species known in Turkestan, mixed with Persian and Himalayan species.@@1

*The Uzboi.—*A feature distinctive of the Turcoman desert is seen in the very numerous *shors,* or elongated depressions, the lower portions of which are occupied mostly with sand impregnated with brackish water. They are obviously the remains of brackish lakes, and, like the lakes of the Kirghiz steppes, they often follow one another in close succession, thus closely resembling river-beds. As the direction of these *shors* is generally from the higher terraces watered by the Amu-Daria towards the lowlands of the Caspian, they were usually regarded as old beds of the Amu-Daria, and were held to support the idea of its once having flowed across the Turco­man desert towards what is now the Caspian Sea. A few years ago it seemed almost settled, not only that that river (see Oxus) flowed into the Caspian during historical times, but that, after having ceased to do so in the 7th century, its waters were again diverted to the Caspian about 1221. A succession of elongated depressions, having a faint resemblance to old river-beds, was traced from Urgenj to the gap between the Great and the Little Balkans, marked on the maps as the Uzboi, or old bed of the Oxus.@@2 The idea of again diverting the Amu into the Caspian was thus set afloat, and expeditions were sent out for explora­tions with this view. The result of these investigations by Russian engineers, especially Hedroitz, Konshin, Mushketoff, Lessar, and Svintsoff,@@3 was, however, to show that the Uzboi is no river-bed at all, and that no river has ever discharged its waters in that direction. The existence of an extensive lacustrine depression, where the small Sary-kamysh lakes are now the only remains of a wide basin, was proved, and it became evident that this depression, having a length of more than 130 miles, a width of 70 miles, and a depth of 280 feet below the present level of Lake Aral, would have to be filled by the Amu, before its waters could advance farther to the south-west. The sill of this basin being only 28 feet below the present level of Lake Aral, this latter could not be made to dis­appear, nor even be notably reduced in size by the Amu flowing from Urgenj to the south-west. A more careful exploration of the Uzboi has shown moreover that, while the deposits in the Sary- kamysh depression, and the Aral shells they contain, bear unmis­takable testimony as to the fact of the basin having once been fed by the Amu-Daria, no such traces are found along the Uzboi below the Sary-kamysh depression ;@@4 on the contrary, shells of molluscs still inhabiting the Caspian are found in numbers all along it, and the supposed old bed has all the characters of a series of lakes which continued to subsist at the hillfoots of the Ust-Urt plateau, while the Caspian was slowly receding westwards during the Post-Pliocene period. On rare occasions only did the waters of the Sary-kamysh, when raised by inundations above the sill just mentioned, send their surplus into the Uzboi. It appears most probable that in the 16th century the Sary-kamysh was confounded with a gulf of the Caspian ;@@5 and this gives much plausibility to Konshin’s supposi­tion that the changes in the lower course of the Amu (which no geologist would venture to ascribe to man, if they were to mean the alternative discharge of the Amu into the Caspian and Lake Aral) merely meant that by means of appropriate dams the Amu was made to flow, in the 13th, 14th, 15th, and 16th centuries, alternately into Lake Aral and into the Sary-kamysh.

As for the ancient texts with regard to the Jaxartes and Oxus, it becomes more and more probable that their interpretation, if possible at all, is only so when it is admitted that, since the epoch to which these relate, the outlines of the Caspian Sea and Lake Aral have undergone notable changes, commensurate with those which are supposed to have occurred in the courses of the Central Asian rivers. The desiccation of the Aral-Caspian basin proceeded with such rapidity that the shores of the Caspian could not possibly maintain for some twenty centuries the outlines which they have at present. When studied in detail, the general configuration of the Transcaspian region leaves no doubt that both the Jaxartes and the Oxus, with its former tributaries, the Murghab and the Tejeñ, once flowed towards the west ; but the Caspian of that time

was not the sea of our days ; its gulfs penetrated the Turcoman steppe, and washed the base of the Ust-Urt plateau, as is shown by the deposits of its shells described by the Russian engineers.

*Kelif-Uzboi.—*There is also no doubt that, instead of flowing north-westward of Kelif, the Amu once flowed to join the Murghab and Tejeñ ; the succession of depressions described by the Russian engineers as the Kelif-Uzboi@@6 supports this hypothesis, which a geographer cannot avoid making when studying a map of the Transcaspian region; but the date at which the Oxus followed such a course, and the extension which the Caspian basin then had towards the east, remain unsettled. Much, however, has still to be done before we can fully reconstruct the geological history of that region since the Pliocene epoch, or show how far the data of Pliny, Strabo, and Ptolemy were descriptions of actual facts.@@7

*Population.—*With the exception of some 35,000 Kirghiz en­camped with their herds on the Ust-Urt plateau (a swelling some 600 to 1000 feet in height and nearly 92,000 square miles in extent, which, owing to its dryness and cold winter, can be inhabited only by nomad cattle-breeders) and a few Persians in the Lutfabad and Shilghyan villages of the Atok, the whole of the population of the Transcaspian region consists of Turcomans. Until a very recent date their chief occupation was cattle-rearing and robbery. Even those Turcomans who had settled abodes on the oases of the Atok, Tejeñ, and Merv were in the habit of encamping during spring in the steppes, and there practising robbery. Robber bands were easily formed, and on their powerful horses they extended their excursions to distances of 200 and 300 miles from their abodes. They infested the Astrabad province ; and the villages of the khanates of Afghan Turkestan, from Balkh to Meshhed, were periodically devastated by them. The aspect of the steppe has, however, greatly changed since the Russian advance, the fall of the Turco­man stronghold of Geok-tepe, and the massacres which ensued ; the Persians are already beginning to avenge themselves on the inhabitants of the Atok by disputing with them the supplies of water coming from the Kopet-dagh.

The chief oasis of the Turcoman desert is the Atok, which extends along the base of the Kopet-dagh, and is now traversed by the Transcaspian railway. The Akhal and the Arakadj oases, collectively called Atok, now have a population of about 42,000 Tekke-Turcomans, who have recently settled there, and live for the most part in miserable clay huts or in felt tents (*kibitkas*)*.* They raise wheat, barley, and lucerne ; and the Persians have excellent gardens. Some cotton is also grown, and the culture of the silk­worm is beginning to spread. The chief settlements are Askabad, Kizil-arvat, and Geok-tepe.

The oasis of Merv (*q.v.)* is inhabited by Akhal-tekkes (about 160,000), mostly poor. In January 1887 they submitted to Russia.

The oasis of Tejeñ has recently sprung up where the river Tejeñ (Heri-rud) terminates in the desert. Formerly it was only tem­porarily visited by the Tekkes who came to cultivate the fields in summer. In 1883 it was estimated to have 7500 inhabitants.

*South- West Turcomania.—*The region between the Heri-rud and the Murghab, as they issue from the highlands, described in English maps under the name of Badhyz, and by the Russians as South-West Turcomania, has of late attracted a good deal of attention since the Russian occupation of Sarakhs on the Tejeñ (see Afghanistan and Persia) and Penjdeh on the Murghab. It has the characters of a plateau reaching about 2000 feet above the sea, with hills 500 and 600 feet high covered with sand, the spaces between being filled with loess. The Borkhut Mountains which connect the Kopet-dagh with the Sefid-kuh, reach 3000 to 4000 feet, and are crossed in *a* gorge by the Heri-rud. Thickets of poplar and willow follow the courses of both the Murghab and Heri-rud, and the trees reach a considerable size. Pistachio and mulberry trees grow in isolated groups on the hills ; but there are few places available for culture, and the Saryks (some 60,000 in number) congregate in only two oases at Yoɫ-otan and Penjdeh. Cattle-breeding is their chief occupation, and enables them to live in a certain degree of affluence. Brigandage, formerly a notable source of income, is now being suppressed. The Sarakhs oasis is now occupied by the Salors, hereditary enemies of the Tekkes, who number about 3000 tents at Old Sarakhs, and 1700 more on the Murghab, at Tchardjui, at Maimene, and close to Herat.

Great modifications in the life of the steppe have of course been brought about by the Russian conquest, which was followed with

@@@1 See N. Zarudnyi, “ Les oiseaux de la Contrée Transcaspienne,” in *Dull. Sοc. Nat. Mοsc.,* 1885.

@@@2 It is to be observed that on the original Russian map of the Transcaspian, drawn immediately after the survey of the Uzboi had been completed, the Uzboi has not the continuity which is given to it on subsequent maps.

@@@3 Their original papers are printed in the *Izvestia* of the Russian Geogr. Soc., 1883 to 1887, as also in the *Journal* of the Russian Ministry of Roads and Com­munications.

@@@4 According to A. E. Hedroitz and A. Μ. Konshin the old Tonu-Daria bed of the Amu contains shells of molluscs now living in the Amu (*Cyrena fluminalis, Dreissena polymorpha,* and *Anodonta).* The Sary-kamysh basin is characterized by deposits containing *Neritina liturata, Dreissena polymorpha,* and *Lymnæus,* characteristic of this basin. Below the Sary-kamysh there are no more deposits containing shells characteristic for the Amu; *Anodontæ* are found quite occasion­ally on the surface, not in beds, in company with the Caspian *Cardium (Didacna) trigonoides,* var. *crassum, Cardium piramidatum. Dreissena polymorpha, D. rostriformis, Hydrobia caspia, Neritina liturata,* and *Dreissena brardii ;* the red clays with these fossils extend for 130 miles to the east of the Caspian *(Izvestia* of Russ. Geog. Soc., 1883 and 1886).

@@@5 As by Jenkinson, who mentions a sweet-water gulf of the Caspian within six days’ march from Khwarezm, by which gulf he could mean nothing but the Sary- kamysh depression.

@@@6 In connexion with this southern “old bed,” it is worthy of notice that the Ersari-Turcomans call it Unghyuz or Onguz (“dry old bed”), and there can be no doubt that when the Bolshoi Tchertezh of the 16th century (speaking from anterior information) mentions a river, Ughyuz or Ugus, flowing to the west from the Amu towards the Caspian, it is merely describing as a river what its very name shows to have been a dry bed, only supposed to have been once occupied by a river. The similarity of the names Ongus and Ugus with the Ogus and Ochus is so striking that one is inclined to see in the Ogus or Ochus nothing but the mention of a dry old bed. Compare Petrusevitch, “ The South-East Shores of the Caspian,” in *Zapiski* of the Caucasian Geogr. Soc., vol. xi., 1880.

@@@7 Such an intermingling of modern data with older traditions is not unknown to geographers. A striking instance of it is given in the supposed connexion of Lake Aral with the Arctic Ocean during historical times ; physical changes are proceeding so rapidly in Asia that we find traces of like survivals of traditions even in this age of accurate surveys.