sources of the Petchora (61o 30' N. lat.), but farther south their eastern slopes are included in the Russian government of Perm, and only their lowest spurs, 200 miles from the main ridge, belong to Tobolsk. The aver­age height of the northern Urals is about 3000 feet, and several of their summits range from 3300 to 4000 and even 4370 feet (Net-yu, in 68° N. lat.). The remainder of the government is of lowland character, hardly at any point rising above the sea by more than a few hundred feet, but these lowlands vary greatly in their different parts. They assume the character of grassy steppes or prairies in the south, of immense marshes sparsely covered with forest in the north, and of treeless tundras as the shores of the Arctic Ocean are approached. The southern steppes, in their turn, may be subdivided into two distinct portions,—the Tobol and Ishim steppe in the west, and the Baraba in the east. The former, nearly 43,000 square miles in area, is one of the most fertile parts of the empire. One-third is under forest, and the remainder has a soil of very fertile black earth, which has the further advant­age of being sufficiently watered. The climate, indeed, is very severe, the mean annual temperature (30° to 34° F.) being such as is found only in the north of Sweden and in Archangel; but the warm summer (65° to 68° in July) and the amount of light received from a bright sky combine to make vegetation develop with a rapidity quite unknown to western Europe. This region now has a population of more than 800,000, almost all Russians (only 14,000 aborigines), so that it may be said to be more thoroughly Russian than the Volga provinces. The area under crops every year is 3½ million acres, and the region promises to become a regular granary for Siberia and north-eastern Russia. The second portion of the southern plains, which might be called the Baraba region, being mostly occupied by the Baraba steppe, covers about 55,000 square miles. Only its western borders belong to Tobolsk. It also is perfectly flat, and covered with recent deposits; but, as there is no definite slope, the surface waters move slowly, and accumulate into a very large number of lakes and marshes. The climate is moister and the summer still shorter and less hot than in the preceding region. Forests, consisting chiefly of birch, are spread in clusters over its surface. The soil of this region also is very pro­ductive, but the fertile patches are separated by marshy grounds, and the dense clouds of mosquitoes which float over it in summer are a positive plague to both man and beast. The population numbers only 250,000, also almost all Russians (only 4000 aborigines), and the area annually under crops is about 1,350,000 acres. To the north of the regions just specified is that occupied by the administra­tive districts of Tura, Tobolsk, and Tara, with an area of about 110,000 square miles ; this may be described as the *taiga* region. It is covered throughout with impenetrable forests and quivering marshes—the dreadful *urmans,* which are penetrated by man only for some 20 to 50 miles around the widely separated settlements. Immense cedar­trees, larches, firs, pines, birches, and maples grow very densely, and the underwood is so thick that a passage can be forced only with the aid of the hatchet, the difficulties being further increased by the layers of decayed wood and by the marshes. To cross these, which are treacherously concealed under a swaying layer of grassy vegetation, a kind of snow-shoe must be used even in the summer, and many can be crossed only in winter. Immense areas of the *urmans,* especially on the Vasyugan, have never been visited by man ; but still, from time to time a Russian settlement arises in the forests, mostly founded by Non­conformists in hiding, who freely receive all sorts of fugitives. The south-western parts of this region are crossed by the Siberian highway, and to this circumstance alone is it indebted for its population of nearly 450,000 (32,000 aborigines). Only 2 per cent. of this area is under culture. Farther north extend the tundras, where the aver­age temperature rapidly decreases from the 25° F. found in the preceding region to 15°, 10°, and 7°. The frozen soil during the hottest part of the summer thaws only for a few inches beneath the surface. The frost sets in early, and a thick envelope of snow lowers the spring tempera­ture. Forests cover the southern parts, but the trees become poorer, shorter, and thinner, and huddle into im­penetrable thickets ; while, farther north, only the creep­ing variety of birch and the dwarf varieties of willow hold their ground. Within the Arctic Circle the last traces of arboreal vegetation disappear, their northern limit being pushed south by the double bay of the Ob and the Taz, and by the proximity of the Kara Sea.

Apart from the Urals, there are no traces of hard rock anywhere in Tobolsk. Down to its southern borders it is covered with Post-Pliocene deposits, which are met with as far as the water­parting between the Irtish and the Aral-Caspian depression. This range of flat hills rises a few hundred feet above the sea-level, and it seems to mark the limit of extension of the Post-Glacial gulf of the Arctic Ocean which covered western Tobolsk during the Glacial period. Contrary to Humboldt’s hypothesis, it remains, however, doubtful whether it was connected in Post-Glacial times with the Aral-Caspian Sea otherwise than by means of narrow straits, which disappeared at any rate at an early stage in that geological period.

The climate of Tobolsk is one of great extremes, the differences between the averages for the hottest and coldest months reaching as much as 70° F. The average temperatures at Berezoff, Narym, Tobolsk, and Ishim respectively are 24o, 28o, 31°⋅8, and 32o (January, -8o⋅3, -8o, -2°, and -4°; July from 62° to 67o). Only 194 days at Ishim and 153 at Berezoff have a temperature above 32°; and the Ob at Obdorsk continues ice-bound for 219 days (the Irtish 176 days at Tobolsk).

The government is watered by the Ob, which traverses it for more than 1300 miles, and is navigable throughout. It receives many tributaries, some of which are 200 to 350 miles long, but flow through quite uninhabited regions. The Irtish, a left-hand tribu­tary of the Ob, covers all the southern part of Tobolsk with its numerous tributaries. It waters Tobolsk for 760 miles, and is navigable for the whole of its length ; it receives the great Tobot, about 420 miles long, also navigable, the Ishim, and a number of less important streams ; while the Tura, a tributary of the Tobol, is also a channel for navigation. The navigation lasts for nearly six months in the south. The first steamer on the Ob system was launched in 1845 and the second in 1860; since the latter date steam navigation has steadily developed.

Lakes, some of them salt, occur in great numbers on the water­parting between the Irtish and the Aral-Caspian, and everywhere in South Tobolsk. Lake Tchany, the largest, covers 1265 square miles. All are being rapidly dried up, and even within the last hundred years they have undergone great changes. Thus, in the group of lakes of Tchany, in the Baraba steppe, whole villages have arisen on ground that was under water in the earlier years of this century.@@1 Immense marshes cover Tobolsk beyond 57° N. lat., —the Vasyugan marshes in the east, the Kondinsk and Berezovsk marshes in the west, both joining farther north the tundras of the Arctic shores.

The population reached 1,283,000 in 1882. Although recent immigrants, the Russians already constitute 94 per cent. of the aggregate population, and their numbers are steadily increasing by immigration, and partly also by the arrival of exiles. No fewer than 43,750 immigrants from Russia settled at Tobolsk between 1846 and 1878, but of late this figure has greatly increased. In 1879 as many as 59,134 exiles were on the registers, but of these more than 20,000 had left their abodes and disappeared. As a rule the exiles belong to the poorest class of population. According to Μ. Yadrintseff,@@2 the native population of Tobolsk was repre­sented in 1879 by 29,150 Tartars and 8730 other Turkish inhabit­ants, chiefly in the south, 22,350 Ostiaks, chiefly on the Ob, 6920 Samoyedes in the north, and 6100 Voguls in the north-west; the total amounted to 74,220,—that is, 6⋅1 per cent. of the aggregate population (1,206,000 in 1879). The Ostiaks (q.v.) are in a very miserable condition, having come under heavy obligations to the Russian merchants, and being compelled to hand over to them nearly all the produce of their hunting and fishing. The Tartar settlements in the south are prosperous, but not in the Tobolsk district, where their lands have been appropriated for the Russian

@@@1 See Yadrintseff in Izvestia Russ. Geogr. Soc., 1886.

@@@2 Siberia as a Colony (Russian).