred and sixty years.

Thus ends the first part of the story of Russia's conquests in Asia. Altogether, from the setting out of Yermak to cross the Urals in 1582, to the treaty of Nerchinsk in 1689, it covers a period of one hundred and seven years, and represents an amount of activity which has scarcely ever been equaled in the same length of time, either in its character or its results. In the light of the standards of the twentieth century, the means pursued were often objectionable, but they conformed to those employed by all the Christian nations of Europe in their colonizing efforts of that time. The English in America and the French in Canada were engaged during this period in despoiling the Indians of their hunting-grounds, and in taking

possession of all their natural privileges; while the subsequent fate of the aborigines of America has been far more deplorable than that of the native races of Siberia. In entering upon the succeeding chapter, which has to do chiefly with the internal development of Siberia, one is at first surprised that the progress in Northern Asia has been so much slower than that which followed the conquest of America. But when one considers the natural difficulties in the way of introducing civilized methods of life into the region, he may well wonder that it proceeded as rapidly as it did.

IX

ARRESTED DEVELOPMENT

THE treaty of Nerchinsk in 1689 marks a long pause in Russia's advance into Asiatic territory. For the next one hundred and sixty years, the political boundary of Siberia remained practically unchanged. During this period, however, the settlement of the country was in progress, though at so slow a rate that it may well cause surprise. In 1709 there was in Siberia a Russian population of less than one hundred and fifty thousand, and at the beginning of the nineteenth century there were scarcely more than five hundred thousand Russians in the territory; whereas in the United States the population of the settlements made on the Atlantic coast about the same time with that of the entrance of the Russians into Siberia had grown before the Revolutionary War in the latter part of the eighteenth century to exceed three million in number.

In looking for the causes for this slow development, we shall find that they were numerous.

1. During the seventeenth and eighteenth centuries, Russia herself was in a state of very backward development, and her area was far from being over-populated. According to the census of 1762, the total population of the Russian Empire was

only about nineteen million, while twenty years later, under the more trustworthy census of 1782, the population was not estimated to be more than twenty-eight million. At the present time, European Russia alone, outside of Poland, has a population of ninety-four million. As the population of Russia is still, as formerly, agricultural, it is evident that during the seventeenth and eighteenth centuries over-crowding was not an urgent reason for emigration. There was still room enough west of the Urals for all the agricultural development that could be desired.

2. However fertile the soil and favorable the conditions in Siberia for raising agricultural products, the distances were so great and the means of communication so difficult, that markets were of necessity extremely limited, and therefore there was little inducement for agriculturists to settle in the country. From Perm to Tiumen across the Ural Mountains is a distance of four hundred miles; from Tiumen to Tobolsk by the river is three hundred and fifty miles; while to Tomsk on the Obi is more than one thousand four hundred miles, and to Omsk on the Irtysh nearly one thousand two hundred,—distances which rendered the transportation of agricultural products entirely impracticable. Had it not been that the great rivers of Siberia poured their superfluous waters into an Arctic Sea, they might have been the channels through which, by cheap water carriage, the agricultural products of the country could have reached the marts of Western Europe and been exchanged for those articles of necessity and luxury which were needed to lend attractiveness to the hamlets and home-

steads which were growing up upon the banks of the Obi and its tributaries. As it was, the whole country was kept waiting for the advent of steam and its transformation of all the methods of traffic and travel. In this, however, the conditions did not differ much from those in the United States, where the Alleghany Mountains presented a barrier to emigration until after the opening of the nineteenth century. When we remember that, with all the facilities offered for transportation on the Great Lakes, Chicago was but a village in 1830, and that twenty years later it was considered doubtful whether Minnesota could be profitably settled, and twenty years later still it was a problem whether the Dakotas and the valley of the Red River of the North could offer permanent inducements to agricultural industry, we need not wonder that Western and Central Siberia were left practically unsettled until the dawn of the new era at the beginning of the twentieth century.

3. There were, however, some special inducements to settlement in Siberia which produced striking results. Professor Shaler has somewhere maintained that the development of the colonies in the United States was largely due to their cultivation of tobacco,—tobacco being a ready means of exchange in the European markets for the manufactured products of which the pioneers stood in most need. In Siberia there was one constant source of profitable exchange in the valuable furs which were produced in the more inhospitable portions of the country. The collection of furs became, indeed, the leading motive for entering Siberia at all, and large private fortunes

frequently resulted from the traffic. On this account it was that explorers and pioneers rushed with such impetuosity to the farthest extremities of the most inhospitable portions of the country. It was there that the fur-bearing animals were found, and that the native populations resided whose skill could be utilized in their capture. This constant procession of hunters and trappers, and of the traders following in their wake, furnished a limited market for agricultural products. As this company had to live, they naturally gave support to a limited number of agricultural colonists along the line; and so Siberia began to fill up with permanent settlers.

4. The discovery of mines in Siberia also furnished an increasing demand for such agricultural products as could be raised in their vicinity; but the mines of Siberia which have been developed are few, and mostly of rather late discovery. Indeed, until the building of the Trans-Siberian railroad, the coal deposits had scarcely been touched, while the iron mines had been utilized only to a very limited degree. It is true that in the vicinity of Minusinsk, far up in the valley of the Yenisei, iron had been manufactured even in pre-historic time, and a limited amount made for home consumption down to the present time, while in Transbaikalia, two hundred miles east of the lake, the government established in the eighteenth century a blast furnace at Petrovskia, using charcoal from the forests for fuel, and have continued to patronize it to the present day. But all these efforts for the manufacture of iron in Siberia up to the present century have been trifling. Even now, in Central Asia it is not uncommon to see camels carry-

ing bars of iron upon their backs which they have brought more than five hundred miles into a mountainous region where native coal and iron both abound.

The discovery of silver and gold in the vicinity of Nerchinsk, about the headwaters of the Amur River, early led to extensive mining industries in that region. The mines were, however, owned by the government, and were reserved for the most part to be worked by prisoners. Still, the presence of such a market furnished an inducement both for free emigrants who came in from Russia and for the settlement of prisoners who had served out their time of sentence. The proximity of that far-off region to the markets of China by way of the caravan route from Kiakhta to Kalgan across the Gobi Desert was also an important advantage to the agricultural settlers. The great development of gold-mining in the vicinity of Yeniseisk, of the Altai Mountains, and on the Olekma and Zeya rivers has been of comparatively recent date.

5. The policy of the Russian government in the transportation of criminals and political offenders has likewise from the earliest times done something to secure the settlement of the country. For, the prisoners must be fed and cared for and provided with adequate overseers and guards, while agriculture was not an occupation in which they could profitably engage. It was in the mines chiefly that they could be employed; hence the great numbers of them sent to Transbaikalia. Others, whose crimes had been such that they could not be set at liberty were kept in close confinement, where, in default of any employment which could be given them, they were

compelled to idle away their time at the public expense. But all the same they had to be fed and clothed and guarded. In short, the exile system of Siberia gave to the colonists all the advantage of the markets furnished by the prisons which are so much coveted by the local communities in the United States. When a new prison is to be built in Ohio, there is a great struggle between the towns of the State to secure it with the consequent local expenditure of public money attending its establishment.

The exile system of Siberia, therefore, has had no small part in this indirect manner in the encouragement of the free colonization of the country; while, as in Australia and other convict colonies of Great Britain, the convicts themselves when joined by their families have been no insignificant addition to the permanent population of the country. This is of special significance in Siberia, in view of the fact that many of the exiles have been banished not for ordinary crimes, but for their religious convictions and their part in political revolutions. To the religious devotees, banishment to Siberia has been so little of a hardship, that it can scarcely be looked upon by them as a punishment, since there they have had even freer scope than they could have expected at home to perpetuate their views. Indeed, so attractive to these sectarians has the free life of Siberia been, that large numbers have, like the Pilgrims of Massachusetts, voluntarily left their original homes for the wider sphere of development which was open to them in this new country. Hundreds of thousands of these may now be

found in the vicinity of Tomsk, of Barnaul and of Verkhni Udinsk, as well as in various other localities.

6. At the same time there were reasons at home for the feeble prosecution of the work of colonizing Siberia. Ivan the Terrible, under whom Yermak set out for the conquest of Siberia in 1582, died three years later, leaving his throne to a feeble-minded heir, Feodor,—and with Ivan the Terrible perished the rule of the reigning house of Rurik, which had been in authority since the ninth century, and through whose efforts the Russian people had been sufficiently united to succeed in driving back the Mongol invaders, who had at different times partially conquered and desolated the land. It was a strange episode in Russian history which followed. Feodor, the nominal Tsar, naturally surrendered the real authority to his brother-in-law Boris Godunoff, an able and ambitious favorite of Ivan the Terrible, and said to have been of Mongol descent. The only other possible heir to the throne was Feodor's brother, Dmitri, who was still a child. But soon after (on the 15th of May, 1591) Dmitri came to an untimely end. He was playing with a knife in the courtyard of Uglich whither he had been sent. His governess and nurse were near at hand. But, while their backs were turned, his throat was cut in a mysterious manner. The governess and the friends of Godunoff asserted that he must have cut himself during a fit of epilepsy; but the enemies of Godunoff, and they were many, insisted that the lad had been killed by his adversaries to leave the way open for the events which soon followed.

In 1598 Feodor died, leaving the throne without an heir; meanwhile Godunoff had shown great ability in the defense of the country. He had defeated the Swedes on the west; he had beaten back the Mongols who had raided the country from the Crimea; and in every way had strengthened the empire. But on the death of Feodor, he retired to a monastery while the people should choose a Tsar. After six weeks he was prevailed upon to come out from his retirement and ascend the throne. This, however, was not by any means acceptable to all the people, and was especially offensive to the members of the Romanoff family, who were allied to the house of Rurik, and who aspired themselves to the position which that family had so long occupied. These, however, were repressed by Godunoff with a stern hand; the head of the house being confined in a monastery. An extensive famine in 1601 added to the discontent. In the midst of all this, a pretender came forth in Lithuania claiming to be the Dmitri who was supposed to be dead. The story given out by him was that Godunoff had sent emissaries to assassinate him, but that a loyal friend, hearing of it in advance, had substituted another boy in his place, whom the assassins had killed, while he and his friend had fled, and had secreted themselves until now.

This story gained such credence in Poland that the Pretender soon had a large following, so that the King of Poland publicly recognized him as the rightful Tsar, and on the 31st of October, 1604, he was able to advance with an army as far as Nówgorod, where a battle took place on the 2d of January, 1605. Dmitri was defeated, but succeeded in making his es-

cape; while a few weeks afterwards Godunoff suddenly died under circumstances which indicated that he had been poisoned. Whereupon Godunoff's ablest general, Basmanoff, joined the forces of Dmitri, whom he had before so successfully defeated, and soon after marched against Moscow, where Feodor, a son of Godunoff, had been proclaimed Tsar, and was intrenching himself. On the 20th of June, 1605, the false Dmitri entered Moscow in triumph, and established his court in great splendor. The triumph, however, was destined to be short. In less than a year a counter-revolution had broken out, and he was killed, or at any rate was supposed to be.

At three different later times, however, persons came forward pretending to be Dmitri, who had not perished, but, it was claimed, each time had mysteriously escaped from death. Meanwhile the Poles invaded Russia, and defeated the army under the very walls of Moscow, capturing Shuiskoi, who had been elected Tsar, and Russia seemed to be on the verge of dissolution, when deliverance was brought through the bravery and patriotism of a butcher from Nijni Novgorod named Minin, who roused the people to arms, and, with the help of the military skill of Prince Pozharski, succeeded in defeating the Poles and driving them from the country. But Moscow was for the most part in ashes, the treasures had been carried away by the Poles, and the sufferings of the country in general begged description.

It was not until 1613 that Michael Romanoff, the first of the present reigning dynasty, was elected Tsar, and he was but a youth of sixteen. But he associated with him his father

Philarete, whom he had appointed patriarch. Under this new leadership the country was speedily pacified and restored to its former prosperity; while Russia began the more intimate relations with Western Europe which have characterized her later history. Many English, Scotch, French, Dutch, German, and Swedish families were induced to come into the country and give it the aid of their knowledge and skill.

In 1645 Michael was succeeded by his son Alexis, who codified the laws, and annexed the borderlands known as the Ukraine, on the southwest, which had been occupied by independent Cossacks, and by treaty extended the domains of Russia to the Dnieper River. His reign was disturbed by the rebellion of a Cossack named Stanka Razin in 1648, who secured a following of two hundred thousand men, capturing Astrakhan, and holding in subjection the whole country from Nijni Novgorod to Kazan. It was not until 1671 that this bold outlaw was captured and his forces dispersed. Five years later Alexis died, after a reign which, notwithstanding its external troubles, had been fruitful in greatly improving the internal condition of the country. As the two sons by his first wife, who would naturally inherit the crown, were both of them too infirm in health properly to exercise the duties of the position, their elder sister Sophia was appointed regent. But the external troubles continued to increase until 1689, when Peter the Great, a son of Alexis's second wife, came to the throne, and began his illustrious career.

Thus during this first century of Siberian exploration from the setting-out of Yermak in 1582 to the treaty of Nerchinsk

in 1689, the affairs of the home government were in such a disturbed condition that there is little wonder at the feeble support which was extended to the hardy pioneers of the new empire in Asia, and at the small amount of supervision which was exercised over their conduct. Even the deportation of prisoners to Siberia was carried on with little regard to system. This began as early as 1581. But, much to the advantage of Siberia, the exiles of the first century were in general not criminals in the accepted sense of that term, but political prisoners, insurgents, and religious dissenters. In 1658 the nonconformist priest Avvakum (whose autobiography is still one of the most popular books among the more devoutly religious people of Russia), was led in chains with the exploring party of Pashkoff when he advanced along the headwaters of the Amur to retrieve the misfortunes which had attended the explorers coming in from another direction. Many of these exiles became most loyal and valuable citizens, and did good work in laying the foundations for the subsequent prosperity of the country.

Nor were the conditions in Europe during the eighteenth century much more favorable for advancing the interests of civilization in Siberia. The attention of Peter the Great during his long reign from 1689 to 1725 was too much occupied with the development of European Russia, and with the adjustments of its relations to Western Europe, to permit his giving much attention to Asiatic interests; so that Siberia's development was left to the slowly working natural causes which were in operation, and which, as we have seen, were,

for the most part, adverse to the rapid growth of civilization. Peter was keenly alive to the possibilities of his Asiatic domain, but his efforts were chiefly limited to the organization of scientific parties of exploration. In 1719 Daniel Amadeus Messerschmidt was sent into Siberia to make inquiries into the natural history of the country, and returned in 1727 with a vast amount of information, which still serves as the nucleus of all our present knowledge of Siberian natural history. Not far from the same time two ships were sent out by Peter from Archangel to explore the frozen ocean to the east, but neither of them was ever heard from afterwards. Nothing daunted, however, he immediately began preparing a new expedition which he put in charge of the celebrated Dane who was in his service, Captain Vitus Bering. For him he had two vessels built at Okhotsk, from which place he set out in 1725, the year of Peter's death. As the result of this expedition, Bering's Strait was rediscovered, and the separation of Asia from America became a practical part of the world's knowledge, though, as we have seen, the Cossack Dejneff had already made the discovery eighty years before. In the Iron Works at "Petrovskia," two hundred miles to the east of Lake Baikal, we have continued evidence of Peter's far-sighted interest, since it was he that established it to provide for the necessities of that inaccessible country.

During many years subsequent to the death of Peter the Great in 1725, the throne of Russia was occupied by vacillating and inefficient monarchs, two of whom were women, who did little for the material interests even of the mother country.

But the unpatriotic German influences of Anna's reign conferred a great favor upon Siberia by banishing to it, in 1730, a number of the most patriotic and intelligent of the Russian nobles, among whom were those belonging to the Dolgorouki and Golitzan families. An important service was also rendered both to Russia's own possessions and to the world by continuing the scientific exploration of Siberia by Messerschmidt and his associates and successors from 1733 to 1742; while in 1755 the University of Moscow was founded, which, with that already founded at St. Petersburg, continued to foster these scientific investigations in Asiatic territory. In 1768 the celebrated Samuel Gottlieb Gmelin and the still more distinguished scientific investigator Peter Simon Pallas were sent into Asia for scientific explorations, each being accompanied by a number of assistants. Gmelin advanced along the Caspian Sea into the north of Persia, returning after four years with a vast amount of information concerning the natural history of the southern and western parts of the great Aral-Caspian depression. Pallas followed along the northern shoreline of this same depression, giving us what is still the best presentation of the evidence of the former enlargement of its inland seas. He then crossed the Urals, and pursued his course via Omsk to the Altai Mountains, and from thence, in 1771, to Krasnoyarsk, on the Yenisei, while in 1772 he went as far east as Lake Baikal, crossing it and ascending the Selenga River as far as the Chinese border. Meanwhile one of his associates had descended the Obi River and returned to join the main party. It was not until 1774 that Pallas returned to St. Peters-

burg. So important was his work that his voluminous reports were translated into both French and English, and are looked upon as marking an epoch in the progress of the natural sciences.

Catharine II. began her illustrious reign in 1762. But, though she cast longing eyes upon her eastern possessions, she was too busily occupied with the partition of Poland, the conquest of the Crimea, the subjugation of the Zaporoghian Cossacks, and the putting down of the Pretender Pugatcheff, a Cossack of the Don, who claimed to be none other than her husband Peter III. whom she had deposed, to take any effective measures for either their enlargement or development. She is said, however, to have been much impressed by the desire of Peter the Great, expressed in the last year of his life, to visit Siberia and the land of the Tunguses, and penetrate to the wall of China. On having her attention called to these plans of Peter, Catharine remarked, "If the Amur were useful only as a convenient route to supply our possessions in Kamchatka and on the Sea of Okhotsk, its possession would be important." But nothing came of these vague desires, except some insignificant revisions of the treaties regulating the overland trade with China. Meanwhile the French Revolution burst upon the world and clouded the whole western horizon. For a little it seemed as though the Emperors Paul and Alexander I. would fall in with the advice of Napoleon, and divert the attention of the enemies of France from the immediate disturbances at their own doors to a grand policy of oriental expansion in which Russia should advance with the co-opera-

tion of France as her ally. But fortune did not so order, and for twenty years the energy of Russia was absorbed in thwarting the plans of the great French reformer, the dramatic culmination being reached when a French army far greater and more formidable than that which the Mongols ever brought into the field, advanced from the west, as the Mongols had done from the east, to capture the ancient capital of the Muscovite Empire.

It was during the eighteenth century, however, that Russia established her temporary occupation of northwestern America. This was the result of Bering's expedition in 1741, during which he was wrecked to perish on Bering's Island. This expedition was but a supplement to the previous one in 1728 upon which he was sent by Peter the Great. Soon after the explorations by Bering, Russian fur-traders established themselves at various points along the American coast, but it was not until 1799 that the Russo-American Fur Company was chartered and given control of what is now known as Alaska. With their headquarters at New Archangel, or Sitka, this company carried on trade, and under the protection of Russia built up industries with varying degrees of success, until 1867, when the whole territory was ceded to the United States.

The eighteenth century was also marked in Siberian history by the extension of the Russian border to the north end of the Caspian Sea, and to the headwaters of the Tobol and Ishim rivers, thence to Lake Balkash, and eastward along the Sungarian depression by Lake Zaisan to the Altai Mountains; thus including Semipalatinsk and the middle portion of the

Irtys̄h River. The way for this occupation had been paved by the gradual extension of trade in that direction. To such an extent had trade with the Mongolian tribes in Central Asia been fostered, even as early as the middle of the seventeenth century, that, in 1665, the Russian merchants sent Theodor Baikoff by this route to China to represent their interests. He proceeded up the Irtys̄h River past Lake Zaisan, from which point he was seventeen days in reaching the sources of the Irtys̄h whence he went on to China to fulfill his mission. Little, however, came of it, its failure being partly due to the growth of the Sungarian kingdom of Kalmuck Tartars, which about this time rapidly spread its power over a large part of central Turkestan, including Kashgar, Yarkand, Kokand, and indeed over the whole range of the Tian-Shan Mountains, and successfully maintained its position until utterly destroyed by the Chinese in 1756.

Attention had been directed to the Kalmuck-Tartar kingdom, also, by an expedition of Peter the Great in 1714. This was under command of Colonel Bukholts, who was expected to find deposits of gold on the Irket River. It was during this expedition, which met with various fortunes, that the fortress was built at Omsk, and in 1718 the first fortress at Semipalatinsk. Later the party visited Lake Zaisan, and went twelve days farther up the Irtys̄h River, where it met a large army of Kalmucks, which led them to return to Semipalatinsk. Two years later a fortification was established at Kansk, and soon after a line of fortifications westward to Orenburg, which remained substantially the southern border



Old Fortress at Omsk.



Typical Street in a Siberian Village.

of Asiatic possessions for more than a hundred years. Meanwhile Semipalatinsk became an important center of trade with China and Central Asia.

Thus limited on the southwest by the watershed of the Aral-Caspian depression, on the south by the impassable Sayan Mountain chain, and on the southeast by the watershed between the Amur and Lena basins, Siberia remained in comparative obscurity until, about the middle of the nineteenth century, it began to feel the swelling tide of the new forces material, political, and social, which have everywhere so transformed the face of history. Meanwhile Russia was steadily increasing in population, and feeling more and more the need of enlarged opportunities for extension and development. From a population of fourteen million in 1722, the population had risen to forty-one million in 1812 and sixty-eight million in 1851; while that of Siberia was at the beginning of the nineteenth century only about five hundred thousand.

It must also be noted that it was during the eighteenth century that Russia came into possession of the Kingdom of Georgia in Central Caucasia. This ancient kingdom whose history goes back upwards of two thousand years, had become weakened by long conflict with the Tartars and the Turks and later with the Persians, so that as early as 1774 it placed itself under the protection of Russia. In 1799 the last king, George XIII., was so disheartened by the condition of affairs that he renounced his crown in favor of Russia; thus giving to the Russians a vantage-ground for the ultimate possession of the entire region of the Caucasus.

X

THE OCCUPATION OF THE AMUR

THE last half of the nineteenth century has witnessed the expansion of Russia to its natural limits in the southwest, and its acquisition of an important vantage-ground in the southeast. As the new movement towards the Pacific Ocean began a little earlier than the other, we will first trace the course of events in that region.

By the Treaty of Nerchinsk in 1689, the boundary between the Russian and Chinese empires in the east, beginning at the mouth of the Gorbitza River, followed it to its source in the Yablonoï Mountains, and thence northeastward along the crest of this range to the Sea of Okhotsk near Ayan; thus surrendering to China all the northern basin of the Amur River below the junction of its two principal branches, the Shilka and the Argun. No efforts were made by the Russians to disturb this boundary until the middle of the nineteenth century. Indeed, during this period the Russian statesmen were over-scrupulous in their observance of the terms of the treaty, lest they should disturb their interests in the caravan route from Kiakhtha to Kalgan over which most of the traffic to China was conducted.

The grand instigator of the movements leading to the

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cession of the north banks of the Amur was Nikolai Nikolaievitch Muravieff, whose monument fitly stands in a conspicuous place at Khabarovsk, the present capital of the Maritime Provinces, and who later was made Count Amurski.

In 1847 Muravieff, when only thirty-eight years old, was appointed, by Tsar Nicholas I., governor-general of Eastern Siberia, and in 1848 went to Irkutsk, the provincial capital. Here his study of the conditions on the Pacific coast led him to appreciate the great advantages to Russia of gaining possession of a direct route to the Pacific through the Amur River. His sense of the importance of this river to Russian dominion in the east was greatly enhanced on the following year when he undertook a journey to Okhotsk, and from thence by sea to Kamchatka. Leaving Irkutsk upon the 15th of May (O. S.), two months and ten days were required to complete the journey. The season of his arrival at Petropavlovsk was that best calculated to set off the beauties of this bay, in all its magnificence, which, indeed, rivals in its natural features the finest harbors of the world. With characteristic forethought, Muravieff laid plans for the future fortification of the harbor on a grand scale, and at the same time provided for such temporary strengthening of the position as could be effected with the ten small guns and the few hundred soldiers which the place contained.

Going south from Petropavlovsk, Muravieff approached the mouth of the Amur River, and there awaited the arrival of Admiral Nevelskoy, whom, on the eve of his appointment, he had met at St. Petersburg, and whom he had imbued with

his sense of the importance of the Amur River. Soon after, Nevelskoy had been despatched on the transport *Baikal* to co-operate with Muravieff; and the two met again near the mouth of the Amur on September 3, 1849. Nevelskoy having come up from the south of the Gulf of Tartary, pushing his way northward through the narrow strait separating Sakhalin from the main land, made the discovery that Sakhalin was an island, and that the mouth of the Amur could be approached from the south. This channel, however, is so narrow and lined with so many projecting promontories that it had easily escaped detection, and was unknown to the English officers a few years later, when it played so important a part in the affairs connected with the Crimean War.

Returning to Irkutsk in 1849, Muravieff pressed upon the government the importance of strengthening its position upon the Pacific coast, and secured authority to transfer the center of naval operations in the Pacific from Okhotsk to Petropavlovsk, with which he had been so much delighted, and at the same time to create a small fleet and to occupy a position near the mouth of the Amur River. In following out Muravieff's instructions, however, Nevelskoy found it impracticable to secure safe winter quarters near the mouth of the Amur without entering the river itself. He therefore ascended it about twenty miles, and established his quarters, and raised the Russian flag at Nikolaievsk.

In 1850 both Muravieff and Nevelskoy returned to St. Petersburg to report in person upon the transactions of the previous year. They found the opinion of the ministry much averse to

their plans, Nesselrode earnestly arguing that they should at once retreat from the Amur. Nicholas I. was so opposed to having the Russian flag lowered where it had once been hoisted, that the station at the mouth of the Amur was retained, though to the Chinese it was represented to be merely a station of the "Russo-American Company."

On returning to his post in 1851, Muravieff at once took measures to increase the military force in Transbaikalia. This he did by practically freeing the crown peasants in Nerchinsk from their serfdom, and organizing them into Cossack regiments. He also organized regiments of Tunguses and Buriats. With a male population of twenty-nine thousand in Transbaikalia he was able thus to secure twelve battalions, each of one thousand two hundred men available for offensive and defensive purposes. The conversion of the peasants into Cossacks at Nerchinsk was accompanied with great demonstrations of joy.

Meanwhile Nevelskoy had returned to the Pacific, and with the very few men at his command had proceeded in open boats to survey more completely the lower part of the Amur. The winter of 1852 was employed in a partial survey of Sakhalin. The result of Nevelskoy's explorations was the occupation by the Russians of the Bay of De Kastrî, which projects westward from the Gulf of Tartary, about latitude fifty-one degrees, towards Lake Kizi, which forms almost a continuous connection with the Amur River about two hundred miles above its mouth, lying in a longitudinal depression which is thought by some to have been the ancient river channel, through which

it took a short cut to the sea. The possession of this bay and its line of connection with the river, it was easy to see, was essential to the military protection of the river itself. Upon receiving from the Tsar approval of his conduct in 1853, Nevelskoy explored the Island of Sakhalin more carefully, and in accordance with the intimation received from the central government, took the first step towards its occupation by the Russians.

In the following year, political events in Europe began to give great significance to the preparations which Muravieff and Nevelskoy had been making for the protection and enlargement of Russian interests in the east. The Crimean War was in progress, and it was a matter of great importance for the allied forces to destroy the Russian fleet on the Pacific coast, small though it was. Protected in their commodious harbor on the coast of Kamchatka, Russian vessels could issue forth at opportune times, and prey upon the vast commerce of the Pacific Ocean. Thus Muravieff could easily foresee that, as a part of the military operations tending to cripple Russian power, an effort would be made to destroy the Russian fleet in the Pacific and to capture the settlements. He therefore took wise provision towards strengthening the harbor at Petropavlovsk, and set on foot measures to reinforce the struggling Russian settlements at the mouth of the Amur. The plan proposed to accomplish the latter object was to build a river fleet at the head of the Amur and use it for the transportation of a few thousand soldiers to the mouth of the river.

The explorations already carried on had shown that the

Amur was but thinly occupied by the Chinese, and that there would be no serious difficulty in obtaining from the Chinese government permission to navigate the river for the purpose of strengthening in the present emergency the Russian possessions on the Pacific. In order to facilitate matters, Muravieff obtained plenary power to deal directly with the Peking foreign office. But the urgency was such that it would not do to await the slow progress of Chinese diplomacy. It was resolved therefore to send the reinforcements down the Amur at all hazards, and, if necessary, to obtain permission afterwards.

On the 14th of May, 1854, the flotilla which Muravieff had been preparing on the Shilka River set out for its descent to the mouth of the Amur. A steamer had been built (the first to venture upon these waters), and seventy-five barges and rafts constructed. The flotilla carried eight hundred regular soldiers, a division of mountain artillery and a regiment of Cossacks, besides a large amount of provisions and stores designed both for immediate use and for trans-shipment to Kamchatka. The expedition passed safely down the river, reaching the present site of Blagovestchensk on May 28. Here a pause was made to communicate with the Chinese governor of Aigun, the fortified town on the Chinese side a few miles below. Not caring to have so formidable a force, and especially a steamboat, which he had never seen before, remain in his vicinity, the Chinese governor petulantly sent them on, so that they reached the mouth of the Sungari on the 2d of June, and of the Usuri on the 5th. Upon seeing the conspicuous promontory below the mouth of the Usuri, Muravieff exclaimed, "Here there

shall be a town," and here, indeed, has grown the picturesque and influential capital named after the original discoverer, Khabarovsk; but from its most conspicuous point rises the heroic statue of Muravieff, its real founder.

On the 14th of June the flotilla reached Mariinsk, the fortified settlement upon the Amur lying opposite the Bay of De Kastri and connected with it by the depression of Lake Kizi. At De Kastri Bay, Muravieff found Nevelskoy awaiting him, and the two proceeded to distribute the reinforcements to the best advantage, stationing a few hundred in this vicinity, but sending four hundred to Kamchatka to reinforce the fortress at Petropavlovsk, which they did not reach any too soon, since the French and English squadron were already well on their way to attack it.

This important harbor was defended by only a thousand men, including those who had just arrived, as well as the natives and civilian volunteers. Thirty-nine guns, and they so scattered that a concentrated fire was impossible, were all the Russians could bring into operation from the land, but two Russian gunboats anchored in the inner harbor were able on occasion to bring into action sixty-five more. The Anglo-French squadron which formed the attacking party had a total of two hundred and thirty-six guns distributed on six vessels. On the 20th of August (new style Sept. 2), 1854, the first successful attack was made, and on the 24th the second attack, which ended in disaster, resulting in the loss to the allies of three hundred out of a thousand men who had made a desperate attempt to carry the fortress by storm. On the

following day the allied fleet retired, and the history of the Russian victory began to spread over Siberia, where it aroused to the highest pitch the patriotic enthusiasm of all classes.

Muravieff had thus saved the Russian government from disaster, both by his far-sighted preparations when first visiting Kamchatka, and by the timely reinforcements which he had brought down the Amur. But his comprehensive mind quickly foresaw that the following year would witness a still more determined attack of the allies upon the Russian interests in the Pacific. He therefore at once began laying plans to meet the emergency. Ordering the abandonment of Petropavlovsk, he had its garrison and all the Russian flotilla concentrate about the mouth of the Amur, while he with great rapidity pushed forward preparations for sending down further reinforcements the following year from Transbaikalia, whither he had returned. One hundred and thirty new barges were built, sufficient to carry seven thousand tons, three thousand men were enlisted, and a large number of families were secured who were willing to form settlements along the line of the river. During the winter cannon were dragged overland from the Ural Mountains for a distance of three thousand miles to be in readiness for an early advance in the spring. A trusted agent was despatched overland a distance of more than five thousand miles to order the evacuation of Petropavlovsk and the concentration of the forces at the mouth of the Amur. The departure from Petropavlovsk was accomplished by sawing through the ice on the 5th of April, and

then by eluding the English cruisers under the protection of a dense fog.

The evacuating forces from Petropavlovsk safely reached their destination, but the condition of the Russian forces at the mouth of the Amur was exceedingly critical. The river would not be free from ice for some weeks, and the entire fleet was compelled to take refuge in De Kastrî Bay, which was open to attack from the English squadron, which was already patrolling the Gulf of Tartary to the south of them, and on May 11 had been sighted by the Russians. But at this time it was generally supposed that Sakhalin was a peninsula, and that the Gulf of Tartary ended in a pocket a short distance to the north of De Kastrî. This ignorance of the geographical conditions on the part of the English admiral led him to believe that, since the escape of the Russians to the north was impossible, it would be wiser for him to watch the movements of the enemy from the south, and await reinforcements which would assure him of success. But Nevelskoy, taking advantage of a fog a few days after, made the best use of his more perfect geographical knowledge, and conducted his fleet through the straits to the mouth of the river in which the ice had just broken up.

Meanwhile the English fleet had returned to De Kastrî Bay to find it abandoned, but supposing that they must be in some other place of concealment, Commodore Elliott kept sailing fruitlessly backwards and forwards for some time in a vain endeavor to find their place of retreat, until finally he concluded that the Russian fleet must have passed southward

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during the fog, and have set out by circumnavigating Sakhalin to reach the Sea of Okhotsk. On this theory he followed, on in that direction, appearing at Ayan on the 27th of June, only to find that it, like Petropavlovsk, had been evacuated. After frittering away the entire season in these misdirected efforts, the English fleet at last on October 17 retired to winter quarters, and left the Russians in undisturbed possession of their Pacific settlements.

But Muravieff had not been inactive. In the early part of May he had set out with more than a hundred barges and with three thousand men to descend the river a second time with an armed force. Again the Chinese at Aigun were astonished at his sudden appearance, but as he was awaiting direct information from Peking he paid no attention to the protests of the local officials, and the Chinese's occupation of the river banks was so nearly nominal that no resistance was offered. Nor was there any difficulty in establishing along the north side of the river numerous Russian settlements which should be able to render assistance to future parties going up or down the river. Twelve barges of settlers were indeed taken at this time to the lower part of the Amur, where the peasants selected for themselves the most eligible agricultural locations along the river.

On September 8 of this same year, Muravieff met by appointment the Chinese plenipotentiaries whom he had requested to have sent down to his headquarters at Mariinsk. To these he made the definite proposal that the Russians should be permitted to keep the settlements they had already made about

the mouth of the Amur in order to protect it against the aggressions of foreign powers, and further that the Russians should be permitted to establish a chain of settlements upon the north bank of the Amur. Without waiting for their assent, he quietly sent, through them, to Peking notice that he intended the following year to bring another expedition down the Amur for the establishment of settlements sufficient to keep up communication between the interior and the fortresses already established about the mouth of the river.

Hastening back overland by way of Irkutsk, Muravieff hurried preparations during the winter for another expedition. But successful as his plans had so far been, they did not meet the entire approval of the authorities at St. Petersburg. Nesselrode continued to advocate a policy of excessive conciliation toward China, and was unduly alarmed at the encroachments which had already been made upon Chinese territory and sovereignty. It was therefore necessary for Muravieff to leave to his trusted lieutenants the preparations for the ensuing expedition, while he hastened to St. Petersburg to explain the situation more fully, and to use his influence to win more active support to his policy.

It is well to remark, in passing, that it is difficult for the ordinary reader to appreciate the physical as well as the mental strain which must be endured to accomplish the feats which have been here rapidly recounted. Year after year we find Muravieff and his associates traveling with great regularity at all seasons backwards and forwards across the vast and inhospitable wastes of Eastern Siberia. In his anxiety to prepare

for the second expedition down the Amur, Muravieff set out on horseback before the ice had broken up to follow down the bank of the river in advance of the expedition. In the autumn the return had to be made by the way of Ayan, on the Sea of Okhotsk, which involved a journey of three thousand miles upon foot and horseback in the worst season of the year, in order to reach Irkutsk in time to complete his preparation for the coming season; while from Irkutsk to St. Petersburg, a journey which he undertook almost immediately, was not much less than four thousand miles.

Although peace had been declared by the allies, and the Treaty of Paris had been signed, Muravieff's third expedition down the Amur was by no means abandoned. Again a flotilla of more than one hundred boats and rafts, and carrying more than one thousand six hundred men, started down that river in the middle of May in 1856. Arriving at Aigun on the 21st of May, a short parley was had with the local officers, who said they would make no objections to the passage of the Russians up and down the stream, but that they were not prepared to acquiesce in the establishment of settlements along the bank. Nevertheless, four settlements, namely, Kumarski, Ust-Zeiski, (the present Blagovestchensk), Khinghanski, and Sungarieski, were established at about equal distances apart; thus giving the Russians virtual possession of the north bank of the river.

The utility of these settlements was demonstrated all too soon. Upon the conclusion of the war, two thousand seven hundred soldiers, no longer needed at the mouth of the Amur,

were ordered in the summer of 1856 to return to the interior along the bank of the river, and provisions were provided for them at the above named stations, but the delays in making headway against the currents, and the difficulty of finding the way in the lower part of the Amur, where the breadth of the stream is from twelve to fifteen miles, and often divided into numerous blind channels, were so great, that all of the troops were late in reaching their destination. Indeed one detachment of four hundred early in October were caught at Kumarski by the freezing ice, and had to remain there until the last of the month, when it was frozen sufficiently hard to bear them upon the surface. But their supplies of provisions were insufficient, and they were ill-clad, and their shoes worn out; so that more than one hundred of their number perished on the way, and the remnant reached the head of the Amur only in the middle of winter.

But in 1857 Muravieff was again at his post upon the Upper Amur with another expedition ready to go down the river, this time prepared for establishing more numerous stations upon the north bank. At the same time Admiral Putiatin was appointed on a special mission to Peking to settle the frontier question. Not being permitted to cross the Mongolian desert by the caravan route from Kiakhta to Kalgan and Peking, he was compelled to descend the river with Muravieff and make his way by water to Tientsin, where he was met by the Chinese commissioners, only to be baffled in all his efforts to bring matters to a conclusion.

Meanwhile Muravieff remained on the Amur, and suc-

ceeded in settling Cossacks at convenient distances from each other along the entire length of the river as far down as the Little Khingan Mountains, while a larger force was left at Blagovestchensk, at the mouth of the Zeya, to meet any hostile demonstration that might be made by the Chinese from Aigun ; thus completing the actual occupation by the Russians of the north bank of the river. The ease with which it had been accomplished is the best evidence that the Chinese really had no just rights in the territory thus occupied. There were, in fact, no Chinese worth speaking of living in the country, and China was doing nothing for its advantage ; while the native tribes were friendly to Russian rule. In fact, it appeared that the Chinese had for the last one hundred and fifty years kept the Russians from the use of this natural channel for commerce so essential to them by a great game of bluff successfully played in the preliminaries to the treaty of Nerchinsk.

After visiting St. Petersburg in 1858, Muravieff made preparations to conduct another expedition with a still larger number of settlers into the newly acquired territory. As the Chinese Empire was at this time distracted by the successful progress of the Taiping Rebellion, she was now more ready to consider the question of adjusting anew her relations with Russia upon the northern boundary, and on account of the increasing difficulties with England and France, who were threatening all her seaports, she preferred to conduct the negotiations upon the border itself. Commissioners were therefore despatched to Aigun, where they intercepted Muravieff as he was descending the river on May 11, 1858. Here he proposed

to them the terms of a treaty by which China should cede to Russia the entire territory to which she had laid claim north of the Amur and east of the Usuri River, and a strip of territory beyond the headwaters of the Usuri extending to the Korean border, and including the Bay of Peter the Great upon which Vladivostok now stands. The Chinese and Russians were to be granted exclusive rights to navigate these two rivers, and free trade was to be allowed. Among the arguments with which the Russians urged the acceptance of this treaty was that the Chinese in 1689 had used undue force in negotiating the treaty of Nerchinsk; and it was true that while the Russian plenipotentiary was at that time almost unattended, the Chinese were present with a large army. As much as possible was also made of certain infractions of the treaty and of the natural rights of Russians, of which the Chinese Government had been guilty.

Such was the vigor with which Muravieff pressed his points, that, five days after, namely on the 16th of May, 1858, the treaty was signed by both parties. This is known as the Treaty of Aigun, and is the basis upon which the relations between China and Russia were adjusted during the rest of the century. The few Chinese who were living upon the north side of the Amur on the fertile prairies below the mouth of the Zeya were permitted to remain and to be responsible to the Chinese authorities. It was upon the return of Muravieff to the station at the mouth of the Zeya River, a few miles above Aigun, that that place received the name of Blagovestchensk (Good Tidings), in special recognition of the thanks

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that were due to God, whose hand was recognized in the successful issue of the long and arduous undertaking which had resulted in the acquisition of this vast territory and of this direct line of communication with the eastern ocean.

In recognition of his great work, Muravieff was accorded the title of Count Amurski; and he continued for some time to promote with great energy the interests of the newly acquired territory. The city of Khabarovsk was founded and named after the original Cossack explorer who had here defended himself against the Manchus one hundred and fifty years before. Muravieff also ascended the Sungari River in a steamer, and secured the formal right of its navigation by the Russians, a right, however, which was never claimed in practice until near the close of the century, after negotiations had been made for the construction of the Chinese Eastern railway through Manchuria. On the following year he took measures for the survey of the country and the construction of maps, and selected the harbor of Vladivostok as the center of Russian naval power on the Pacific. Emigration to the new territory was encouraged in every way, order was everywhere rapidly established, and thereby an uninterrupted course of prosperity was opened up both to the region itself and to all the territory in the interior made accessible by the new line of communication. During the next forty years nearly half a million Russian settlers entered the country, and engaged in building up on every hand the institutions which accompany and characterize a high civilization. In 1872 the Russian naval station at Nikolaievsk, near the mouth of the Amur,

was formally transferred to Vladivostok, which, fifteen years later, became also the terminus of the great Trans-Siberian railroad.

It is impossible to overestimate the extent and value of what Muravieff did for the interests of the Russian Empire upon the Pacific. During the fifteen years of his administration, the Russian territory upon the Pacific slope had been augmented by the addition of more than three hundred and fifty thousand square miles of territory, fully one half of which is admirably adapted to Russian colonization, a territory nearly one fifth as large as European Russia, and capable of supporting a population of several million souls. One of the noblest river systems in the world was opened to the free navigation of Russian ships, mining interests of unmeasured value are brought within the reach of civilization, and a harbor as splendid as that of Constantinople or Rio Janeiro was made available for the Russian Empire upon the Pacific, and all this had been accomplished without bloodshed and without disturbing the friendly relations existing between Russia, that received the gift, and China, that bestowed it. It was under Muravieff's advice, also, that Alaska was ceded to the United States, and the enterprise of Russia limited to the eastern continent.

Leaving for a while this great region to develop under the natural influences set in operation by Muravieff, we will turn our attention, in the following chapter, to the expansion of Russia in the southwest, and follow the course of events which led to the final subjection of the Tartar tribes of Turkestan, and of the indomitable but troublesome tribes of the Caucasus.



A Stall in the Bazaar at Tashkent.



Civilized Kirghiz Tartars.

XI

THE OCCUPATION OF TURKESTAN

THERE is no natural political boundary line between Siberia and the Aral-Caspian basin. The watershed between the two areas lies approximately along the fiftieth parallel of north latitude, but is marked only by a gentle swell of land scarcely anywhere more than a thousand feet above the sea, and presenting no barrier to the passage of predatory tribes. It may rather be said to form a kind of bridge connecting the Tian-Shan range with the Urals through a distance of about one thousand two hundred miles. Over this entire area the Kirghiz Tartars freely roam, finding in one place or another, pasturage for their flocks throughout the entire year. An imaginary line drawn from Orenburg to Semipalatinsk following the course of this watershed formed the practical boundary between the Russian settlers in Western Siberia and the Tartar tribes of Turkestan from the time of the conquest in the early part of the seventeenth century to the middle of the nineteenth. But from the nature of the case it was a very unsatisfactory line. The Cossack defenders were few, and their stations far apart; while the nomad tribes who traverse long distances with their caravans, could easily concentrate at any point, and, overpowering the guards, make

incursions upon Russian territory. Not satisfied with carrying away property, they also made slaves of their captives. As late as the last quarter of the nineteenth century many Russian slaves were found in Khiva when it was captured by General Kaufmann.

We have already seen that a Russian fort and trading-point had been established at Semipalatinsk in the early part of the eighteenth century. But no farther advance into Turkestan was made until 1831, when the Russians established a fortified settlement at Sergiopol, about two hundred miles southwest of Semipalatinsk, and well within the drainage basin of Lake Balkash. Previous to this, however, a number of scientific explorers had penetrated to the interior of Asia through the Sungarian depression between the Tarbagatai and the Ala-tau range. Indeed, the Russian botanist Sivers had visited the region in 1793; while some Russian merchants about 1820 had traversed the entire distance between Semipalatinsk and Kashgar; and in 1828 the illustrious Humboldt had visited Semipalatinsk, and, after ascending the Irtysh River nearly to Lake Zaisan, had collected from the itineraries of earlier travelers information which shed much light upon the physical geography of the region. Humboldt was led to regard this region as the very central point of the action of the geological forces in Asia. The occupation of Sergiopol soon led, also, to subsequent scientific explorations, among which especially are to be mentioned that of Federof who, in 1834, definitely established the geographical position of a number of important points; while from 1840 to 1842 Karelin and Schrenk more

carefully explored the regions of the south, and made botanical and other collections.

This region, it will be remembered, is that of the so-called Sungarian depression, which forms the natural channel of communication between East and West Turkestan, and indeed between all Central Asia and the attractive agricultural areas of the Aral-Caspian basin. From the earliest times it had furnished the natural route for caravans and armies and migrating populations. As already remarked, it was through here that the early Huns made their way to Europe, and that the armies of Jenghiz Khan swooped down into the Land of the Seven Rivers and the Thousand Springs. It was here, also, that the Sungarian kingdom fixed its capital, from which it ruled Central Asia for a hundred years previous to the Russian occupation of Semipalatinsk. The fall of this kingdom had removed not only all formidable opposition to the advance of Russia, but had left the country in a state of anarchy, which was destructive of all material and social interests.

Advancing into the country during this state of things, the Russians displayed great tact, as well as perseverance, and succeeded in gradually pacifying the tribes; thus acquiring possession of the country by peaceable means. In 1844 the last of the great hordes of Kirghiz Tartars peaceably submitted to Russian rule, and have ever since remained faithful allies, the Russians interfering as little as possible with their national and social customs. In 1846 and 1847 Prince Gortchakoff advanced two hundred miles from Sergiopol, over a

spur of the Ala-tau range, and established the town of Kopal, meanwhile forming some fourteen thousand peasants into Cossack organizations for the defense of the border extending from Kopal to the Irtysh River. For a considerable time Kopal became an important center of commerce between Western Siberia and the valley of the Ili, especially the province of Kuldja, through which there was much traffic with Central Asia.

It was soon evident, however, that Kopal was of only transitory importance. Though established temporarily for the protection of the Kirghiz Tartars, it was not sufficiently near their enemies the Black Kirghiz, who were especially numerous about the headwaters of the Ili and about Lake Issyk-kul, at the head of the valley of the Chu. In 1853, therefore, the Russians advanced two hundred miles farther along the base of the Ala-tau range to the southwest, and established themselves in the valley of the Ili, founding in 1855 the fortified settlement of Verni, whose position is such as to render it a permanent and growing commercial city. In the midst of an irrigated area of great fertility overlooked by mountains seventeen thousand feet in height, which furnish the sublimest scenery imaginable, and blessed with a climate which permits the ripening of the most delicious varieties of grapes and other fruit, few places in the world present greater attractions for residence than this. Naturally therefore the establishment of this military post led to the introduction of a large number of peasant settlers. Two hundred families of peasants, together with a sufficient number of Cossacks for local protec-

tion, were almost immediately induced to emigrate to the region. Not only were they offered land, but they were guaranteed a partial support for a limited time. But really there was little need of forcing emigration to a country possessing so many natural attractions, and which has since drawn to itself in natural ways a Russian population of nearly one hundred thousand.

As usual the advance guard of Russian occupation was followed by active efforts for scientific exploration, both of the country occupied and of the adjoining regions. In 1856 the distinguished man of science and letters M. P. P. Semenov was sent out by the Imperial Russian Geographical Society and conducted a most important series of explorations in the whole mountain complex lying in the Western Ala-tau and the Tian-Shan range, whose center is occupied by Lake Issyk-kul. He even succeeded in ascending the Peak of Khan-tengri, which rises twenty-four thousand feet above the sea, and from whose glaciers issue the headwaters of the Ili River. After three years, Semenov was followed by Captain Golubeff, who made a partial trigonometrical survey of the region, and established many of the points which have become fixed in our geographies. To complete the work however, it was necessary for one Captain Valekinoff, himself of Kirghiz descent, to travel back and forth over the country disguised as a merchant, but really acting the part of a geographer. This he did, crossing and recrossing the entire Tian-Shan chain from Lake Issyk-kul to Kashgar by way of the Turgat Pass and Lake Chatir Kul. Later these surveys were completed by

Baron Osten-Sacken, who accompanied a military expedition to the region in 1867.

In 1860 the valley of the Naryn River, south of Lake Issyk-kul, had been formally ceded to Russia by the Treaty of Peking, the southern boundary being fixed along the summit of the Tian-Shan range and along the watershed between the valley of Kashgar and that of the headwaters of the Syr Daria to the Great Plateau of Pamir. In 1867 the province of Semirechensk was established, with Verni as its capital, including the whole drainage basin of Lake Balkash, together with the mountainous region occupied by the upper portion of the valley of the Chu and that of the Naryn River.

So far we have been following the line of Russian advance from the Irtysh River along the base of the lofty mountains which form the northern border of the Central Asian Plateau. From Semipalatinsk to Verni is six hundred miles. The boundary established along this line is practically that of the Kirghiz Tartar tribes on the southeast. From Verni in 1860 the Russians sent troops one hundred and sixty miles farther west to capture the forts of Tokmak and Pishpek, in the valley of the Chu, which were in possession of the Kokandians, then controlling the fertile area of Ferghana, in the upper portion of the valley of the Syr Daria. These forts commanded the celebrated Land of the Thousand Springs, so often referred to as stretching for more than a hundred miles along the northern base of the Alexandrovskii Mountains, and receiving the life-giving waters which descend in small streams at frequent intervals along the whole northern face of the mountain chain.

The forts were easily taken, but not so easily held. The Kokandians sent an army of forty thousand men to retake the positions lost; but it failed to do so, and the forts were henceforth occupied by the Russians as advance posts.

Meanwhile from another quarter the Russians had been slowly advancing southward across the steppes from Orenburg to the Aral Sea and to the lower portion of the Syr Daria; thus coming in contact with the Kokandians from two directions, and bringing on a crisis of great importance, with a race that was bound to offer most vigorous resistance.

So much trouble was constantly arising from predatory bands along the southeastern border of Russia, that in 1834 a Russian fort was established at Novo Alexandrovskii, on the northeastern projection of the Caspian Sea known as Dead Bay; while in 1836 earthworks were extended for twelve miles into the interior to furnish, like a Chinese wall, protection against "Mongolian Invaders." In 1847 Fort Uralsk on the Irgiz River, and Fort Orenburg on the Turgai, were built by the Russians to secure further safety along this indefinite boundary line, and a year later Fort Karabutak, about half-way between Orsk on the Ural River and Fort Uralsk on the Irgiz. About the same time the Russians also advanced to the mouth of the Syr Daria, and built the fort of Aralsk on the shores of the Aral Sea, and two ships were built in hopes of developing commerce. These were transported in sections from Orenburg, a distance of six hundred miles; while later a larger war vessel was built in the same manner and employed for the survey of the lake. In 1850 a small steamer

was built in Sweden and transported in the same manner to the mouth of the Syr Daria, whence it was expected to make trips up and down the river as far as Ferghana. This was launched in 1853; but, owing to the scarcity of fuel, the strength of the current in the river, and the variableness of its channels, it could not compete with the regular caravan trade, and proved an unprofitable enterprise. The steamer, however, was of considerable use in aid of the military advance which the Russians were making up the river.

For the protection of their wards, the Kirghiz, in this quarter, as in the Lake Balkash region, it was necessary for the Russians to resist the encroachments of the Kokandians, who were extending their forts far down the Syr Daria River and collecting tribute of the Kirghiz Tartars in their wanderings back and forth for pasture. Six such Kokandian forts were built below the town of Turkestan, the lowest being Kosh Kurgan, about half way to the Aral Sea. At the same time the Khivans were excited to secure the same end, and to accomplish the purpose had built a fort at Khoja-Niag, in the delta of the Syr Daria, about half way between Fort Perovsk and Aralsk, which enabled them to levy contribution upon all the Kirghiz who ventured into the region for pasturage, and upon their caravans on their way to Orenburg. Thus, in their anxiety to get the lion's share of the plunder, the Kokandians and the Khivans both were committing depredations upon the Russian wards. It was a matter of necessity, therefore, for the Russians to advance up the Syr Daria, in order to provide the protection demanded by their allies. But

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it was also equally evident that the possession of the upper part of the Syr Daria would, by extending the Russian lines of advance in this direction toward that from the east (which had already reached the valley of the Chu) be of great service in the permanent pacification of the region.

Accordingly in 1852 and 1853 detachments of troops were sent up the Syr Daria from Aralsk, supported by the steamer to which reference has already been made. Fifteen hundred troops thus accompanied ascended the banks of the river, two hundred and fifty miles to Ak Metched, where one of the caravan routes between Akmolinsk and Bokhara crosses the river. This was captured by storm in August, 1853, and its name changed to Perovsk, after the general who had been in command. Beyond this, little was done in the region by the Russians for the next eight or ten years; the reason for which will be easily recognized by remembering that this is the period of the Crimean War and of the great advance in Russian domination upon the Pacific coast.

It had been the intention of the Russian government to establish a line of forts extending from Perovsk along the north side of the Kara Tau range to connect with those already established at Tokmak, Pishpek, and Merke, in the Land of the Thousand Springs, on the north side of the Alexandrovskii Mountains. This would seem to form a "scientific" boundary and to afford sufficient protection to their Kirghiz allies. But the officers upon the ground urged the more thorough-going proposition of pushing their advance along the river valley itself south of the Kara Tau range, past Turkestan, to

Chimkent; thus getting more complete control of some of the important centers of Kokandian activity.

A simultaneous advance was therefore ordered along both lines of approach. General Chernaief set out from Verni toward Aulieata, which he succeeded in capturing on the third of July, 1864, with a loss of only five wounded on his side, but of three hundred killed on the side of the Kokandians. On the twelfth of July, the troops, advancing up the Syr Daria under the lead of Colonel Verefkin, captured Turkestan, and later went on one hundred miles farther to Chimkent, where they were joined by General Chernaief, after the capture of Aulieata. It was not, however, until October, that this city was reached and the citadel stormed. Mr. Schuyler was told "that the successful assault was owing to a ludicrous mistake. In the first outset one of the soldiers was slightly wounded and cried out for the surgeon—'Dok-tu-ra!' His comrades heard only 'u-ra!'—the Russian 'Hurrah,' rushed forward, pressing the enemy before them, and within an hour had full possession of the citadel, with only five men killed."

Immediately afterwards, General Chernaief rapidly advanced to Tashkent, and, after a brief bombardment, assaulted it on October fifteenth, but, being unable to capture it, he retired to Chimkent, after having suffered a loss of fifteen killed and sixty-two wounded. On the following May, however, he returned and captured the fortress of Niazbek, about sixteen miles above Tashkent, on the Chirchick River, which commands the water-supply of the city. But, considering that he had only two thousand men and twelve guns, his condition

was by no means hopeful, especially in view of the fact that the Emir of Bokhara was coming with a large force to aid Tashkent, or rather for the purpose of taking possession of it in anticipation of the Russians. But by a prompt movement of the Russians, to Chinas, the advance of the Bokharian army was prevented from crossing the Syr Daria River.

Leaving a small guard at the ferry, Chernaief returned to the vicinity of the walls of Tashkent. But, as they were sixteen miles in extent, inclosing a population of more than one hundred thousand people, it was impossible to lay formal siege to the place; while it would be disastrous to remain and await a drawn battle with the superior forces which could be concentrated against him. He therefore resolved upon another attempt to take the city by assault. On the twenty-seventh of June, at three o'clock in the morning, a storming party assaulted the gate which led to the highest part of the city, surprised the watch, silenced the artillery fire, and entered the town. But resistance was met with at every step, the inhabitants erecting barricades, and the soldiers shooting from gardens and houses. Nevertheless, on the following day, a deputation from the city made overtures for unconditional surrender, and the Russians came into full possession of the place. Thus two thousand Russians had overcome the formidable fortification of the city, and had defeated on their own ground an army of thirty thousand, with a loss on their own part of only twenty-five killed and one hundred and seventeen wounded. This result, however, was partly obtained by the co-operation of an influential party in the city, composed largely of merchants who

were favorable to the Russians, and who, soon after the surrender, united in pacifying the city, and restoring the regular order of business. Though these were Mohammedans, they spoke, in the proclamation issued by them, of the Russian Emperor in the highest terms of praise.

Chernaief's demeanor was so courageous in publicly exposing himself in the streets, and at the same time so courteous, that he won for himself a very high position in the respect and affection of the people of Tashkent. But, owing to the sensitiveness of the other European powers, who regarded these advances in Central Asia as exceeding the limits necessary for self-protection, the Russian authorities at home were compelled to make an example of him for exceeding his instructions in attacking Tashkent, and he was superseded by General Romanovski.

The situation, however, was one which could not be remedied by paper protocols. The new commander was compelled to continue an aggressive policy, especially in view of the fact that the Emir of Khojent had seized, and was holding in imprisonment, a Russian embassy that had been sent to him, and was threatening to raise against the Russians a holy war. General Romanovski, therefore, anticipated further trouble by advancing into Khojent in the spring of 1866, and capturing it without great difficulty, and releasing the prisoners. In the following autumn and spring he extended his conquests along the northern base of the mountains separating the Syr Daria from the Zerafshan, to Jizak, on the direct road to Tashkent and Samarkand.

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In this condition of affairs, General Kaufmann was, on the nineteenth day of November, 1867, appointed governor-general of the newly formed military district of Turkestan, and was given full power to make treaties with the surrounding independent tribes. Early in 1868 it was found necessary to advance still farther in the direction of Bokhara, on account of the inroads which the emissaries of the Emir of Bokhara were making upon the Russian frontier. After a slight encounter with the enemy, however, Samarkand itself was taken on the first of May without any resistance from within the city; while on the thirtieth of May the Russians advanced to Kattakurgan, half way to Bokhara, where they defeated the army of the Emir on the fourteenth of July. In the meantime Samarkand had been attacked by a large force of the enemy, and the garrison was in imminent danger, both from without, and from the citizens within. For six days the Russians defended themselves with the greatest gallantry, losing one hundred and eighty out of the seven hundred and sixty-two composing their number, four hundred and fifty of whom, however, were sick and wounded. On the nineteenth of June, General Kaufmann reached the city just in time to save the survivors, who had resolved to blow up the magazine and perish all together, rather than fall into the hands of the enemy.

The Emir of Bokhara now submitted himself to the Russians, who granted him favorable terms of peace, and allowed him still to retain his power. But soon afterwards his eldest son headed a revolt against the father's authority, and the Emir

was compelled in self-defense to call in the aid of the Russians, who speedily quelled the revolt; so that in 1870 his power was re-established, and he was allowed to continue his rule over the entire original territory. Bokhara has since retained a semi-independence, being nominally under the protection of Russia.

Affairs in Kokand, however, did not turn out so favorably to the native princes. There in 1868 a peace had been concluded with Khudiar, then ruler, which confirmed his sovereignty and respected the independence of the province. But the exactions of the petty princes were so great that in 1871 a revolt against them broke out. Though not successful, it was the precursor of others, in 1873 and 1874, which so unsettled the affairs of the province and became so dangerous to the surrounding country, a religious war even having been declared against the Russians, that the Russians were compelled to interfere; and formally annexed Kokand to the Empire. This was done in 1876, and the province has since been a part of the Russian possessions, under the name of Ferghana.

During these years, also, there was continual trouble in adjusting the southern frontier in the Balkash basin. From 1862 to 1864 the Chinese were actively engaged in putting down insurrections against their authority which were in progress in Sungaria and Kuldja. Though the Russians suffered much loss in the destruction of their consulate and trading-posts in these provinces, and from the arrival within their lines of a large number of impoverished refugees, they declined to take the part of either side, preferring to leave af-

fairs to adjust themselves. But on gaining partial success, the rebels fell to quarreling with each other and committed wholesale slaughters, which terribly shocked the civilized world. Still, there was no attempt at interference until 1870, when the Taranchis, who were in the ascendancy, attacked some Russian Kirghiz who were crossing the Muzart Pass to Kashgar, whereupon General Kaufmann took possession of the pass. This led to an outbreak of hostilities between the Taranchis and the Russians for the possession of Kuldja. For some time the disturbances in that province had been so serious that the Russians had been compelled to keep a considerable body of troops upon the frontier. Now upon the declaration of war by the Taranchi Sultan, the Russians at once crossed the border and captured Kuldja, the Sultan surrendering himself on the third of July, 1871. The Russian government, however, desiring to keep on friendly terms with China, assured the Chinese that their province would be restored to them as soon as they were able to take *bona fide* possession of it and maintain order. Upon the Chinese giving evidence of having accomplished this end in 1882, Kuldja was ceded back to China, and up to this date, 1902, has remained a province of that empire.

To secure peace and good order in Turkestan, there still remained the difficult task of compelling Khiva to conform to the usages of civilized nations. The difficulty of attaining this object was greatly enhanced by the security of the situation. Khiva, as we have seen, is an oasis of about six thousand square miles, watered by canals branching off from the Amu

Daria River where it first meets the head of the old delta, two or three hundred miles south of the Aral Sea. On the northeast it is bounded by the vast desert of Kizyl-kum, on the southeast by that of Kara-kum, and on the northwest by the equally barren plateau of Ust-Urt, while the Aral Sea upon the north with its many difficulties of navigation, is an effectual barrier to the advance of an enemy from that direction. This region well sustains the reputation of being the driest in the world, the average rainfall being less than four inches. In consequence, the deserts surrounding the oasis are so inhospitable that an army large enough to be formidable is unable to endure the hardships of the march overland; while the small detachments which are able to follow the caravan trails and reach the objective point are too small to accomplish anything when they get there. Thus secure in their position, the Khivans continued to conduct their affairs with a high hand, and were a constant menace to the peace and the natural rights of all the surrounding region.

From time immemorial the Khivans had been in the habit of capturing and enslaving Russians. To put a stop to this disorderly state of things, General Perovski in 1839, led a formidable expedition from Orenburg across the Ust-Urt, composed of an army of five thousand men and twenty-two guns, with ten thousand camels, besides horses, and two thousand Kirghiz drivers. Thinking that the expedition could best succeed in the winter, Perovski set out at the end of autumn, but before he was half-way to his destination, winter had set in with great severity; no forage could be found for

the camels, and the expected supply of provisions had not arrived. He was consequently compelled to retreat, and returned after the loss of more than three thousand men and of nearly all of the animals used for transportation.

The expedition, however, alarmed the Khivans, so that in 1840 they voluntarily liberated four hundred and eighteen Russian captives, and sent them to Russia accompanied by an envoy; at the same time the capture or purchase of Russians was publicly forbidden by the Khan; while in 1842 a formal treaty was signed by the Khan, in which he promised to maintain friendly relations with the Russians and to restrain his people from committing acts of robbery and piracy. This treaty, however, was from the first practically a dead letter, and robberies went on as before. In 1858 the Khivans, in justification of their conduct even went so far as to deny that such a treaty had ever been made. Thus, with little change, matters went on until 1869, when it was determined by the Russians that comprehensive plans must be taken for the final and complete suppression of the nuisance which Khiva evidently was in the strongest sense of the word.

Toward the accomplishment of this end, Krasnovodsk, upon the eastern side of the Caspian Sea, was founded to serve as a military basis for one line of approach. In 1871 and 1872, expeditions were sent out to explore the old bed of the Oxus, which, following the southeastern edge of the Ust-Urt Plateau, formerly conducted the overflow of the Aral Sea into the Caspian through Balkan Bay. These expeditions alarmed the Khan of Khiva so that he again proposed to make a new treaty

with the Russians. But as preliminary to any such negotiations the Russians insisted that he should at once liberate both the Russian and Persian captives whom he was holding in a state of slavery. Upon his refusal to do this, the official organ of the Russian government announced its intentions in the following words:

“Russia’s patience and love of peace must have their limits. The dignity and interests of the State do not allow that the insignificant ruler of a half barbarous nation should dare with impunity to disturb the peace and liberty of our subjects and the safety of trade, and insolently reject all our efforts for establishing good relations with him. Mohammed Rahim Khan, by his weakness and by the obstinacy of his advisers, has himself called the tempest down on his country. The final refusal by Khiva to fulfill our demands renders it necessary to enforce them by other means, and show this khanate that the steppes which surround it cannot protect it from deserved punishment.”

As a result a comprehensive plan was laid to advance upon Khiva in three different directions in the spring of 1873. The difficulties of the undertaking may better be appreciated by noting the distances which each military expedition would have to make to attain its object. Expeditions were to be started from Tashkent, from Chikishliar, and from Orenburg. From Tashkent the distance was six hundred miles, from Chikishliar, five hundred miles, and from Orenburg nine hundred and thirty miles. No use could be made of water communication through the Aral Sea, because there was a lack of transports at the mouth of the Syr Daria, and, even if they had been provided, the bars at the mouth of the Amu Daria

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would prevent their passage into the river. A somewhat detailed account of this campaign will be useful in bringing to light the conditions of life in this whole region.

General Kaufmann commanded the expedition which set out from Tashkent. Having collected his forces at Jizak, he set out from that point on the twenty-eighth of March. He had altogether a force of five thousand five hundred men, with twenty cannon, and with eight thousand, or as some say, fourteen thousand camels to transport the ammunition, provisions, and baggage. The first advance, of about one hundred and eighty miles, to Aristan Bel Kuduk was made in two weeks, and was accomplished without serious difficulty, notwithstanding some unexpected snowstorms which happened. But, actuated by fear lest they should not receive pay for their animals, which was to have been fifty rubles a head, the Kirghiz Tartars had turned over their poorest and weakest camels. So many of these had perished already from lack of food and exhaustion that it was found impossible to carry all of their provisions with them any farther; hence much was abandoned both here and in the farther advance. Moreover, it was found that the biscuits, which had been kept in store for several years, were wormy and unfit for use. It was necessary, therefore, to send to Samarkand for a fresh supply.

The ordinary route from Aristan Bel Kuduk to the Amu Daria seems from the map to be a long way around; since, after making a detour of about one hundred and fifty miles to the northwest, it then turns at right angles to the southwest, and, after about two hundred miles farther, reaches the

river nearly opposite Khiva. There seemed to be a more direct route which would reach the river at Utch-Utchak, in a course of about two hundred miles directly west. Much to the sorrow of the Russians this was the route eventually chosen. After a delay of ten days, during which they had received fresh supplies of bread, and eight hundred new camels, they set out, April twenty-fourth, for Khalata, about one hundred miles to the west, which they reached May sixth. Here three days were spent in erecting a fortification for the protection of their rear. On the eleventh of May they set out for their farther advance, only to find that the difficulties were almost insurmountable. Instead of being eighty miles farther to the river, it proved to be one hundred and twenty, and the good road which they expected proved to be shifting sand, which so yielded under the feet of both men and animals that the march was extremely slow and tiresome. The only wells which were known to exist on the road were at Adam Krylgan, twenty-four miles from Khalata. It was somewhat significant that Adam Krylgan means "man's destruction." Here they arrived, greatly exhausted at midnight, May twelfth, but found the water insufficient for their necessities.

After resting a day, a desperate determination was formed to attempt to reach the river by forced marches with three halts between of six hours each. In pursuance of this plan, the advance-guard set out almost immediately, and, after marching thirteen miles, halted for their rest at nine o'clock in the morning. The road was so heavy, however, that the camels and the rear detachment did not arrive until five o'clock

in the afternoon, and all were so weary that it was impossible to think of advancing; while to keep from perishing it was necessary to send troops back to Adam Krylgan for a fresh supply of water, which, however, was so nearly exhausted that at the best it could only partially meet their necessity. In short, the expedition seemed upon the very verge of ruin; for not only would it have been humiliating to have retreated, but the loss of camels had been such that at the best the army could only regain its original base, when it would be too late to refit and set out anew. But at this juncture, a rough-looking Kirghiz Tartar who had recently joined the expedition, informed General Kaufmann that there were wells a few miles off the road to the north, at Alty-Kuduk. The General took out his pocket-flask and told him that if he would bring it back full of water from those wells he would give him a hundred rubles. The hundred rubles were speedily won. The water, though scant, was found to be sufficient for their purposes, and the expedition after resting several days was enabled to move on in small detachments, but the Amu Daria was reached only on the twenty-third of May, after eleven days from Khalata instead of two, and with a loss of eight thousand, eight hundred, out of ten thousand camels.

Having reached the river at Utch-Utchak, they marched slowly down, having occasional skirmishes with the Turkomans, who had been sent up from Khiva to obstruct their progress. With the aid of some boats which they had captured from the enemy, the Russians completed crossing the river on the third of June, and occupied the town of Hazar-asp, about

forty miles above Khiva, where General Kaufmann received a letter from the Khan requesting the cessation of hostilities, and giving as one reason that he had already released the Russian prisoners.

Leaving General Kaufmann at this point, it will be necessary, in order fully to appreciate the culmination of the campaign, briefly to follow the fate of the other detachments which were moving from different directions towards the same point.

The less fortunate of the expeditions was that which set out from Chikishliar, on the southeast corner of the Caspian Sea, at the mouth of the Atrek River. This was under the command of Colonel Makozof, who, with two thousand three hundred men, two thousand six hundred camels, and provisions for ten weeks, started on the thirty-first of March. The distance before him was five hundred and twenty-three miles, the latter part of it leading across the Kara-kum, one of the most inhospitable of the deserts of this arid basin. On the twenty-ninth of April the expedition reached Igdy, in the old bed of the Oxus, about midway between Khiva and both Chikishliar and Krasnovodsk. Here they supplied themselves with water for use through the fifty miles which separated them from the next well.

But the sand was deep and the weather intensely hot. At ten o'clock on May first, the thermometer ran up to 130° F., and at noon burst. Many of the soldiers were prostrated by sunstroke, and the water was nearly exhausted. Still they pressed on to reach their limit of fifty miles. But to their

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dismay, on reaching the place, they found no water, and there was still a broad expanse of desert before them. Making a virtue of necessity, a counsel of war resolved to retreat to Krasnovodsk. The retreat was begun on May fourth, and they reached Krasnovodsk on May twenty-sixth. Sixty men had died of sunstroke, while almost all the rest were sick. The troops had thrown away their arms; the camels and provisions had been abandoned in the desert. Still it had accomplished something by diverting the attention of the Tekke Turkomans, and keeping them from going to the assistance of Khiva. A part of the blame for the failure of the expedition is chargeable to the rascality of the contractor, who, in supplying the army with food, had feathered his own nest by setting full price on provisions that were both bad in quality and short in weight.

A third column, under command of General Verefkin, was sent out from Uralsk and Orenburg on the ninth of March. The detachments met at Fort Embinsk, on the Emba River, having been conveyed to this point in sledges. On the eleventh of April they left Fort Embinsk, and, following the well-known road along the west side of the Aral Sea, reached Kungrad about one hundred miles below Khiva, in good condition on May twentieth. On May twenty-fourth they began their march through the delta, skirmishing with the enemy and building bridges over the irrigating canals. On June fifth General Verefkin received a letter from the Khan of Khiva, asking for a truce, and saying that a similar letter had been sent to General Kaufmann. No attention, however, was paid to it,

but on the seventh of June General Verefkin was encamped within three miles of the city. Not hearing from General Kaufmann, and fearing that he might have met with some reverse, General Verefkin on the ninth made a reconnaissance in force close to the walls, and began the bombardment. This was carried on with such vigor that a request for suspension of hostilities came from the city, but, as the Khivans kept on firing, the bombardment was continued. In the evening, however, a letter was received from General Kaufmann, stating that he was seven miles east of the city, and that he had the promise that it would be surrendered to him at eight o'clock the next morning. The loss of the Russians had been four killed and twenty-six wounded. The next morning, however, firing was still continued by the Khivans, and General Verefkin's army was compelled to renew the bombardment and to storm the north gate, which they captured with a loss of fifteen more killed and wounded. It turned out that the formal surrender of the city to General Kaufmann was in progress at the very time of the storming of the north gate; so that it is doubtful who should have the honor of the capture. The city, however, was in a state of partial anarchy, so that no one was generally recognized as having complete authority.

Not only was there a state of anarchy in the city of Khiva, but it prevailed to a large extent throughout the whole province. The leniency of the Russians in dealing with the conquered people soon won the confidence of those who were in the immediate vicinity. But trouble soon after arose with tribes who were outside, especially in connection with the

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liberation of the Persian slaves, who numbered in all about thirty thousand. At the same time, the Turkoman tribes were so much feared by the Khan of Khiva, that it was thought wise to humble them, and to impress them with a due sense of the invincible power of Russia. As a result, a penalty of three hundred thousand rubles (about two hundred thousand dollars) was laid upon the Yomud Turkomans, with the demand that it be paid within ten days. This was followed by a campaign against the tribe, of short duration, but of great destructiveness and of much apparently unnecessary cruelty, since General Kaufmann "gave over the settlements of the Yomuds and their families to complete destruction, and their herds and property to confiscation," in case they did not use due diligence in collecting the indemnity. It is needless to say that the opposition of the Yomuds, vigorous though it was, was fruitless of result, and that they were taught a lesson that they could not soon forget, but that at the same time their enmity towards the Russians was greatly increased.

As the result of this campaign all the territory on the east of the Amu Daria was formally ceded to Russia, and though the Khivan Khanate was permitted to retain an independent existence, it came formally under the protectorate of Russia, and was compelled to pay an indemnity of two million two hundred thousand rubles (about one million four hundred thousand dollars), and slavery was definitely abolished. This indemnity proved so heavy a burden, and the difficulty of collecting tribute from the Turkoman tribes proved so great, that the Khan desired to have the Russians take entire posses-

sion. This, however, they did not care to do, yet they did repeatedly supply him with troops with which to bring the Turkomans to terms. This was in 1873. The last payment was to have been made in 1893, but at the opening of the twentieth century, Khiva was still in arrears, and was still an independent province under the protection of Russia.

The campaign against Khiva was followed by some important exploring expeditions which prepared the way for the further enlargement of Russian possessions in the Transcaspiian region. In 1875 General Lomakin set out from Krasnovodsk with one thousand men and six hundred camels to explore the Uzboi. This he found to be a plainly marked river bed which had formerly been the outlet of the Aral Sea, carrying off the combined waters of the Amu Daria and the Syr Daria when their volume was much greater than now. The banks were everywhere found to be sharp-cut, and in the bed there were many stagnant bodies of water,—some salt, some fresh, and some sulphurous. The party reached the wells of Igdy on the twentieth of June, when they halted, and sent forward a surveying party to Lake Sary-kamysh, upon the border of the Khivan delta, and near the point where the water of the Aral Sea formerly overflowed into the old channel of the Uzboi. By the middle of July all had returned to the vicinity of Krasnovodsk, having experienced repeatedly hot weather in which the thermometer rose from 110° F., in the shade to 122° in the sun. Two had died on the road from the heat, and thirteen more were prostrated. During the en-

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tire trip, however, the Russians were hospitably received by the Turkomans.

Other expeditions explored the region lying east of the Caspian Sea between the Atrek River and the Little Balkan Mountains. These brought to light an extensive region which had in former times been irrigated by water from the Atrek carried by an aqueduct across the Sumbar River, and fertilizing an extensive region which was once thickly populated, but is now desolated. This expedition brought the Russians into more intimate contact with three Turkoman tribes, with which they were soon to have much to do.

These branches of the Turkomans are the Yomuds, the Goklans, and the Tekkes. Of these the Yomuds migrate as far north as Kara-Bugas in the spring, and go up the Uzboi as far as Igby. During the winter months they retire to the south of the Atrek. In all they number about eighty thousand. The Goklans adjoin the Yomuds on the east, and are principally agriculturists. Their number is about fifteen thousand. The Tekke Turkomans occupy the fertile strip called the Atok along the northern base of the Kopet Dag range, which is about twenty-five miles wide, and extends for one hundred and fifty or two hundred miles towards Merv.

Of these tribes the Tekkes are by far the most warlike and formidable. Nominally they owed allegiance to the Khan of Khiva, but really they lived in almost complete independence, and were a terror to all their neighbors. Frequently, marauding expeditions of the Tekkes penetrated as far as

Meshhed in Persia, and Herat in Afghanistan to bring away plunder, and captives whom they held for ransom. In 1874 a company of five hundred Turkomans carried off one hundred and fifty prisoners from a settlement within twenty-five miles of Krasnovodsk, and left eighty killed upon the ground. Thus matters went on without improvement for several years; the Tekkes successfully resisting the several efforts made by the Russians to bring them into subjection.

But at length in 1880 a more formidable campaign was entered upon against them, this time under General Skobelev, who found the Tekkes strongly fortified at Geok-Tepe. Skobelev had only from eight thousand to ten thousand men, while the Tekkes were said to have had thirty thousand. Nevertheless, the fortification was stormed and taken, though with a greater loss on the part of the Russians than they had suffered previously in all the sieges of Central Asia for thirty years. The seriousness and importance of the event is marked by a museum upon the spot amply supplied with wall paintings of the heroic deeds of the Russians on this occasion. All railroad trains now stop long enough at the station for the passengers to visit this striking monument to the bravery and devotion of the Russian soldiers.

The capture of Geok-Tepe brought the Russians well on towards Merv, and gave intimation of what must soon be the fate of that once important but now sadly dilapidated center of population. As this had been a special center from which the marauding expeditions of Turkomans set out for pillage,

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it was impossible for civilization to exist in its neighborhood. As late as 1878 the Merv Tekkes had gone in great force to within five miles of Meshhed in Persia, and laid waste the surrounding villages, capturing some of the men and women, killing and maiming others, and carrying off everything of value which it was in their power to do. It is estimated that during the forty years previous to this time the Turkomans had carried away as many as two hundred thousand captives from Persia. At the request of the Persians, a Russian force was in November 1883 advanced towards Merv. This alarmed the people of Merv to such an extent that they sent representatives to the commanding general, and offered to liberate all slaves, to forbid slavery in the future, and to submit themselves to Russian authority. Thus without further bloodshed Russia at length, in 1883, reached her natural boundary along the mountain-chain which separates the highlands of Persia and Afghanistan from the rich borderland and the broad desert wastes of Turkestan—Bokhara and Khiva alone retaining their independence, but acknowledging the protectorate of Russia.

The alarm of the English at the advance of Russia towards India in this direction has long since subsided, in view of the evident good faith with which the Russians are applying themselves to the development of the country and to the maintenance of peace upon the border. Minor readjustments in the determination of the boundary line have been easily made while in 1895 a joint commission of the English and the Russians peaceably settled the boundary line in the Pamir,

extending the Russian possessions to the lofty mountain summits which form the watershed between the Amu Daria, Indus, and Tarim rivers. And so the boundary remains, and is likely to remain for an indefinite period.



Tiflis.

XII

THE OCCUPATION OF CAUCASIA

ALLUSION has already been made to the abdication of the King of Georgia in 1799 in favor of Russia. This was an event that was not altogether unlooked for, since Georgia had for some time been under the protectorate of Russia. To measure all the forces leading to this end it is necessary to go back to the fourth century of our era, when the Georgians were converted to Christianity. For several centuries previous to this time, the kingdom had maintained its independence. As early as 300 B. C. a Georgian prince had driven from the country the governor appointed by Alexander the Great. while even before this time the town of Mikhetsk, which still exists about twenty miles from Tiflis, had been recognized as the capital of a Georgian Kingdom. Here in 295 A. D. the Georgian King Meriam was converted to Christianity by a poor captive named Nina who had escaped from the religious persecutions in Armenia. Through her influence the offering of human sacrifices was abolished and the pagan altars overturned, and a sanctuary was erected at Mikhetsk on the site which is occupied by the present cathedral. In 469 and the following years, King Vakhtang founded Tiflis, which in 499 became the capital. Under his rule Georgia

became a formidable power in the world, since he not only brought a large part of the Caucasus under his dominion, but conquered a considerable portion of Armenia, and through an alliance with the king of Persia extended the influence of his arms into India. About this time the Georgian and Armenian churches, which had been united, separated from each other; and in the following century a union was formed between the Georgian and the Russian churches.

During the height of the Mohammedan power its influence rapidly spread to the Caucasus, and for centuries Georgia was overrun by Mohammedan conquerors. But with varying fortunes the kingdom maintained its existence, rising, like the Phoenix, even after the desolations inflicted upon it by Timur the Tartar during the latter part of the fourteenth century. In the wars with Turkey and Persia which followed during the fifteenth and sixteenth centuries, the Georgian kings repeatedly sought the aid of the Russians, with whom, as we have seen, they were already in close affiliation through their churches. In 1716 Peter the Great sent an expedition to aid the Georgians against their Mohammedan enemies, and formally took them under his protection, and in return was given by treaty Derbent, and Baku, while a strip of land upon the Caspian Sea became an integral portion of the Russian Empire. In the latter part of the eighteenth century the difficulty of maintaining themselves against their Mohammedan enemies had so increased, that, as already said, George XIII., whose ancestors had held the throne for more than a thousand years, abdicated in 1799 in favor of Russia, and



Ananur, on the Aragwa River, in the Caucasus.

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Alexander I. became heir to his kingdom. Some ineffectual attempts at revolt were made, but they were easily put down.

As will readily be seen, the foothold which Russia obtained in the Caucasus through the annexation of the Georgian Kingdom rendered the ultimate conquest of the entire territory inevitable. At the same time, the natural strength of the military positions in the Caucasus were so great that their possession by warlike and fanatical Moslems rendered the position exceedingly unpleasant, as the events of the next fifty years amply demonstrated.

In 1829, Turkey, by the Treaty of Adrianople, surrendered to Russia her sovereignty over the Caucasian tribes. Whereupon the long struggle for their conquest began in earnest. The great military museum in Tiflis is filled with paintings of the many heroic struggles engaged in by the Russians to overcome both the natural difficulties, and the sublime valor of these defenders of liberty in the fastnesses of the Caucasus. One of the most impressive pictures represents the Cossacks as throwing their living bodies into a ditch to fill it up so that the artillery wagons could be hastily drawn over it to a position of advantage. As a last resort the Russians were compelled to denude the mountain sides of their trees, in order to break up the guerrilla warfare for which the forests afforded such excellent protection. It is reported that when Schamyl perceived this, he lost heart, exclaiming, "Now that the Russians are clearing away the woods, I perceive that Woronzoff [the Russian general] has discovered the secret of my strength."

The resistance to the Russians was chiefly maintained by the Circassians on the west and the Lesghians on the east. The Circassians gradually retreated from their strongholds on the Black Sea to their fastnesses in the mountains, where they maintained themselves for many years against all the military power that Russia could bring against them. Slowly, however, all the strongholds were captured in detail, the last of the tribes surrendering only as late as 1864. We have already referred to the fact that these Circassians, rather than remain in the dominion of a Christian ruler, preferred to emigrate in a body, and that as many as five hundred thousand abandoned their homes and took refuge in Turkey. A large part of the abandoned territory is still unoccupied on account of the difficulty of obtaining a clear title to the land, while the Circassian families and their descendants can be found scattered all over Asia Minor, even as far south as the Hauran, on the east side of the Jordan Valley.

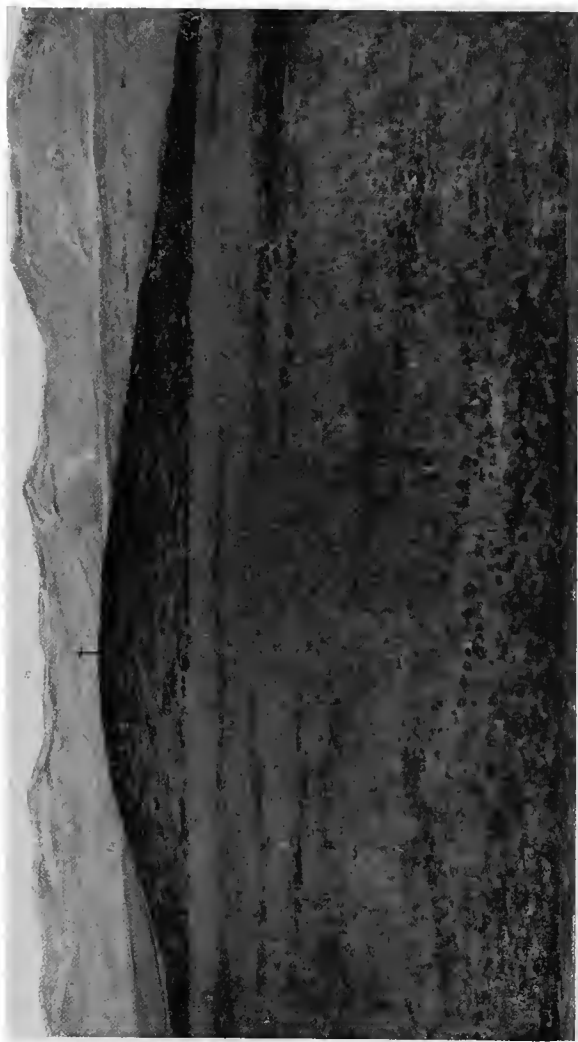
The subjugation of the Lesghians in Daghestan was even a more difficult task. This was partly owing to the greater extent and the even wilder character of that mountainous region, and partly to the intensity of the religious fanaticism of the Mohammedan population, but mainly to the remarkable ability of their leader Schamyl, who came into power almost immediately after his country was ceded to the Russians in 1829. His influence both as prophet and warrior was greatly enhanced by his numerous remarkable escapes from the difficult situations in which he was repeatedly placed by the in-

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vestment of the Russians. Many of these were such as to seem to his followers scarcely less than miraculous; while his victories over the Russians often had the appearance of being won by divine aid. Especially was this the case, when, in 1842, though the Russians, under General Gravie, had seemingly almost won their goal, Schamyl completely routed them in the woods of Itchkiri. One Russian general after another lost his reputation in contending with this great leader, who easily with a small force dodged about from place to place in the mountain complex of Daghestan, beguiling the enemy into unexpected ambushes, and pouncing upon and annihilating their small detachments whenever they became separated from the main force.

But Schamyl was at last taken in the mountain fastnesses, September 6, 1859, and, soon after the entire country passed quietly into the hands of the Russians. Schamyl himself, however, spent ten years of honorable captivity in Russia, and was permitted in 1870 to make a pilgrimage to Mecca, dying at Medina, in March, 1871, at the age of seventy-four years. Unlike the Circassians, the Lesghians preferred to remain in their mountain home, even though hedged in by Christian powers. The policy of the Russian government toward alien religions, however, is such that the freedom of their Mohammedan sects is in no ways interfered with, except as it may be in countervention of the natural rights of man. But here in the Caucasus, as throughout Turkestan, the reign of law and order has followed in the wake of Russian occu-

pation. Property, life, and individual liberty are everywhere protected; brigandage has been suppressed, and peaceful travelers with properly credited passports can now penetrate safely to the inmost recesses of its sublime and picturesque mountain scenery.



Prehistoric Mound near Verni.

XIII

PRE-RUSSIAN COLONIZATION

Prehistoric Races

THE first colonists of Asiatic Russia belonged to the stone age, and accompanied the mammoth in his wanderings over the plains of Siberia.

The existence of man in Western Europe when the physical conditions were very different from those of the present time has long been an object of reasonable inference from the occurrence of his implements and remains in deposits of glacial age and in connection with the bones of numerous extinct animals. More recently, as will be related, similar evidence witnessing to man's presence on the plains of Southern Russia during late glacial or postglacial time has come from Kief on the Dnieper River, but the details must be reserved for the geological chapter. More lately still evidence to the same effect has come to light in the central part of the valley of the Obi near Tomsk. Here Professor N. Th. Kashchenko, in 1896, found the

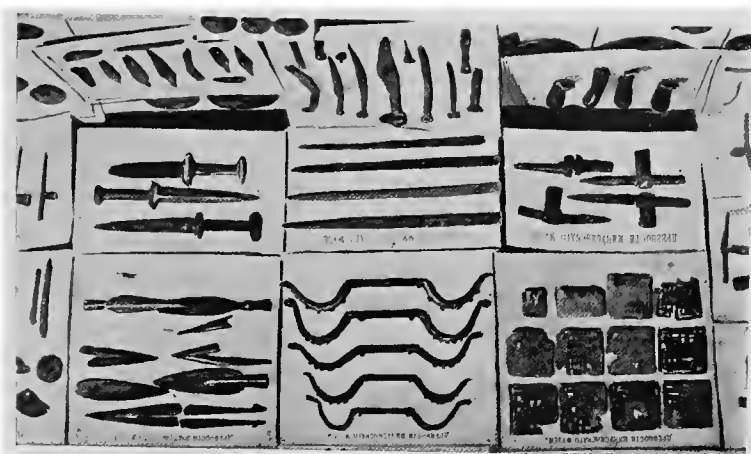
"remains of a mammoth twelve feet below the surface of a cliff which stands 136 feet above the present level of the river Tom. Only

a few small bones of the skeleton were missing, and with it were associated thirty flint knives, besides scrapers and about one hundred flakes. The large bones were split in the usual way for the extraction of the marrow, and there were other clear indications of the presence of man. . . . The position, and various other circumstances exclude any recent date for the find." *

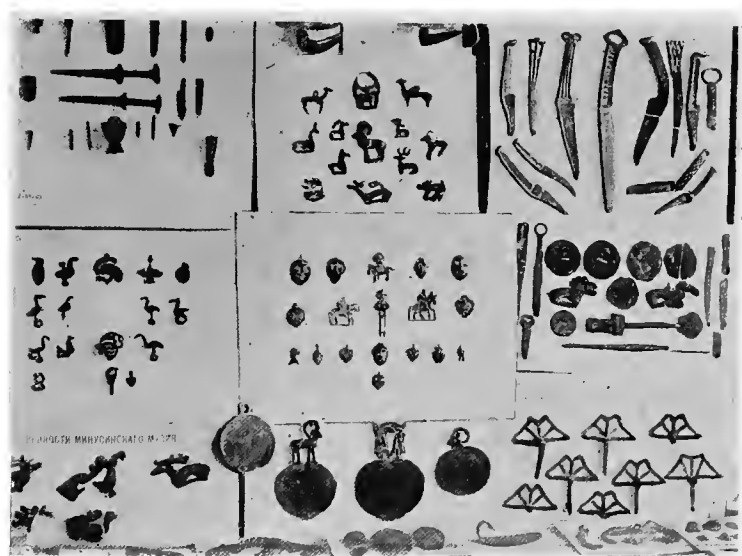
From Finland to Japan there stretches an almost continuous belt of prehistoric monuments that apparently have no connection with any of the races now occupying the region. These consist of barrows, or burial-mounds of large size, stone circles, and huge stone monuments of various types. Such burial-mounds, differing in type from anything erected by the present inhabitants, fairly line the way from Tashkent to Semipalatinsk along the fertile irrigated belt which borders the Ala-tau range, and are conspicuous in Mongolia outside the great Chinese Wall not far from Kalgan; while in Japan numerous dolmens, constructed of huge unhewn stone and wholly unconnected with the present civilization, are thick on the hillsides near Oka-yama and various other places in the empire; and shell-heaps and cave-dwellings yield many relics more directly connecting the aborigines of Japan with men of the stone age in other parts of the world.

In Western Siberia the barrows are called by the present inhabitants *chudskiye Kurgani*, "Chudish graves"; the term *Chud* indicating a vanished and unknown race. A probable connection of these burial-mounds with the men of the stone age is shown by the fact that some of the skulls found in

* Man Past and Present. p. 269.



Bronze and Iron Implements in the Museum at Minusinsk.



Bronze Ornaments in the Museum at Minusinsk.

them, notably two from a mound near Kiakhta, in Transbaikalia are of the prehistoric, rather than the Mongolian, type. Mongolian skulls belong to the brachycephalic type, in which the breadth is more than eighty per cent of the length; but these skulls were distinctly dolichocephalic, the breadth being but a trifle over seventy-three per cent of the length.

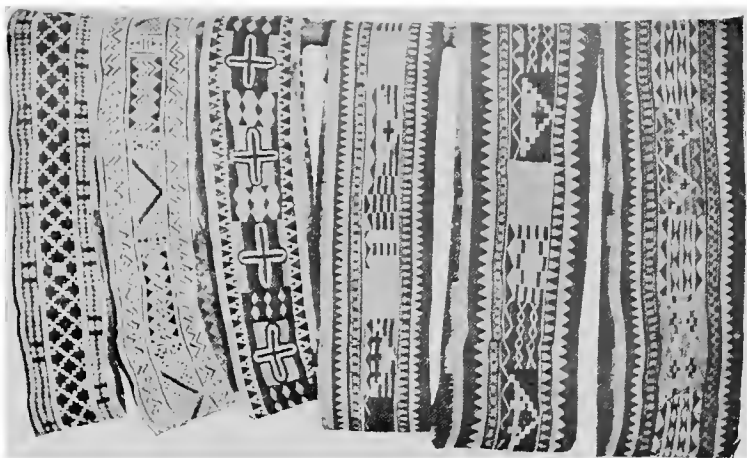
In the Irkutsk Museum may be seen many implements of stone, of bone, of mammoth tusks, and of carefully worked copper which have been found in the burial-mounds in the vicinity of Lake Baikal. These would seem clearly to be older than the bronze age, from the fact that no bronze implements were found in connection with them; while in Minusinsk, an oasis in the upper part of the Yenisei River, inclosed between the Sayan and the Altai Mountains, the mounds, as before remarked, have yielded an immense number and variety of bronze implements, some of them evidently going far back of the Christian era. Indeed, the collection from these mounds in the museum at Minusinsk gives a more complete representation of the progress of art in the bronze age, and of the transition from the use of bronze to the use of iron, than is to be found anywhere else in the world. It is generally believed that these skillful mineralogists and agriculturists of Minusinsk are represented by the Samoyedes, who now occupy the bleak region about the mouths of the Obi and Yenisei rivers, extending westward nearly to the White Sea. At the present time, indeed, they are sadly degenerated from their former condition, being reduced almost to the condition of the people who inhabited Western Europe during the Stone

period, but this is probably due to the inhospitable character of the country to which they have been driven.

There seems to be cumulative evidence, also, that America is a province of Asia, having received its population from Northeastern Siberia by way of Bering Strait. This passage is so narrow, being but thirty-six miles in width, that the shores on either side are visible from the other, while Diomed Islands, in the middle, still farther facilitate passage. At the present time, natives annually cross from side to side in their skin boats. At the same time the physical, social, and linguistic characteristics of the aboriginal inhabitants of America closely ally them to the Mongolian tribes occupying Northeastern Siberia, which may properly be looked upon as the advance guard of colonists from Central Asia who have been driven farther and farther from their central home by the continued pressure of the tribes in the rear who are increasing both in numbers and civilization.

The Mongols

Previous to Russia's extension into Asia, the whole of her vast possessions in that continent (if we except portions of Trans-Caucasia) were occupied by numerous representatives of the Mongolian race, one branch extending even to Finland and Lapland. Speaking broadly, the Mongols are divided into the Northern and the Southern branch. The Southern branch includes the people inhabiting Tibet, the south slopes of the Himalaya Mountains, a considerable portion of Indo-China, all of China and Formosa, and parts of Malaysia. In



Designs Worked by Koriaks.

light of the latest investigations, it seems probable that Tibet is the center from which the various members of the Mongoloid family have radiated. In the south and the southeast, where it has occupied the south slope of the Himalaya Mountains, Indo-China, China, Formosa, and parts of Malaysia, the race has developed many peculiarities which differ from those of the northern branch of the family, which spread over Mongolia, Turkestan, Asia Minor, and Siberia, and probably across Bering Straits to North America. Still the general resemblances are so many that they are properly classed as one family.

The Northern Mongols, or as they are sometimes called the Mongolo-Tartars or Mongolo-Turks, are by some classed, from a linguistic point of view, under the title of Uralo-Altaic, from the region between the Ural and Altai Mountains, which seemed to serve as an important radiating center. Physically the characteristics of the Northern Mongols, are black hair, beardless faces, light or dirty yellowish skins, broad skulls (the width being from eighty to eighty-five per cent of the length), jaws slightly projecting, cheekbones very high and prominent laterally, nose very small and concave with widish nostrils, eyes small, black, and oblique, stature usually short, lips thin. In temperament the Mongols are generally dull and somewhat apathetic, but usually brave and warlike, though capable, under proper conditions, of development into a mild and humane disposition.

Linguistically the Uralo-Altaic family use the agglutinative form of speech, which has no prefixes, but innumerable suf-

fixes to the original root syllable. In these languages, words are formed by adding on to the root almost any number of suffixes to enlarge and modify its meaning. Thus the Turkish word for "love" is *sev*. But to express the idea for which we require the sentence, "They were not to be brought to love one another," one word only, consisting of the root and numerous suffixes, is required, namely, *sev-ish-dir-il-med-il-er*.

Religiously Shamanism prevailed over the larger part of Siberia. The Shamans believe in a supreme being who administers his government in the world through innumerable secondary gods whom it is absolutely necessary to propitiate by magic rites and spells. Because, also, of their gloomy views of the future life, they have a great dread of death. The tribes of Turkish stock are mostly Moslems; while a few in Siberia adjoining Mongolia proper are Buddhists. But, before considering these tribes in detail, it will be proper to say something about the prehistoric races.

The Northeastern Tribes

The northeastern portion of Siberia is occupied by the Chukches, the Yukagirs, the Koriaks, and the Kamchadales, with whom may be joined the Ghilaks, living about the mouth of the Amur. These tribes are sometimes called Hyperboreans, and, as just remarked, in many respects form a natural connecting link between the Mongolian races of Asia and their allies in North America. It is evident, however, that their retreat to this lonely region was so long ago that under the pressure of the severe conditions of life a number of



TRIBES OF NORTHERN ASIA.

SHADED PORTION IS RUSSIAN

J. HART, AUTLEY

E. of Greenwich

separate stocks have become amalgamated; so that we have in the long-headed Eskimo and Alaskans, and in the round-headed natives of Mexico and of the southern portions of America in general, the descendants of the earliest colonists of Northeastern Siberia before these amalgamating processes had proceeded to any great length. At the present time these tribes possess and use great herds of reindeer in the portions of country which are adapted to that animal, and live in comparative comfort; while those who are confined to the seashore and limited to fishing as a means of support are in a much more degraded condition. Altogether, however, they number only a few thousands.

The Yakuts

Adjoining these tribes upon the west, and presumably belonging to a succeeding wave of emigration, are the Yakuts, who occupy the Lena Valley throughout nearly its entire length, together with an extension to the east along the headwaters of the Yana, the Indigirka, and the Kolyma rivers, and on the west along the Arctic Sea as far as the Taimur Peninsula. These are indeed Mongolians, but they belong to the Turkish branch, whose relatives are now for the most part in Turkestan. In Eastern Siberia they are completely shut off from their allied tribes by Mongolians of the Manchu type, who have pressed across their pathway even to the Arctic Ocean. Altogether the Yakuts number about two hundred thousand souls. They are short in stature, averaging only five feet four inches in height, and show much capacity in

adjusting themselves not only to the severe climatic conditions of their territory, but to the progressive ideas introduced by Europeans.

As already noted, this region is the coldest in the world and subject to the greatest range of temperature; at Verkhoyansk, the range being from 90° F. below zero to 93° F. above. Yet in the depth of winter the grown-up members of the tribe move about in light attire, while the children make nothing of sporting naked in the snow. The Yakuts are enterprising and laborious, cultivating the soil to a considerable extent, and making the most of such school advantages as are afforded them. They are increasing in numbers, and really succeed in partially absorbing the Russians who settle among them. During the winter they live in log houses, with plates of ice or pieces of skin in place of glass in their small windows. During summer they wander about more or less, living in conical tents covered with birch bark. For the most part they have outwardly accepted the Christian religion, but are slow in abandoning the practices of Shamanism, their former faith.

The Tunguses

The Tunguses presumably furnish the next wave of invading emigrants ever crowding outwards from the center of Asia to the northeast. These are closely connected with the Manchus, the typical and most aggressive branch of the family. Their language, which is simple in structure, is more nearly allied to that of the Chinese than to the Turkish dialects. The main area occupied by the Tunguses proper is in the



Yakut Prince and People.



Wandering Tungus Getting Benefit with his Family.

eastern portion of the middle part of the Yenisei Valley in the vicinity of the Lower, Middle, and Upper Tunguska rivers (the latter the Angara). A branch, however, of their territory extends to the Arctic Ocean, spreading over the entire Taimur Peninsula. Eastward the Tunguses proper are connected with the Manchus by various minor tribes in the valley of the Amur. Of these tribes the principal are the Oroches, the Daurians, Birars, Golds, Manegrs, Sanagirs, Ngatkons, and Nigidals. Altogether these number about fifteen thousand. The Tunguses proper, however, are thinly spread to the east over the Vitim Plateau as far as the Pacific Ocean, and extend northward along the line of the Yablonoi Mountains to the vicinity of Kamchatka; their total number being about seventy thousand.

The Tunguses are universally represented as a "cheerful, persevering, open-hearted, trustworthy, fearless race of hunters" who sturdily resist taking service under the Russians, and refuse to be enticed away from their forest hunting-grounds. By the Russians they are classed as "Reindeer, Horse, Cattle, Dog, Steppe, and Forest Tunguses," according to the various conditions in which they are found. Few of them have become agriculturists, but most of their time is spent in the collection of skins and furs with which to supply the demand of the Russian and Yakut traders. They still chiefly practice their Shamanistic religious rites, but they are gradually giving way before both the Russians and Yakuts, and are diminishing in number through the ravages of the contagious diseases imported from their civilized neighbors.

The Samoyedes

Adjoining the Tunguses on the west, and stretching along the Arctic Ocean across the lower part of the valley of the Yenisei and the Obi almost to the White Sea, are the Samoyedes, who in language are closely allied to the Finns, the principal European branch of the Mongols in Northern Europe. Formerly these occupied the Altai Mountains, and they are supposed to have been driven north by the Huns some time previous to the Christian era. As before remarked, they are, with some reason, supposed to be descended from the men of the bronze age whose remains are found in such abundance at Minusinsk. A few members of the family are still found in secluded valleys of that region. When in Minusinsk they were agriculturists, and displayed considerable skill in mining and metallurgy. Now, however, owing to the hard conditions of the country occupied by them, they are reduced almost to the level of the prehistoric men of the Stone age, closely similar to that of the Eskimo. From the fact that the Samoyedes speak of the Tunguses as *Aiya*, or Younger Brothers, it is, however, inferred by some that the Tunguses arrived in the region at a later date than the Samoyedes. Like the Tunguses, the Samoyedes possess many noble qualities of character, being specially noted for their honesty, but because of this, unprincipled traders take advantage of them. Through the ravages of smallpox and other contagious diseases they are rapidly diminishing. Altogether they number no more than ten thousand or twelve thousand souls.



Winter Tent of Tunguses.

The Ostiaks

Adjoining the Samoyedes on the north and the Tunguses on the east, we find the Ostiaks, who are also allied to the Finns. These occupy the middle portion of the Obi River, extending eastward to the Yenisei. They number in all about thirty thousand. In the southern portion of their territory they have adopted settled life, and have great herds of cattle. In the northern part they are more nomadic in their habits, and make great use of the reindeer, possessing, it is estimated, with the Samoyedes, one hundred thousand of these animals. They are kind, gentle, and honest, skillful in carving wood and bone and in tanning leather, and in the manufacture of artistic implements from birch-bark. They still hunt for the most part with bows and arrows. Upon the occupation of the country by the Russians, they were compelled to retreat northward from the southern part of their territory; while a large number of their fortified places in the vicinity of Obdorsk, near the head of the Gulf of Obi were destroyed.

The Buriats

Before treating more particularly of the Turkish Mongolians who occupy Turkestan, we must speak of the Buriats, who in many respects resemble the Chinese, since, like them, they shave their heads and wear pigtails. These originally occupied the northern portions of Mongolia, and are supposed to have been forced into Siberia by Jenghiz Khan in the thirteenth century. When the Russians first came into contact with them in the beginning of the sixteenth century, they were spread

over a large part of the Upper Angara Valley, about Irkutsk, and across Lake Baikal into the upper part of the Amur Valley. They vigorously opposed the progress of the Russians, and for thirty or forty years were successful in maintaining their position. In the latter part of the eighteenth century their attention was turned to agriculture, in which, as well as in the raising of domestic animals, they have become very successful, making the most of a fertile soil and showing much skill and enterprise in the practice of irrigation. The larger part of them are to be found in Transbaikalia, which has long been considered the granary of Eastern Siberia. They number about two hundred thousand. In religion they are still mostly Buddhists.

The Original Aryan Center

As the southeastern portion of the Aral-Caspian depression is almost exactly in the center of the eastern continent, so there is much to be said in favor of the theory, that it is near the center from which the human race originally dispersed itself over the surface of the earth. In that case the Mongolian tribes which now occupy the area are to be looked upon merely as long-time wanderers in the East who at last returned to their ancestral home. But, in fact, there can be but little doubt that, in prehistoric times, the Aryan language, whose dialects are now spoken throughout Europe, and to which belong the classical literatures of Greece and Rome, as well as that of the ancient Sanscrit invaders of India, was developed somewhere in the great Aral-Caspian basin.



Buriat Travelers.

This is indicated by the root words which are common to Anglo-Saxon, Latin, Greek, Slavonic, Persian, and Sanscrit, and which at the same time imply the conditions of life existing in the central area under consideration. The original people who spoke the Aryan tongue had the knowledge of the seasons, especially of winter, and of snow, ice, cow, sheep, goat, dog, birch, and many other things, which would be obtained in this region, and nowhere else. From their common root words we may also infer that they were familiar with plowing, weaving, sewing; that they built roads and ships and houses; that they had domesticated the cow, the horse, the sheep, and the dog, and were acquainted with the bear, the wolf, the mouse, and the fly; that they made cloth from wool and hemp, and welded metals into the sword, the spear, and the shield. Common words expressing all these things are found in the languages we have mentioned, and which are spoken from the western boundary of Europe to the plains of India.

The limitation of the common words to the things which are characteristic of the Aral-Caspian basin, as well as the geographic position of this area with reference to the dispersion of the languages, point to it with irresistible force as the region in which they had their common development. Bactria and the entire region between the Upper Oxus and the Jaxartes has been supposed by many to be the most likely center for the development and the dispersion of the Aryan language and civilization. There are, however, many in recent times who would shift the imaginary center to Europe, but,

even so, they would, for the most part, keep it within the Aral-Caspian basin by locating it upon the banks of the Volga, where the conditions are in many respects similar to those in the upper middle portion of the Oxus, or Amu Daria.

The date of this original Aryan occupation must be carried back several thousand years; for, probably as early as 1500 B. C., Sanscrit literature was already abundant, proving that at that early period the original Aryan language had put forth one of its most important branches which had had time to develop into an independent dialect. But the supposed original center of Aryan civilization has never lost its importance. Balkh and Merv were great cities in the earliest periods referred to in written history. Zoroaster (the founder of the religion which in early times prevailed in Persia, and still survives among the Parsees in India and the so-called fire-worshippers who, until lately, made pilgrimages to the perpetual burning gas-wells at Baku, on the Caspian)—Zoroaster if he was not born in Bactria, most certainly died there, and Balkh, its capital, was for a long time the central seat of his religious system. For a considerable period "this mother of cities" upon the Amu Daria was a formidable rival, in influence if not in military prowess, of Ecbatana, Nineveh, and Babylon, its contemporaries on the plains of Persia and in the valley of the Euphrates.

In later times Bactria emerges into history through its conquest by the Medes in the seventh century before Christ; while later still it is enumerated among the conquests of Cyrus and the dependencies or satrapies of Darius. Also, as al-

ready related, Alexander the Great spent here nearly two years in efforts to extend the conquest of Greece to the Jaxartes; while his successors occupied Merv, and surrounded it with most extensive fortifications, and founded numerous Grecian cities to serve for the defense of the new empire, and as outposts of Grecian civilization. In the third century before Christ a Graeco-Bactrian kingdom was founded, and continued for a hundred years or more. The traveler will find in the museum at Tashkent innumerable coins and some interesting works of Grecian art illustrative of this period when Western civilization was making a premature struggle to restore its dominion in the cradle of its ancestors. But success was not to attend these efforts until the closing part of the nineteenth century, when, with the means at her command furnished by the experience of ages and the mechanical inventions of the century, Russia was able firmly to plant her feet on the sources of the Jaxartes and the Oxus, and to open up to the country the opportunity of joining with the Western world in the progressive march of her vigorous civilization.

The Turkish Races

The larger part of Turkestan and a considerable portion of the Upper Obi Valley were, at the time of the Russian advance into Asia, and are still, in possession of the Turkish branch of the Mongolian race. The original country or cradle of the Turks is in the northern part of Mongolia, about the headwaters of the Amur and the Selenga, the eastern source of the Yenisei River. It was probably during their occupa-

tion of this region about Lake Baikal that the Yakuts, whom we have already described as now in possession of the Lena basin, became separated from the parent stem. In any event the Turkish tribes were originally upon the west of the Mongols proper, and advanced into Turkestan ahead of their rivals and final conquerors. It is proper to say, however, that the Turks, considered as a race, are not to be confounded with the present small branch of the Osmanlis, who in the fourteenth century of our era spread over Asia Minor and eventually captured Constantinople, laying the foundation of the present Ottoman Empire. These are, indeed, of the Turkish stock, but they have become so amalgamated, through intermarriage, with the Caucasian race, that now, except in language, they have little resemblance to their distant relatives in Central and Northern Asia. It is still, however, said to be true that a Turk from Constantinople can more readily make himself understood among the Yakuts in the Lena Valley than can a Frenchman from Paris in some of the more remote provinces of the republic.

The Turks first appear in history in the scanty and uncertain records of the Chinese Empire. These records refer to them as the *Hiong-nu*, who, about 170 B. C., occupied the country to the south of the Altai Mountains, in the vicinity of Kobdo. There we hear of them later as miners and iron-smelters, under the Chinese name *Tu-kiu*, from which has come the present term, Turk. About 552 A. D. the Turks emerged from the comparative obscurity into which they had been thrown by the domination of adjoining tribes, and founded an



Buddhistic Temple of the Buriats.

empire in Eastern Turkestan, which was of so much importance that ambassadors were sent to it by Justin II., the Roman emperor at Byzantium. Under this empire the Turks advanced as far westward as the Oxus River, settling in Ferghana and Tashkent. For several hundred years this migration to the west continued without attracting very much attention from the outside world, except occasionally, as, when the Petchenegs, in the latter part of the ninth century, wandered across the steppes to the Ural and the Volga, and settled on the plains to the north of the Caspian Sea; or when, a little later, these were driven farther westward to the banks of the Dnieper by the Ghuzz, who in turn had followed them from Central Asia to Turkestan, and, like their predecessors, so soon as the region was overstocked by nomadic populations, pressed onwards to the plains of Southern Russia. Others of them, however, poured over into Persia, and their descendants under the Seljuk dynasty, with their capital at one time at Merv, but afterwards removed to the Euphrates Valley, laid the foundations of the present Turkish predominance in Western Asia. Meanwhile the Turks in general had become converts of Mohammedanism, and Turkestan became one of the most important centers of its influence, and the race in this its typical center became subdivided into the well-known branches which appear at the present day. Of these branches occupying Turkestan, the most important are:—

1. The Kirghiz.—These are divided into the Kara-Kirghiz, or Black Kirghiz, and Kirghiz-Kazak, or Riders. (1) The Kara-Kirghiz remain, for the most part, in the mountainous

regions of Turkestan; their favorite homes being in the Ala-tau range, about Lake Issyk-kul, the headwaters of the Chu and Talas rivers, and in the Tian-Shan range, about the headwaters of the Tarim River, flowing to the east, and of the Jaxartes and Oxus to the west. They are essentially a nomadic race, and have clung to their independence with great tenacity. All told, they number about four hundred thousand.

(2) The Kirghiz-Kazaks, (commonly called Kirghiz-Tartars), who must not be confounded with their namesakes, the Cossacks of Russia, are much more numerous, numbering in all nearly three million souls. They occupy all the northern part of the Aral-Caspian basin in Asia and a considerable area in the upper part of the basin of the Obi. They spread uninterruptedly from Lake Balkash westward past the Aral Sea and along the shores of the Caspian as far as the Volga River, covering an area of about one million two hundred thousand square miles. They are also essentially a nomadic race, depending principally upon their flocks both for food and clothing. They keep immense numbers of sheep, goats, and camels, and are especially devoted to horseback riding. Their beehive tents, covered with black felt, furnish them protection both in summer and in winter. They have no settled habitation, but move about with all their belongings from place to place wherever pasture is most abundant, and water within reach.

They are divided into three "hordes" or races. The Great Horde live chiefly in the region extending from Semipalatinsk to the Ala-tau range south of Lake Balkash. These are estimated to number four hundred and fifty thousand, with



A Kirghiz Tartar Tent.



Watering the Sheep on the Steppes.

eighty-five thousand tents. The Middle Horde occupy the watershed between the Aral-Caspian basin and the Obi River, extending from the Aral Sea to Lake Balkash, being most numerous in the provinces of Semipalatinsk and Akmolinsk. They number about one million one hundred thousand and are reported to have one hundred and seventy-five thousand tents. The Little Horde spread over the Ust-Urt, between the Aral and Caspian seas, and northward to the Ural River, being most numerous in the provinces of Orenburg, Uralsk, Turgai, and Astrakhan. They number one million, and are reputed to have one hundred and seventy thousand tents.

The Kirghiz-Kazaks readily bowed before the authority of Jenghiz Khan in the thirteenth century, and upon his death became part of the dominion of his son, Juchi, the head of the Golden Horde. They, however, maintained their own local government, and retained their own khans. But when the Usbegs came into authority, about 1500 A. D., a division arose, with their centers of influence respectively in the Kipchak and Cheteh steppes, the latter of which, it is said, could at one time bring into the field four hundred thousand fighting men. The Kirghiz have readily yielded to Russian rule, and have become loyal Russian subjects, while allowed to maintain their local political and social organization. The Middle Horde and the Little Horde voluntarily submitted to the Russians in 1730. The Great Horde became for the most part subdued by Ferghana in the latter part of the eighteenth century, and only came under Russian rule fifty years later. All the Kirghiz belong to the Sunnite sect of Mohammedans, but they are not

intolerant, and neglect many of the requirements of the strict Mohammedans.

2. The Usbeks represent rather a political, than an ethnological, division. They derive their name from their original khan, Usbeg, who rose to power in the Golden Horde in the early part of the fourteenth century. For a long while they dominated the valley of the Tarim River east of the Pamir with Kashgar as their center, but their rule was afterwards extended to Ferghana, and in the headwaters of the Syr Daria River, down to Tashkent, also over the lower part of the Zerafshan, and into the valley of the Amu Daria, including the whole of Bokhara and Khiva. The Usbeks are agriculturists and are fond of living in cities. Altogether they number at the present time about two million, and in Bokhara and Khiva still maintain a semi-independence, being merely under the protectorate of Russia.

3. The Turkomans consist of various tribes occupying the territory between the Amu Daria River on the east, the Kopet Dagh range on the south, and the Caspian Sea, having on the north Khiva and the portion of the Ust-Urt occupied by the Little Horde. The largest of these tribes are the Tekkes, who control the fertile strip of land called the Atok along the northern base of the Kopet Dagh range, together with the oasis formed by the Murghab and Tejend rivers. Counting all the eight or nine other tribes, the Turkomans number about one million souls, all of whom are nomads, and have had a bad reputation. For a long time they have freely made predatory expeditions into the neighboring countries, coming back with



Typical Group from the Caucasus.

plunder and captives, whom they either held for ransom or sold as slaves. But since the capture of Merv by the Russians in 1884 they have in general become law-abiding citizens, and are trusted in military positions even more than some of their less demonstrative neighbors.

The Tribes of the Trans-Caucasia

In very early times the Greeks braved the terrors of navigation upon the Black Sea, and reached the valley of the Rion, which became known in their literature as Colchis. Later they formed the flourishing settlement of Dioscurias, of which we are still reminded in the name Cape Iskuria, not far from Sukhum Kaleh. But the Greeks came here not so much for settlement, as for trade, since they found the country already full of inhabitants. Indeed, in the unknown period preceding the advent of the Greeks, the mountain tribes had, so far as we can see, become about as numerous and as diverse in their characteristics as they are at present. The independence in which the Greeks found them was maintained during the period of Alexander's successors and until the time of Mithridates (B. C. 135), the great leader of the Parthian Empire. But even his dominion reached only to the foot of the Caucasus Mountains, leaving the tribes in the upper valleys still in their wild independence. He is said, however, to have forced a way with his army along the shores of the Black Sea from Colchis to the Cimmerian Bosphorus. But the Romans never penetrated so far. Even Pompey drew back in the presence of the hazards which beset a campaign in that moun-

tainous region. The Iberians and the Albanians on the south side of the Caucasus were known to the Romans only by name. Practically the Aras and the plains of Armenia were the limit of Persian, Greek, and Roman conquests in that direction. Only inferential glimpses of the early history of the country are within our reach, and those are mainly such as are derived from a study of the ethnology of the country. But Kutais, perhaps justly, prides itself on being one of the oldest cities of the world; while Tiflis enjoys the pre-eminence of having more languages and dialects spoken in its streets than can be found in any other single city. Even in the early time of Herodotus, the Caucasus is represented as a region of the greatest diversity of tribes and languages anywhere to be found within so small a territory; while Pliny tells us that one hundred and thirty different interpreters were needed for a Greek to carry on trade in the marts of Colchis. Other writers affirm that three hundred languages were necessary to meet the wants of a trader in that conglomerate population. Modern philologists simplify the problem somewhat by assigning these innumerable dialects to a few central groups.

1. *The Georgian Group* is supposed to represent the ancient Iberian tribes of the Greek authors. The language which they speak is, however, known among themselves as the Kartli. Hence they are often called the Kartlinian tribes. From the earliest times the Iberians were in possession of the central portion of the country south of the Caucasus. In this group there are five subdivisions:—

(1) The Georgians proper, or Grusians, who occupy the

middle portion of the Kur Valley, extending from the Suram Mountains eastward past Tiflis well down into the lowland plains. They extend, also, along the Aragua well up towards the summit of the Dariel Pass, and occupy much of the upper portion of the valleys of the Alazan and Gora rivers.

(2) The Imeritians, who are found westward from the Suram Mountains, in the valley of the Rion and of its tributary the Quirilha.

(3) The Mingrelians, who extend along the lower part of the mountain flank throughout the western portion of the northern part of the drainage basin of the Rion and as far west as the Ingur River. The Imeritians and the Mingrelians are closely allied both in language and racial characteristics.

(4) The Gurians, whose territory lies south of the mouth of the Rion, and extends up upon the mountainous frontier towards the Turkish border. They are closely allied with the Lazi, who were already settled in the time of Strabo on the other side of the present Turkish frontier, where they still remain.

(5) The Swanians, a wild and barbarous tribe of mountaineers who were among the last to be conquered by the Russian army. They occupy those high-level parallel, fertile and almost inaccessible, valleys which we have already spoken of as occurring about the headwaters of the Rion and the Ingur. The beauty and grandeur of their surroundings were admirably adapted to inspire their patriotism; while the inaccessibility of their fertile fields and their fortresses has given them ample opportunity to resist the inroads of the outside world.

They were already known under their present name in the time of Strabo and Pliny, when they were one of the most powerful nations in the Caucasus. Notwithstanding all their peculiarities, they are closely allied both in language and race with the Georgians and Mingrelians.

2. *The Circassian Group*.—This occupied the whole of the Western Caucasus upon both sides of the mountain, extending from the Ingur River to the vicinity of Novorossiisk. Of these there are three principal divisions:—

(1) *The Circassians Proper*, as they are called by the others, but the *Adighè*, as they prefer to call themselves. These formerly occupied the entire narrow strip between the mountains and the Black Sea west of the Pitzunta River, together with a considerable portion of the northern flank of the mountains in the drainage basin of the Kuban. The Circassians early became Mohammedans, and, stimulated by their religious zeal no less than by their patriotic fervor, were among the very last to yield to the Russian power; and when, in 1864, they were at last subdued, they emigrated as before related almost in a body to the Turkish Empire, leaving their fields untilled and the whole country desolate.

(2) *The Abkhasians* occupy the mountain flank extending from the Mingrelian border on the river Ingur westward to the Pitzunta. They are closely allied to the Adighè, or Circassians, both in race and religion, and largely shared with them in the glory and the humiliation of the defeat in 1864, and followed their example in emigrating to Mohammedan countries. Their territory is still almost wholly uninhabited.

(3) *The Kabardans* live upon the European side of the Caucasus, in the high mountain valleys occupied by the headwaters of the Kuban and the Terek. These, moreover, have never shared with their kindred in their opposition to the Russian government, and have quietly become peaceable and loyal citizens of the empire.

(3) *The Ossetes* occupy the very center of the Caucasian range, their territory being bisected by the great highroad already mentioned which connects Vladikavkaz with Tiflis, and passes through the celebrated Dariel gorge. These clearly belong to the great Aryan family, and speak an Indo-European language closely related to the Medo-Persian. They have so many manners and customs in common with the Germans that some have supposed them to be an offshoot of the Goths, or lineal descendants of the Alani, who thwarted the Romans so effectually the last days of the Empire. They call themselves Iran, the other name being that applied to them by their neighbors. In religion they are mainly Christians, but to some extent have been tinctured with Mohammedanism, and still retain many pagan customs.

(4) *The Tchetchens*.—These, too, are, wholly on the northern slopes of the Eastern Caucasus, and would not properly come into our survey of the Trans-Caucasus, but for the intimacy of their tribal relationship. They are Mohammedans, and speak dialects to the number of twenty, which differ almost as much from one another as they do from the language of the surrounding tribes. The total population, however, does not exceed one hundred and fifty thousand.

(5) *The Lesghians* vie with the Circassians Proper in their claim upon the attentions of the world. Under this term is grouped a number of petty tribes who differ greatly in the dialects spoken, if not indeed in their fundamental linguistic affinities. They occupy nearly the whole of the complex mountainous system east of the Dariel Pass, including all of Daghestan and many of the southern declivities of the mountains watered by the tributaries of the Alazan and of the Kur. Not only is there much variation in the dialects of the people occupying this region, but they are characterized by other differences so profound that they are thought by many to be an amalgamation of various diverse racial stocks. Certainly two of the small tribes—the Udi and the Kubatschi—belong to alien races, and these are the only ones who possessed a written language, and that, one which made use of the Arabic alphabet. The mountainous area occupied by these tribes is mostly drained by independent streams into the Caspian Sea, and altogether has not far from fifteen thousand square miles, being about the size of Switzerland, or twice that of Massachusetts, with a population approaching eight hundred thousand. They are all fanatical Mohammedans in religion, who maintained their independence for well-nigh half a century in the presence of most strenuous efforts of the Russian army which surrounded them on every side.

In addition to these native tribes, many Turko-Tartars are found along the borders of the Caspian Sea outside of the strong lines of defense furnished by the mountains a little farther inland.

Such is the conglomeration of people occupying this peculiar region between the Black and the Caspian Sea, and shielded upon the north by the Caucasus Mountains almost as effectually from Cossack invasions as they were from the Arctic winds which blow unimpeded over the plains of Russia. Trans-Caucasia alone is nearly as large as Italy, with mountain systems three times as massive as the Alps upon one side, and with a plateau as lofty and impenetrable as that of Mexico upon the other. The increasing importance of the commerce upon the Black and Mediterranean seas rendered inevitable a final conflict between these barbarous tribes and Russia. But it was delayed until long after the wastes of Siberia had been explored and to a large extent colonized. The occupation of Trans-Caucasia was, therefore, but an eddy, though an important one, in the eastward march of the Russian Empire.

XIV

RUSSIAN COLONIZATION

INTO the foregoing complex mass of Asiatic races, Russian colonists have been steadily intruding ever since the conquest began under Yermak at the opening of the seventeenth century. Having already detailed the leading facts connected with the military occupation, we may now profitably bring under review the more peaceful order of events which are transforming the country into a European province and substituting an Aryan in place of a Mongolian civilization. It is to be noted, however, that Siberia was explored and brought under Russian dominion, not so much by formal military expeditions, as by independent parties of hunters and traders. In this respect the history of Siberia is much like that of North America, where the Hudson Bay Company and its rival, the American Fur Company, organized by John Jacob Astor, had established their posts in almost every accessible point in the continent far in advance of the agricultural colonists.

Still, the influx of traders and explorers, together with the military forces which were thought necessary to give them protection and support, immediately created a demand for civilized food, which could best be supplied by Russian colonists. These, therefore, were soon found in moderate numbers



A Postman's Children in Semirechensk.



A Frequent Scene in the Steppe.

surrounding the military posts and lining the navigable rivers and the military roads through which the increasing traffic to the distant regions was maintained. A large part of the early colonists were sent out under government supervision. First, there were the ordinary Cossacks, who served both as agriculturists and as a military force for the protection of the frontier. Second, there were the peasants who were either ordered, or induced, by the government to settle at convenient places for the maintenance of communication. These, like the Cossacks, were favored by special grants of land and a certain amount of government assistance, and were to be ready on reasonable terms to serve the interests of all travelers who had occasion to use the highway. Third, there were the *strielitz* or regular soldiers, who were stationed in the forts, which had been established at all strategic points. Fourth, there were the *yamschiks* who were regular Russian officials of low order charged with maintaining the postal service and with keeping a supply of horses on hand at convenient intervals for the use of official and other travelers. It is the service of the *yamschiks* on the Siberian post roads which has made travel so regular, rapid, easy and economical that, except for the transportation of heavy freight, the need of the transcontinental railroad has not been so pressing felt as it would have been in other countries. Two hundred miles a day is by no means an uncommon rate of travel across Siberia through the use of the convenient tarantass or sledge and frequent changes of horses at the regular post stations. Another class of colonists sent out by the government consisted of convicts, who

were placed under a variety of regulations according to the crimes which they had committed. But of these we must speak more in detail in a later chapter.

In addition to the colonists who were thus patronized or sent out by the government, there has been from the first a large and increasing amount of free colonization stimulated by discontent of various kinds, some of which is common to all countries, but much of which was peculiar to Russia. Previous to the abolition of serfdom in 1861, there was a constant stream of fugitives of this class escaping from Russia to Siberia, much as the slaves in the Southern States in America fled for refuge to the Northern States and Canada. Discontent with the conscription laws for filling the ranks of the army drove many others into voluntary exile.

But most prominent and effective of all the forces early leading to free colonization in Siberia were the religious persecutions in Russia during the seventeenth, the eighteenth, and part of the nineteenth century. The importance of these religious movements is such as to demand special attention from the student of Siberian history.

The Raskolniks

Russia, in common with all Europe, was deeply agitated by the spirit of religious reformation which characterized the sixteenth and seventeenth centuries; both in character and results that of Russia has been peculiar to itself. To a considerable extent, the religious revolutions in Russia during the seventeenth century were due to the peculiar relations

between Russia and Poland. Poland has always been a staunch representative of the Roman Catholic influences in Central Europe; while Russia is a leading representative of the Orthodox, or so-called Greek, Church, which has always violently opposed the recognition of the Pope, or the decrees of any church council subsequent to the division of the Church into the Eastern and Western branches. Poland, also, on account of its more favorable conditions with reference to communication and soil, but especially of climate, made earlier advancement in civilization, and, in consequence, was able more than once to threaten not only the life of the Russian nation, but the establishment of the Roman Catholic religion as the state religion in Russia. Thus religious and political questions have always been most intimately connected with the perpetual causes of contention between the Polish and Russian peoples; and from the beginning, patriotism and the Orthodox religion have been nearly synonymous.

About the middle of the seventeenth century, a vigorous effort was made, under the patriarch Nikon, to revise the liturgy and some of the practices of the Russian Church, so as to make them conform to those of the other branches of the Greek Church. On the face of it, this would seem to be both a most reasonable and a harmless effort designed merely to correct the mistakes of copyists which had crept into the liturgy, and to restore the original ceremonials which had been perverted through ignorance or carelessness. But it was not so regarded by a large part of the most devout members of the church. Actuated by a vague fear that Nikon

was an emissary of Polish Catholicism and a promoter of Polish luxury, these loyal devotees to Russian ideas, and to the truth as they supposed it had once been delivered to the saints, made a stand against the innovations, which fairly shook the nation, and the influence of which continues seriously to affect the policy of the whole empire to the present day.

“The principal differences to be settled were: whether a *triple* halleluia should be pronounced, in honor of the Trinity, or a *double* halleluia, in reference to the double nature of Christ; whether processions around the churches should march *against* or *with* the sun; whether it be *right* or *wrong* to shave the beard; whether at mass there should be upon the altar *one* or *many* loaves—the Russian used seven; whether the name Jesus should be spelled *Iissous* or *Issous*; whether, in prayer, the Saviour should be addressed as *our* God or as *the Son of God*; whether it be right to say of God, whose reign is *eternal*, or whose reign *shall be eternal*; whether the cross should have *four* or *eight* points; and whether the sign of the cross should be made with *three fingers extended*, as denoting the Trinity, and *two closed*, in reference to Christ's double nature, or with *two fingers extended*, in allusion to the double nature, and *three closed*, in token of the Trinity.

“The hidden and typical significance of these ceremonies and symbols constituted their special importance. The Greeks, in each case, followed the former, and the Russians the latter, of the above alternatives, and in these respects a change, so as to conform to the Greek practice, was ordained by the synod, and was confirmed by subsequent councils in 1666 and 1667.”*

* Russian Church and Russian Dissent. p. 95.

But it must not be thought that these seemingly trivial questions in themselves explain the depth and strength of this great religious and political movement. These were but the symbols of a deep-seated conservative sentiment which was in its intention loyal to what they supposed to be the best interests of Russia and of the world. Nikon represented a party which was not only polishing the ritual, but endeavoring to polish the manners of the people, introducing the luxurious tendencies of the West. The party of Nikon was also extending the realm of serfdom and binding the fetters of the serf into knots that could not easily be untied. It was also interfering with the freedom of the village communities by various centralizing processes, and taking out of the hand of the people the regulation of many of what seemed to them their inborn rights. Peter the Great became, a little later, specially obnoxious to this "Old Russian" conservative party, for he not only introduced the skeptical ideas of French infidelity, but attempted to reform the manners of the people and to prescribe even the fashion of the hats which they should wear. In short, the opponents of Nikon based their opposition on the threefold ground of loyalty to God, loyalty to Russia, and loyalty to themselves and their posterity, and would not be put down.

The Russian name for "schism" is *raskol*. Consequently these schismatics are called Raskolniks; and so, for lack of any other descriptive term, we must designate them. Like the Protestants of Western Europe, the Raskolniks of Russia soon became divided into a large number of sects, all agreeing

however, in their opposition to the innovations of Nikon and Peter the Great, and in their belief that the regular church had apostatized, and become the representative of Satan. Peter the Great was denounced as "Antichrist," and by vast multitudes is still believed to be so. All likewise agree in fanatical devotion to the Bible as they interpret it.

The first great division of the Raskolniks was into Popovists (Pope meaning "priest," Popovists, those having priests) and Bez Popovists (Bez meaning "no"), or those who have no priests. This division originated, also, from the extreme devotion of all parties to the original formularies of the church. The Popovists considered that it was absolutely essential to have priests to administer the sacraments, and that the priests should be in the line of apostolical succession, having been regularly ordained by a bishop. Only one bishop, however, remained with them when the rest of the church seceded, and he died before he had ordained a successor. There was some talk of having the hands of the dead bishop used to impart the divine power to his successor, but as his lips could not be made to speak the necessary words of consecration, the plan was abandoned, and the Popovists were for more than a century reduced to the necessity of receiving runaway priests, who had incurred the censure of the regular church, or others who could be induced from mercenary motives to abandon the poorer parishes of the state church for the richer ones of the Raskolniks. It is only in recent times that a regularly ordained bishop has been persuaded to join their number, and, securely protected outside the bounds of

Russia, to provide for the Popovists priests of their own, regularly set aside by the laying on of apostolical hands.

The Bez Popovists reasoned that if the church had apostatized, the priesthood was also fatally corrupted, and that thereby the apostolical succession had been irrevocably broken. To them, therefore, it seemed that they were living already in the last days of the world, whose end they speedily expected. Taking occasion from necessity, they administered the sacraments to one another, or resorted to the most fantastic ways of receiving their benefit directly from the unseen spiritual agencies of the world. Many of them, for example, would sit by the roadside or in the market for hours with their mouths wide open and turned upwards to receive the invigorating drops of spiritual blessing that they supposed distilled from the skies for the benefit of waiting believers.

These strange and fantastic exhibitions were, however, but the outward sign of an inflexible determination to resist to the utmost what they believed to be the agencies of the Prince and Power of darkness, which, in corrupting the doctrines of the Russian Church, were taking away the last hope of the world. Nor did they fail to show their faith by their works. During the seventeenth and eighteenth centuries the Raskolniks of Russia furnished more martyrs for the stake than did the Huguenots after the revocation of the Edict of Nantes in France, or the Protestants under the persecutions of Bloody Mary in Great Britain.

An innumerable number of sectarians went even farther than the Bez Popovists, and became violent revolutionists, and,

under the color of religion, engaged in practices which are in contravention of all morality, and are too shocking to be related, much less to be endured. Among some, suicide was exalted to a virtue, and hundreds together set their own houses afire, whole families plunging into the flames to court a martyr's death. Infant children were freely put to death by some, the more certainly to secure their eternal salvation. Marriage was prohibited by others; and as a consequence lust was glorified by many, while others went to the extreme of self-mutilation as a religious deed.

All these facts must be borne in mind before we pass judgment upon the measures of the Russian Church to suppress the Raskolniks. Many of the sects were too monstrous both in their doctrines and practices to be endured in any self-respecting civilized nation, and it was not always easy in official action to distinguish between dangerous and comparatively harmless heresy. Besides, it should be remembered that the civilized world has everywhere been slow in learning the true lesson of religious liberty.

The course of the Russian government from the beginning in dealing with the Raskolniks has been vacillating. Periods of violent persecution have alternated with periods of tolerance and even of complacent admiration. But through it all the Raskolniks and other schismatics have continued to increase until now they number, according to the best estimates, as many as fifteen million, comprising more than ten per cent of the total population of the Russian Empire; and, though it may be said that "not many mighty, not many noble, have

been called," the Raskolniks as a class have an enviable reputation, on account of their industry, sobriety, honesty, benevolence, and general prosperity. Their principal fields of development have been in Central, Northern, and Eastern Russia, from which emigration to Siberia has always been active. The Raskolniks religiously abstain from the use of alcoholic beverages, and tobacco, and many of them from tea and other luxuries. Above all other Russians they encourage elementary education sufficient to read the Bible and their primitive ecclesiastical literature. From the province of Jarislov, where the Raskolniks are predominant, it is said that nearly all of the recruits to the army are able to read and write.

Naturally, also, their industry and sobriety have given them a degree of material prosperity far in excess of that of the average of their countrymen. Large numbers of the rich merchants and manufacturers of Moscow are Raskolniks. In the province of Perm the wealth of the mining district has largely fallen into their hands. During the pestilence of 1771 which paralyzed the industries of Central Russia and spread universal terror throughout the empire, the Feodocians, a sect of Raskolniks, came forward and poured out their treasure to bury the dead and care for the sick; and thereby so won the favor of the government, that they were permitted to establish public hospitals and other beneficiary institutions. These soon so commended them to the favor of the people, that their increasing influence threatened the stability of the throne, and measures were taken for their repression. But while the Raskolniks promote elementary education, and are

the most prosperous of the Russian people, they are not largely found in the universities and higher institutions of learning.

Nor, with all their criticism of the government, and with all the persecution they have suffered at its hands, are they disloyal to Russia, for they are emphatically devoted to the interests of the Slavic race. They are, indeed, Slavophiles. All the efforts of the nihilists to secure their co-operation have failed. Like the Puritans, when leaving their native country they have still wished to be within the hallowed circle of its domain. The Cossacks of the Don are largely Raskolniks. Yet when sent out upon the frontiers they are ever most faithful guardians of the national interests. Cheerfully the Raskolniks have submitted to the double taxation imposed upon them by Peter the Great and during later times of intolerance; while, in addition to supporting their own church ordinances, they have complacently stopped the mouths of the regular priesthood by voluntarily paying their churchly dues, and of the police by quietly putting into their hands the money that in times of tolerance was formally collected by the state.

Naturally Siberia received among its early colonists more than its full proportion of Raskolniks. In many cases the sects which were denominated dangerous,—like those which practiced self-mutilation, and those which refused to recognize the formulas of marriage—were exiled to the Caucasus or to Siberia. Of these, colonies of Skoptsy and Doukoubourtski may be met with in many secluded places of the Caucasus and on the Armenian plateau near Erivan, while the Skoptsy communities near Yakutsk, like the Shaker communities in

America, are noted for their material prosperity and the high standard of their ordinary morality.

But in larger numbers the Raskolniks and other schismatics have voluntarily sought in Siberia that freedom of development which the Puritans sought on the bleak shores of New England. Sporadic settlements of many of the lesser sects can be found secluded in the forests and swamps of the Middle Obi Valley or in the far-off sequestered nooks of the Mongolian mountain border; while in unusually large numbers they are found on the fertile prairies in the vicinity of Tobolsk, Tomsk, and Barnaul, where, according to the census, they number fully one hundred thousand; but, from the notorious imperfection of the census reports in religious matters, they may be safely reckoned as two hundred thousand. In Transbaikalia, with its population of six hundred and sixty-four thousand, the Raskolniks are the predominant element, having begun to go there in large numbers in the beginning of the nineteenth century to occupy the richest farming land. Hither they have transported in perfection their patriarchal communities and have preserved their peculiarities of belief and practice better than is done in the older centers of their influence in European Russia. In the province of Amur ten per cent of the population are Raskolniks, or members of minor branches of schismatics. They largely control the steam transportation of the river, and are bringing under cultivation the richest lands bordering that truly magnificent stream.

In view of all these considerations, it is safe to say that, at the beginning of the twentieth century, fully five hundred

thousand of the population of Asiatic Russia, or perhaps ten per cent of the Russian population, belong to the various sects who, while maintaining with great tenacity the general doctrines of Orthodox Christianity, are vigorously protesting against the authority of the state church.

In giving a general survey of the religious influences at work in Siberia, we may also properly combine with these those of the members of the various Jewish and Protestant sects that are found in Siberia; the Jews especially being in many places very numerous. The city of Kansk, on the Baraba prairies, with its population of eight thousand or ten thousand is so predominantly Jewish that it is known as the "Jerusalem of Siberia"; while in four of the largest and oldest cities—Omsk, Tomsk, Krasnoyarsk, and Irkutsk—both Lutheran and Roman Catholic churches are to be found.

But in the greatly increased emigration of the latter part of the nineteenth century the members of the regular Russian branch of the Orthodox Greek Church have so predominated as largely to overshadow all others; and the beautiful domes of their imposing church edifices may be seen rising above the log houses of every village settlement, as well as adorning the most conspicuous building sites in all their thriving cities. Indeed, the religious devotion of the Russians who have settled in Siberia seems to pass all the bounds of wisdom in the erection of many more churches in the principal centers of population than are demanded by the present or the prospective population. These, however, have not been mainly erected by governmental order, but by private citizens.

