On the northern slopes, at the higher levels, only the *Juniperus pseudo-Sabina* grows on the mountains, and rich meadow grasses cover the *syrts.* Lower down, at about 7500 to 8000 feet the conifer zone begins, characterized by the *Picea Schrenkiana,* which furnishes the inhabitants with timber and fuel. Of course the artcha and a few other deciduous trees also occur. The richest zone is that which comes next, extending downwards to 5000 and 4500 feet. There woods of birch, several species of poplar, the maple (*Acer Semenovii),* and a rich underwood spread over the mountain slopes. Orchards of apple and apricot surround the villages. The meadows are covered with a rich vegetation,—numberless bright *Pæoniæ,* variegated *Scabiosæ,* large *Convolvulaceæ,* all kinds of *Campanulæ,* dark-coloured *Eremurus,* splendid *Umbelliferæ,* yellow-flowered *Gal­lium,* a mass of *Rosaceæ, Allheæ, Glycyrrhizæ,* high-stemmed *Scorod- osma fœtida,* and tall *Gramineæ.* But, as soon as the soil loses its fertile humus, it produces only a few of *Phlomis, Alhagi camelorum, Psammæ, Salsolaceæ, Arternisiæ, Peganum,* and some poppies and *Chamomillæ,* but only in the spring. The invading steppe plants appear everywhere in patches in the Turkestan meadows. Very often—almost invariably on the drier southern slopes of the mountains—the steppe vegetation climbs up to the level of the alpine. Nowhere, perhaps, is the effect of various soils—loess, clay, salt clay, and sand—upon vegetation better observable than in the recently-emerged and arid regions of Turkestan.

The “culture ” or “ apricot” zone is followed by the prairie belt, in which black-earth plants (*Stipa* and the like) struggle for exist­ence against invading Central Asian forms. And then come the lowlands and deserts with their moving sandy *barkhans, shors,* and *takyrs* (see Transcaspian Region). Two species of poplar (*P. pruinosa* and *P. diversifolia), Elæagnus angustifolia,* the ash, and a few willows grow along the rivers. Large areas are wholly destitute of vegetation, and after crossing 100 miles of such a desert the traveller will occasionally come upon a forest of *saksaul ( Anabasis Ammodendron).* Contorted stems, sometimes of consider­able thickness, very hard, and covered with a grey cracked bark, rise out of the sand, bearing green plumes of thin branches, with small greyish leaves and pink fruit Sometimes the tree is a mere knot peeping above the sand with a crown of thin branches. But even these fantastic growths are rapidly being destroyed by the Kirghiz herdsmen, who use them for fuel.@@1 In spring, however, the steppe assumes quite another aspect, being covered, except where the sands are shifting, with a rich vegetation. Persian species penetrate into Bokhara and the region of the upper Amu.

As already stated (p. 635), the climate of Turkestan varies con­siderably from north to south. In Akmolinsk and Semiryetchensk most of the kinds of corn which characterize Middle Russia are grown. South of the Tchu and the Syr-Daria gardening is a considerable industry ; and, although rye and wheat continue to be the chief crops, the culture of the apple, and especially of the apricot (*uryuk),* acquires importance. Attempts are also made to cultivate the vine. The inhabitants of the neighbourhood of Tash- kend and Samarkand, as well as those of the much more northern but better sheltered Kulja oasis, add the cultivation of the almond, pomegranate, and fig. Vines are grown and cotton planted in those districts. Finally, about Khojend and in Ferghana, where the climate is milder still, the vine and the pistachio tree cover the hills, while agriculture and horticulture have reached a high degree of perfection. Successful attempts are now being made to grow the tea-plant in the Transcaspian region.

The arable land, being limited to the irrigated terraces of loess already spoken of, occupies less than a fiftieth of the whole area of West Turkestan, even when the Transcaspian deserts are left out of account. The remainder is nearly equally divided between pasture land and desert (sandy steppe and barren mountain). Owing to a very equitable distribution of irrigation water in accord­ance with Moslem law, agriculture and gardening have reached a high stage of development in the oases. Two crops are usually taken every year.@@2 Wheat, barley, millet, pease, lentils, rice, sorghum, lucerne, and cotton are the chief agricultural products. Carrots, melons, vegetable marrows, and onions are extensively grown. Rye and oats are cultivated in Kazalinsk and Kopat. Corn is exported. Owing to the irrigation, total failure of crops and consequent famines are unknown, unless among the Kirghiz shepherds. The kitchen gardens of the Mohammedans are, as a rule, admirably kept. Potatoes are grown only by the Russians. The cultivation of cotton is rapidly extending (32,000 acres in 1886), as also is sericulture, which is chiefly carried on in Ferghana, whence silk cocoons are an important item of export. Cattle-breeding is extensively pursued, and in Russian Turkestan alone recent estimates show 400,000 camels, 1,600,000 horses, 1,200,000 cattle, and 11,000,000 sheep. This last figure, however, is but a very rough estimate,—the flocks on the Kirghiz steppe being so large that the proprietors themselves do not know their

exact numbers. Murrains are of frequent occurrence ; a recent one resulted in a terrible famine among the Kirghiz. Live cattle, hides, wool, camel-hair, tallow, felt, and leather are exported to a considerable extent.

The mineral wealth of Turkestan is considerable. Traces of auriferous sands have been discovered at many places, but the per­centage of gold is too poor to make the working remunerative. Silver, lead, and iron ores occur at several places ; but the want of fuel is an obstacle to their exploitation. The vast coal-beds of Kulja and several inferior ones in Turkestan are not yet seriously worked, the total yearly output being only some 120,000 cwts. The naphtha wells of Ferghana and the layers of graphite about Sairam-Nor are also neglected. There are abundant deposits of gypsum, alum, kaolin, marble, and similar materials. Notwith­standing the salt springs of Ferghana and Syr-Daria, the salt lakes of the region, and the rock-salt strata of the Alexandrovsk Mountains, salt is imported.

Turkestan has no manufacturing industry carried on by means of machinery, except a few distilleries and two establishments for dressing raw cotton. But there is a great variety of artisan work, which, however, has been for some time declining and now stands at a rather low level.@@3 Trade is very actively carried on. Its importance may be judged by the fact that in 1876 27,900 camels were used for the transport of wares to Tashkend. This town and Bokhara are the chief commercial centres, the principal articles of export to Russia, *via* Orenburg and Semipalatinsk, being raw cotton and silk, cattle and their products, while manufactured wares are imported in return. There is also an import and export trade to and from Urumtchi and China, *via* Kulja and Ak-su.

Turkestan has been the theatre of so many migrations and con­quests that its present population could not fail to be very mixed. Both Aryans and Mongols (especially the Ural-Altaic branch) have their representatives there, the former settled for the most part, the latter chiefly nomad. The Ural-Altaians, or Turanians, are numerically the predominant element, and consist of Turcomans, Kirghiz, Uzbegs, and Sarts. The Turcomans inhabit chiefly that part of Turkestan which is now known as the Transcaspian Region (*q.v.).* They number less than one million. The Kara- Kalpaks (“Black Bonnets”) may number about 50,000 in Turke­stan, and some 300,000 in the Russian empire altogether. Very little is known of their history. They are supposed to be but recent immigrants to Syr-Daria, having come from the former Bulgarian empire on the middle Volga. Their language and habits are the same as those of the Kirghiz ; but for the last century and a half they have had some acquaintance with agricul­ture. Their pacific temper exposed them to the raids of the Kirghiz, who compelled them first to settle in Dzungaria, then to change their dwellings several times, and ultimately (in 1742) to recognize the sovereignty of Russia. Even since that time they have been driven by the persecutions of their old enemies to cross the Aral-Caspian steppes and seek refuge near Astrakhan. The real masters of the steppes and highlands of Turkestan are the Kirghiz, of whom there are two branches,—the Kazak (Cossack) Kirghiz and the Kara (Black) Kirghiz or Burut (see Kirghiz). The Uzbegs, who played a predominant political part in Turkestan before the Russian conquest, are of Turco-Tartar origin and speak a pure Jagatai dialect ; but they are mixed to a great extent with Persians, Kirghiz, and Mongols. They are subdivided into clans and lead a semi-nomadic life, preserving most of the attractive features of their Turkish congeners—especially their honesty and independ­ence. When settled they are mostly designated as Sarts—a name which has reference more to manner of life than to anthropological classification, although a much stronger admixture of Iranian blood is evident in the Sarts, who also speak Persian at Khojend and Samarkand. Tarantchi or Taranji (“labourer” in Chinese) is the name given to those Sarts who were settled in the Kulja region by the Chinese Government after the rising of 1758. They constitute about two-fifths of the population of Kulja. After defeating the Dzungañs in the year 1865, they took the political power in Kulja into their own hands, offering shelter to the Kirghiz who made inroads on the Russian dominions. This was made a pretext for the annexation of Kulja by Russia in 1871 ; but it has been since restored to China. The origin of the Dzungañs is somewhat prob­lematical. They number nearly 20,000, and inhabit the valley of the Ili in Kulja and partly are settled in Russian Turkestan. They are Mohammedans, but have adopted Chinese manners of life. The Mongolian branch is represented in Turkestan by Kalmucks and Torgoutes (Torgod) in the north-east and in Kulja, where they are mixed with Solons, Sibos, and Chinese. The Aryan Tajak (see Tajak), the aborigines of the fertile parts of Turkestan, were subdued by the Turco-Mongolian invaders and partly com­pelled to emigrate to the mountains, where they are now known as Galtchas. They constitute the intellectual element of the country and are the principal owners of the irrigated land,—the Uzbegs being their labourers,—merchants, and mollahs or priests. They are Sunnite Mussulmans. The other representatives of Aryan

@@@1 See Olga Fedtchenko and Prof. Sorokine's drawings of saksaul forests in *Album of Views of Russ. Turkestan* ; also *Bull. Soc. Nat. Mosc.,* 1884, No. 1.

@@@2 See Middendorff's very valuable sketches of agriculture in Ferghana in *Mem. Acad. Sc. of St Petersburg,* 1881.

@@@3 See N. Mayeff's *Turkestan Exhibition of 1886,* Tashkend, 1886.