increase. The average yearly production of iron in the Urals is best seen from the following :—

|  |  |  |  |
| --- | --- | --- | --- |
|  | Pig-Iron. | Iron. | Steel. |
|  | cwts. | cwts. | cwts. |
| 1875-80 | 6,623,000 | 3,406,000 | 259,600 |
| 1881-83 | 6,378,000 | 3,517,000 | 612,800 |
| 1S84 | 6,740,000 | 3,874,000 | 763,340 |

Owing to the immense extent of forest, the coal mining industry is but of recent origin in the Urals. Only six pits were at work in Perm in 1884 ; and of recent years from 3,000,000 to 4,000,000 cwts. have been annually extracted (about 5 per cent. of the coal raised in the Russian empire). Finally, salt was raised in Perm, Orenburg, and Uralsk to the amount of 9,422,000 cwts. in 1884.

The precious (amethyst, topaz, emerald, tourmaline, &c.) and ornamental (malachite, carsovite, &c.) stones of the Urals are familiar in all European museums, and are found in most beautiful varieties. The crown works at Ekaterinburg supply admirable works of art, while a numerous population at Ekaterinburg and in the neigh­bouring villages support themselves by searching for precious and ornamental stones and preparing them for export. Of the 330,750 workmen engaged in 1884 in mining and metallurgical industries throughout the Russian empire 183,914 were employed in the Urals, as well as nearly one-half of the motive power (steam- engines and water-wheels) used at the mining and metallurgical works of Russia, Poland, and Finland. The exports from the Urals are made chiefly by means of the rivers, which are navigable in their upper parts only during the spring. There is not as yet any railway connecting the Urals with Russia. The line of Siberian railway which now connects the iron-works of the eastern slope with the Kama at Perm has certainly increased the exports ; but they are still so small in comparison with the expense of the line that the railway is worked at a loss, the deficiency being made good from the imperial budget, and the whole mining and metal­lurgical industry of the Urals is still maintained by means of high protective duties imposed on foreign metals and metallic wares.

Several wealthy towns have grown up in the Ural valleys in con­nexion with mining industry and administration. Ekaterinburg *(q.v.)* and Nijne-Taghilsk *(q.v.)* both had more than 30,000 in­habitants in 1885, while Zlatoust *(q.v.),* Neviansk, Neivinsk, and Kyshtym in Perm, Votkinsk and Izhevsk in Vyatka, had from 21,000 to 12,500 inhabitants. The Revdinsk, Bogosłovsk, Turinsk, Shaitanovsk, Gorobłagodat, Artinsk, Nijne-Saldinsk, Usolie, and Sysertsk mining towns in Perm, Katav-Ivanovsk, Kusinsk, and Satkinsk in Ufa, Byełoryetsk, Tirlansk, and Avzyano-Petrovsk have populations from 5000 to 10,000.

*Bibliography.—*1. The following general works may be mentioned as of chief importance Hermann, *Versuch einer miner. Beschr. des Ural Erzgebirges,* 1789 ; Humboldt, *Fragments,* 1831 ; Hofmann and Helmersen, *Geogn. Unters. des Süd- Uralgebirges,* 1831 ; Kupffer, *Voyage,* 1833 ; L. von Buch, *Beitr. zur Bestimm. der Gebirgsform. in Russland,* 1840 ; Eversmann, *Orenburg Region* (Russian), 1840 ; Schurowsky, *Urals* (Russian), 1841 ; Helmersen, *Reise,* 1841, Rose, *Reise,* 1842 ; Murchison, *Geol. of Russia,* 1845 (with Ozerskiy’s Appendix to Russ. transla­tion); Keyserling and Krusenstern, *Wiss. Beobachtungen,* 1846; Leonhardt, *Geologie des Eur. Russland,* 1848 ; Hofmann, *Nördl. Ural,* 1853-56 ; Meglitzky and Antipoff, *Bergbau im Ural,* 1861 ; Ludwig, *Ueberblick und Beobacht. in Russ­land,* 1862 ; Möller, *Geological Map of the Urals,* 1869 ; Ruprecht, *Verbr. der Pflanzen in nördl. Ural ;* Panaeff, *Climatology of the Urals* (Russian), 1882 ; Carte *Géologique de la Russie d' Europe* (139), 1886. For further bibliographical information see “Ural,” “Perm,” “ Orenburg,” &c., in the *Geographical Dic­tionary* (Russian) by P. Semenoff. 2. Monographs dealing with separate parts of the Urals occur in great numbers in the *Gornyi Journal,* the *Verhandl. der Russ. Miner. Ges.,* the publications of the Russ. Geogr. Soc., the Ural, Kazan, and Moscow Societies of Naturalists, and in the *Izvestia* and *Memoirs of* the Russ. Geological Committee. See also the yearly *Indexes* by Μ. Mezhoff and those of the Kieff Society of Naturalists. (P. a. K.)

URALSK, a province of south-eastern Russia, lying to the north of the Caspian Sea, with an area of 141,174 square miles. It is bounded by Astrakhan on the west, Samara and Orenburg on the north, Turgai and the Sea of Aral on the east, and the Transcaspian Region on the south. It is geographically situated mostly within the boundaries of Asia, *i.e.,* to the east of the Ural river, and both its physical features and its inhabitants are, to a very large extent, Asiatic. Administratively, it belongs to the “ Kirghiz provinces,” or governor-generalship of the steppes. Apart from a narrow strip of land in the north, where the slopes of the Obschiy Syrt, covered with a fertile black earth and stretches of forest, descend towards the Ural river, and the gentle slopes of the Mugojar Hills in the north-east, Uralsk consists of dry steppes and deserts, which fall with an imperceptible gradient towards the Caspian. Most of the province is below sea-level, the zero-altitude line running from Kamyshin on the Volga to the south of the town of Uralsk. The steppe-land consists for the most part of sandy clay, sands containing shells of molluscs now living in the Caspian, salt clay, and shifting sands. It is also dotted with numerous salt lakes, partly remains of old lagoons of the Caspian. To the south-east Uralsk extends over the northern part of the Ust-Urt plateau. Red sandstones (Permian ?) and chalk are met with only in the north, the remainder of the province being covered with Post-Pliocene Caspian de­posits, which conceal the underlying rocks.

Uralsk is watered by the Ural, which rises in Orenburg at a height of 2100 feet above sea-level, but soon descends to the lowlands, where it flows south, west, and south, entering the Caspian after a course of 800 miles. Its chief tributaries, the Sakmara, the Or, and the Ilek, are in the north ; along its lower course the Great and Little Uzeñs and many small streams on the left bank fail to join the main river, being lost in lakes before reaching it. The Emba, which has its course in the north of the Ust-Urt plateau, reaches the Caspian by a series of shallow lagoons, which were navi­gable in the 18th century.

The climate is influenced by the Central Asian steppes. A cold and dry winter is succeeded by a hot and still drier summer, during which the grass, and sometimes all the crops, are destroyed by the burning heat. Uralsk, although lying wholly to the south of 51° 30' N. lat., has the same average yearly temperature as Moscow and south Finland (39o∙5) ; its January is colder than that of north Finland (3o), while July averages 73°

The character of the vegetation can be easily inferred from the above. The prairies and forest tracts of the north soon disappear, their place being taken by the vegetation of the south Russian steppes. This has, however, to struggle with the much poorer vegetation, Central Asian in character, of the sandy regions to the west of the lower Ural, and the saliniferous vegetation of the clayey deserts of the Emba. The Ust-Urt has herbaceous steppes, where the want of irrigation and rain destroys all vegetation by the end of summer. Wide belts of rushes grow along the banks of the rivers and on the shores of the Caspian.

The population of the province, 525,330 in 1883, is made up of three different elements,—Ural Cossacks, who constitute about one-fifth, and numbered nearly 90,000 in 1879, some 15,000 Russian peasants, and Kirghiz. Of these 405,000 are still nomads. The Kirghiz are almost entirely dependent on cattle-breeding, and before the outbreak of the murrain of 1879 were reckoned to have 429,500 horses, 221,800 head of cattle, 1,411,000 sheep, and 175,000 camels. From that epidemic the Russians lost two-thirds of their horses and one-third of their other stock, whilst the Khirgiz lost more than three-fourths of both horses and cattle. The Ural Cossacks, descendants of those independent communities of free settlers and Raskolniks who are so often mentioned in Russian history under the name of Yaik Cossacks, owing to their unwilling­ness to submit to the rule of the czars, are fine representatives of the Great Russian race, though not without some admixture of Tartar and Kalmuck blood. Their chief occupations are cattle- breeding and fishing, the latter a most important source of income. The rich fisheries in the Ural and the Caspian are the property of the community as a whole (the *voisko),* and are subdivided ac­cording to the needs and working powers of the separate villages.1 They give employment to about 7000 Cossacks and 2000 hired labourers. There are also fisheries in the Emba. Walrus-hunting is also engaged in. Agriculture was first introduced between 1830 and 1840 ; but now more than 300,000 cwts. of wheat are exported annually. Nearly 130,000 cwts. of salt are obtained from the lakes every year. The manufactures of the province, which possesses a few steam flour-mills and a number of tanneries and tallow-melting works, are unimportant. Trade by barter is extensively carried on with the Kirghiz. Fish, corn, cattle, hides, tallow, and the like are exported, while manufactured wares are imported to the value of about £1,500,000 per annum.

Uralsk is divided into four districts, the chief towns of which are— Uralsk (20,680 inhabitants in 1879), Kalmykoff (1510), Gurieff at the mouth of the Ural (4380), and Temirsk, a small port, now the administrative centre of the district of Embinsk. Several villages have populations of from 2000 to 5000 each.

*History.—*In the first half of the 16th century Uralsk was occu­pied by the Nogai horde, a remnant of the Golden Horde, which retired there after the fall of Astrakhan and Kazan ; the khans resided at Saraitchik on the Ural. At the same time the lower parts of the Ural were occupied by Russian runaway serfs and tree Cossacks who did not recognize the authority of Moscow. They took Saraitchik in 1560 and formed an independent com­munity, like the *sitch* of the Zaporog Cossacks. The Moscow princes, recognizing the importance of these military settlements,

@@@1 See Haxthausen's *Russia* for a description of the Cossack com­munity ; comp. also the more recent works of Ryabinin and Khoroshkhin and many separate monographs in Russian periodicals ; also Baer’s *Kaspische Studien* and Danilevsky on the fishing.