whom leave their homes in October to spend six weeks in the *taiga* (forest-region). The fisheries of Lake Baikal and the lower parts of its affluents are important. Enormous quantities of *Salmo omul* are taken every year ; and, although the curing is most primitive, the annual yield is valued at £20,000. The *Salmo thymalus, S. oxyrhynchus,* and *S*. *fluviatilis* are also taken largely.

The possibilities of discoveries of gold are absorbing all the industrial forces of Transbaikalia. Gold-diggings occur chiefly in the basins of the Shilka and the upper Vitim, also on the Tchikoi and the Khilok. No less than 25,400 lb is extracted annually by private enterprise, and about 3200 lb by the crown, at the Kara gold-diggings, where nearly 1400 convicts are employed. The silver mining formerly carried on at several crown works is now on the decrease (see Nertchinsk); the quantity extracted in 1884 was only 241 lb. Every kind of manufactured ware has to be imported from Russia ; and even petty trades are almost unknown in the villages.

The trade of the province is chiefly represented by that of Kiakhta. The Cossacks on the frontier carry on some trade in brick-tea, cattle, and hides with Mongolia. The export of furs is of considerable value.

The communications of Transbaikalia are limited to the great Amur highway, which fringes the south coast of Lake Baikal and passes through Verkhneudinsk, Tchita, and Nertchinsk to Sryetensk, whence steamers ply down to the mouth of the Amur ; in winter, further communication with the Amur beyond Sryetensk is main­tained on sledges on the ice of the Shilka, but in the autumn and spring a horseback journey as far as Kumara is the only possible method of reaching the middle Amur. Steamer communication is also maintained for six or seven months across Lake Baikal, from Posolskoye, at the mouth of the Selenga, to Listvenichnaya, 40 miles from Irkutsk. A highway connects Verkhneudinsk with Seleng- hinsk and Kiakhta, and communication on the steppes of the Argun and the Onon as well as up the Barguzin is easy. The rest of Trans­baikalia can be visited only on horseback.

Transbaikalia is divided into five districts, the chief towns of which (with populations in 1880) are Tchita, capital of the province (12,600 inhabitants), Barguzin (800), Nertchinsk (4070), Seleng- hinsk (1150), and Verkhneudinsk (4150). Kiakhta has 4290 inhabitants, and Sryetensk, being at the head of the navigation, is a rising town. (P. A. K.)

TRANSCASPIAN REGION *(Zakaspiyskaya Oblast),* an extensive territory to the east of the Caspian, annexed by Russia within the last fifteen years, is bounded on the S. by the highlands of Khorasan and Afghanistan, on the N. by Uralsk (from which it is divided by a line drawn from the Mortvyi Kuɫtuk Bay of the Caspian to the south extremity of Lake Aral), on the N.E. by Khiva and Bokhara, and on the S.E. (where it penetrates towards Herat on the slopes of the Paropamisus, and includes the Badhyz plateau) by Afghan Turkestan. So defined, it has an area of 220,000 square miles.

Although nine-tenths of this territory consists of unin­habitable desert, an interest attaches to it on account of the great physical changes it has undergone during the Post-Glacial period. Since Pallas visited its borders, and still more since Humboldt discussed its history, it has never ceased to attract the attention of geographers. In fact, some of the most interesting problems of geography, such as those relating to the changes in the course of the Jaxartes and the Oxus, the bifurcation and the oscillation of a great river, and the supposed periodical disappearance of Lake Aral, are connected with the Transcaspian deserts ; and it is here that we must look for a clue to the great physical changes which transformed the Mediterranean of Western Asia—the Aral-Caspian and Pontic basin—into a series of separate seas, and desiccated them, powerfully influencing the distribution of floras and faunas, and com­pelling the inhabitants of Western and Central Asia to enter upon their great migrations. But down to a very recent date the dry and barren deserts, peopled only by wandering Turcoman bands, remained almost a *terra incog­nita,* and only now are we beginning to make the very first steps towards their really scientific exploration.

A mountain chain, in length comparable to the Alps, separates the deserts of the Transcaspian from the highlands of Khorasan. It runs from north-west to south-east, and appears as a continua­tion of the Caucasus. It begins in the Krasnodovsk peninsula of the Caspian, under the names of Kuryanin-kara and Great Balkans, whose masses of granite and other crystalline rock reach a height of more than 5000 feet. Farther to the south-east these are con­tinued in the much lower Little Balkans and Kyuren-dagh (2000 feet), the Kopepet-dagh, Kosty-dagh, Asilma, and Zaryn-kul,—the name of Kopepet-dagh or Kopet-dagh being often now used to designate the whole chain which rises steep and wild above the flat deserts from the Caspian to the river Murghab,—a stretch of 600 miles. In structure it is homologous with the Caucasus chain ; it appears as an outer wall of the Khorasan plateau, and is separated from it by a broad valley, which, like the Rion and Kura valley of Transcaucasia, is watered by two rivers flowing in opposite directions,—the Atrek, which flows north-west into the Caspian, and the Keshefrud, which flows to the south-east, and is a tribu­tary of the Murghab. On the other side of this valley the Allah- dagh and the Binalund border-ridges (9000 to 11,000 feet) fringe the edge of the Khorasan plateau. At its south-eastern extremity this outer wall loses its regularity where it meets with the spurs of the Hindu-kush. Descending towards the steppe with steep stony slopes, it rises to heights of 6000 and 9000 feet to the east of Kizil-arvat, while the passes which lead from the Turco­man deserts to the valleys of Khorasan are seldom as low as 3500, usually rising to 5000, 6000, and even 8500 feet, and in most cases being very difficult. This wall is pierced by but one wide opening, that between the Great and Little Balkans, through which the sea which once covered the steppe maintained connexion with the Caspian.

While the Allah-dagh and Binalund border-ridges are chiefly composed of crystalline rocks and metamorphic slates covered with Devonian deposits, a series of more recent formations—Upper and Lower Cretaceous, and Miocene—are shown in the outer wall of the Kopet-dagh. Here again we find that the mountains of Asia which stretch towards the north-west continued to be uplifted at a geologically recent epoch. Quaternary deposits have an extensive development on its slopes, and its hillfoots are bordered by a girdle of loess.

The loess terrace, called “Atok" (“mountain base”), is but narrow, ranging in width from 10 to 20 miles ; still its chain of settlements have rendered it possible to lay down a railway which now connects the Caspian with Sarakhs. It is very fertile, but could produce nothing without irrigation, and the streams flowing from the Kopet-dagh are few and meagre. The winds which reach the northern slope of the mountains have been deprived of all their moisture in crossing the Kara-kum—the Black Sands of the Turcoman desert ; and even such rain as falls on the Kopet-dagh (10½ inches at Kizil-arvat) too often reaches the soil in the shape of showers which do not saturate it, so that the average relative humidity is but 56 and the average nebulosity only 3∙9, as against 62 and 4∙l at even so dry a place as Krasnovodsk. Still, at those places where the mountain streams are closer to one another, as at Geok-tepe, Askabad, Lutfabad, and Kahka, the villages are more populous, and the houses are surrounded by gardens, every square yard and every tree of which is fed by irrigation.

Beyond this narrow strip of irrigated land begins the desert,— the Kara-kum,—which extends from the mountains of Khorasan to Lake Aral and the Ust-Urt, and from the Caspian to the Amu, interrupted only by the oases of Merv and Tejen. It appears, how­ever, that the terrible shifting sands blown into *barkhans,* or elongated hills, sometimes 50 and 60 feet in height, are grouped chiefly in the west, where the country has more recently emerged from the sea. Farther to the east the *barkhans* are more stable, their slopes being covered with bushes (for the most part leafless); the caravans sometimes follow their crests, and the shifting sands occupy restricted spaces. Large areas amidst the sands are occupied by *takyrs,* or flat surfaces covered with clay which is hard as a rule, but becomes almost impassable after heavy rains. In these *takyrs* the Turcomans dig ditches, draining into a kind of cistern—the *kak—*where the water of the spring rains keeps for a few months. Wells are sunk also along the routes of the caravans, and water is found in them at depths of 10 to 50 or occasionally 100 feet and more. All is not desert in the strict sense ; in spring there is for the most part a covering of grass, which allows of journeys across the desert. There are footpaths in several directions, especially from the irrigated and cultivated Atok towards Khiva.

The vegetation of the Kara-kum cannot be described as poor ; the typical representative of the sand deserts of Asia, the saksaul (*Anabasis Ammodendron),* has been almost destroyed within the last hundred years, and never appears in forests, but the borders of the spaces covered with salted clay are brightened by forests of tamarisk, which are inhabited by great numbers of the desert warbler (*Atraphornis aralensis)—*a typical inhabitant of the sands,—sparrows, and ground-choughs (*Podoces);* the *Houbara macquennii,* Gray, though not frequent, is characteristic of the region. Hares and foxes, jackals and wolves, marmots, moles, hedgehogs, and one species of marten live in the steppe, especially in spring. As a whole, the fauna is richer than might be sup­posed, while in the Atok it contains representatives of all the