

STATISTICS AND GEOGRAPHY



OF

RUSSIAN TURKESTAN.

BY

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N O T E.

These papers have been compiled almost entirely from Russian sources. This was of necessity the case, as the few Europeans of other nationalities who have been admitted into Russian Turkestan have, except in one or two instances, not made public their observations. Hence Russian views, and perhaps a Russian colouring, may be found to prevail in these papers.

The authors whose writings have been consulted more or less largely are Maeff, Skoboleff, Severtsoff, Kaulbars, Fedjenko, Lerkh, Kühn, Aminoff, Kostenko, and many others.

Although "Hissar," a dependency of Bokhara, does not properly come under Russian Turkestan, it was considered interesting at the present time to append an article on the geography of that little-known country, which acquires considerable importance from the fact of its intervening between Russian Turkestan and the northern provinces of Afghanistan (Balkh, &c.).

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March, 1879.*

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By the year 1867, Russian conquests in Central Asia had led to the acquisition of so much new territory, that it appeared desirable to the authorities to place it under a separate administration, intitled the Government General of Turkestan, with the seat of government at Tashkent. The Governor General (General von Kaufmann) is also Commander-in-Chief of the military forces, and is vested with full powers to carry on diplomatic negotiations with the neighbouring countries. Under him are the Governors of the Provinces of Semirechia, Syr Darya, and Ferghana, and the Commander of the Zerafshan Circle.

Constitution of Government General.

By an Imperial Ukase of the same year this Government General was ordered to be formed of the old province of Turkestan, the Tashkent district, the country beyond the Yaxartes, occupied in 1866, and that part of the Semipalata province which lies to the south of the Tarbagatai range; to this was added, in the following year, the Zerafshan Circle, with the city of Samarcand. In 1871 the Cis-Ili district with the town of Kuldja was temporarily occupied, and lastly in 1876 the Khanate of Kokand was annexed and re-named the province of Ferghana.

The frontiers of the Government General were defined in 1867 as follows:—The northern frontier with West Siberia and Orenburg is traced along the Tarbagatai range and its branches as far as the present frontier, dividing the Semipalata province from the country of the Siberian Kirghiz; along this frontier as far as Lake Balkhash, thence in a course through the middle of that lake and from its southern margin in a straight line to the river Chu. Thence it passes along that river as far as the river Sary-su. It then strikes north-west to Myn Bulak, past the mountains of Chubar-tepe and the Ak Kum, thence through Muzbil to Mount Kalmas, where it reaches its northernmost point. Here it takes a south-west direction through Terekly, past Mount Termembess, to Perovsky Bay in the Aral Sea.

Frontiers.

The frontier co-terminous with China is defined by the treaty of 1860 as running generally from the post of Shabin-Dabag on the border of the Yenisei and Tomsk Governments to the south-west, as far as lake Zaisan; thence along the Jungaria Ala-tau range, across the Ili to the Tian Shan, and along this range to the frontiers of Kokand. The precise delineation of the frontier line was commenced in 1869.

The southern boundary of the Government General is still more undefined, but it may be said to commence on the west from the Aral Sea, and thence to be co-terminous with the native states of Khiva, Bokhara, Karategin, and Kashgar (now once more part of China).

It is divided for administrative purposes as follows:—(1) Province of Semirechia, (2) Province of Syr Darya (the river Karagaty forming the boundary between them), (3) Province of Ferghana, (4) the Zerafshan Circle, and (5) the Amu Darya sub-district.

Administrative divisions.

These provinces, &c., are further subdivided into *uyezds*; Semirechia into the Tokmak, Issyk Kul, Verny, Kopal and Sergiopol *uyezds*; Syr Darya into the Kazala, Perovsky, Hodjent, Chimkent, Aulie-ata, Kurama, Tashkent, and Jizak *uyezds*. The Zerafshan Circle consists of three divisions:—Samarkand, Katty Kurgan, and Nagorny. The Cis-ili country is also partitioned into two divisions, the northern and southern. The newly occupied province of Ferghana is divided into the following seven *uyezds*: Kokand,

Margilan, Andijan, Osh, Chimion, Namangan, and Chust. At the head of these *uyezds* are Prefects, or Commandants, who are charged with the police and general supervision of all the inhabitants, Russian and native. The nomad population is divided into *colosts* and *auls*, which are governed by administrations and elders chosen by the people, but are under the immediate control of the district Prefects.

Of these provinces it may be said generally that Semirechia, is distinguished for its mountainous character; the Syr Darya consists mainly of arid steppes, the Zerafshan Circle is renowned for the fertility of its soil and the density of the native population; while Ferghana consists of a rich, fertile and well populated valley, surrounded by high mountains.

The boundaries of the military district of Turkestan on the east and south are, therefore, still very vague and undefined. But approximately the area of the country may be taken at somewhat more than 380,000 square geographical miles (English), that is to say, a district nearly equal in extent to Norway and Sweden.

The following table gives approximately the area of each province and uyezd, but it must be observed that only the uyezds of Kopal, Sergiopol, Chemkent, and Hodjent are tolerably accurate in this respect; the area of the others, in consequence of the unsettled boundaries of the Russian frontiers coterminous with the neighbouring khanates, is very uncertain. As regards the population shown in the same table, it must be borne in mind that no census has yet been taken in Turkestan, except in Tashkent and Verny, and therefore it is impossible to fix the numbers with any pretension to accuracy. The population of Semirechia is approximately accurate, but that of the Syr Darya Province and Zerafshan Circle is only estimated on the basis of calculation of five persons to each house or kubitka (tent).

Table of
area, popu-
lation, and
density of
population.

Province and Uyezd	No. of square miles (English)	Population	Population to square mile
SEMIRECHIA PROVINCE—			
Sergiopol	20,200	97,685	3.3
Kopal	13,370	125,257	9.3
Verny	44,670	155,047	3.5
Tokmak	28,780	125,437	4.3
Issyk-kul	18,390	48,253	2.6
Total in Semirechia Province ..	134,410	551,679*	4.1
SYR DARYA PROVINCE—			
Kazala	34,070	62,266	1.8
Perovsky	46,970	100,090	2.1
Chemkent	38,870	170,740	4.3
Aulie-Ata	30,220	102,560	3.4
Kurama	13,390	192,500	14.3
Hodjent	4,970	85,819	17.2
Jizak	13,390	41,500	3.1
Tashkent .. .. .	..	49,043	..
Total in Syr Darya Province ..	181,880	804,518†	4.4
ZERAFSHAN CIRCLE	10,000	288,000	28.8
KULDJA DISTRICT	27,400	130,000	4.7
FERGHANA PROVINCE	27,900	800,000‡	28.7
Total in Turkestan	381,590	2,573,197	6.7

According to these figures, the entire population of Turkestan with the Russian population of the Syr Darya province, amounts to 2,573,197 souls. The average number of five to each house or kubitka must be considered as the minimum; the commission appointed to organise the Kurama uyezd fixed the average number at seven, while in the Zerafshan Circle the same proportion has been adopted. In Ferghana the population has been estimated at the rate of five souls per house or kubitka.

The population per square mile, as may be seen from the table, averages 6.7 souls, that is to say, less than one-fifth of the proportion in European Russia. The densest population is in Ferghana. In this province about four-fifths of the country consists of bare uninhabited mountains, the remaining fifth, or say 6,500 square miles, has a population of about 150 to the square mile. The next densest is in the Zerafshan

* Inclusive of troops.

† Exclusive of the troops in the Syr Darya province and the Russian population, which may be taken at 40,000 souls.

‡ Exclusive of troops, which may be taken at 5,000 (1878).

Circle, where it amounts to 28·8 inhabitants per square mile. In Kurama, there are 14·3 souls to the mile; in Hodjent, 7; whilst in Issyk-kul there are but 2·6; and in Kazala, 1·8. The cause of this is perfectly intelligible. The Issyk-kul uyezd includes the inhospitable mountain district of the Tian Shan, populated solely by nomad Kara Kirghiz, and a few Russian immigrants. The Kazala uyezd includes the infertile district of the Kara Kum and Kizil Kum steppes.

The population of both provinces is nearly in the same proportion. In Semirechia the most populous uyezd is Kopal, in the Syr Darya, the two southernmost uyezds, and Kurama.

But however poor Turkestan may be even in comparison with the least populous districts of Russia, in no part of the western empire is there so dense a population as in the fertile valleys of Turkestan. For instance, the Ferghana and Zarafshan valleys exceed in population the most densely populated localities of Western Russia. Along the valley of the Chirchik, Angren, Keless, the lower spurs of the range which encloses the province of Ferghana on the south and the Hodjent uyezd, in the Hodjent and Turkestan uyezds, and in all those localities where abundance of water repays the cultivator for his toil, is found a fairly large population.

In Semirechia, on the lower slopes of the southern Ala-tau, near the town of Verny, are found many Russian settlements, and a large number of Kirghiz auls. In those places where the ranges of the Tian Shan recede and give place to the fertile valleys of the Naryn, Kashgar, Jungam, numerous Kirghiz auls are encamped for the winter. With these exceptions, in all localities where the topographical and climatic conditions are unfavourable to settlement, the population is sparse, and of such localities there are many in Turkestan. The greater part of the uyezds of Issyk-kul, Tokmak, and Aulie Ata is full of high mountain ranges, barren rocks, or shifting sands, with a very scanty vegetation.

But there are many localities in Turkestan which offer all the requisite advantages for nomadic or settled life, but which, partly from insufficiency of population, partly from political causes, still remain unoccupied. For instance, the valley of the Chirchik for 120 miles of its course, owing to the extent of its culturable land, the abundance of water, the topographical and climatic conditions, could harbour a settled population equal in number to that of the whole of Turkestan. The valleys of the Arys, Talass, Chu, and many others might afford a subsistence to a far greater number of people than at present inhabit them.

The nomad and semi-nomad population of Semirechia and Syr Darya are very much in excess of the sedentary, as may be seen in a subsequent table. The sedentary population preponderates over the nomad in the three southern uyezds only, Kurama, Jizak, and Hodjent. In the remainder the nomad is in excess. Population.

In the western part of the Zerafshan Circle nearly all the inhabitants lead a settled life.

In Ferghana the sedentary population is estimated at 500,000, and the nomad at 300,000; of these the former are established mainly in the towns on the left or south bank of the Yaxartes, while the nomads are found chiefly to the north of the river.

Nomad tribes are distributed over the whole of Semirechia and the four northern uyezds of Syr Darya: Aulie Ata, Chemkent, Perovsky, and Kazala.

In Semirechia the settled population, to the number of 30,000, including troops, consists nearly exclusively of Russians, Chinese immigrants, Sarts, and Tatars. These are distributed in the midst of the nomads, mostly along the slopes of the Alatau. Some Kirghiz are also commencing to settle, especially in the north of Semirechia, and even in the rest of this province their nomadising does not now extend beyond the limits of the uyezds. Many Kirghiz employ themselves in agricultural pursuits, and in the northern uyezds store hay for winter use.

In the Syr Darya Province the settled population of the four northern uyezds, including Russians, numbers 35,000, *i.e.*, about 6 per cent. of the population. Of Russians, exclusive of troops, there are not more than 1,000, chiefly employed in various industries and in farming. The sedentary Tatars and Sarts are nearly all engaged in trade. The population of the Kurama uyezd exhibits all the various degrees of transition from a nomad to a sedentary life, and does not admit, therefore, of a calculation of the percentage. In the two southern uyezds the sedentary forms seven-eighths and the nomad one-eighth of the entire population. The rayon of their nomadising is also very limited.

Besides the Kirghiz, a few Kurama Uzbeks lead a nomad life. The settled population consists, besides Russians and Sarts, of Uzbeks, Tadzhiks (inhabitants of the plain), Galchas (mountain Tadzhiks), and Kuramas.

Table, showing population by races.

From the table next following, which gives the population by races, it will be seen that the most numerous race inhabiting Turkestan is the Kirghiz (Kazak) and the Kara Kirghiz, both of Turco-Tataric origin. They profess to be Suni Mahommedans, but with their creed are blended many Pagan procedures. The total number of both races is 1,040,000 souls, or nearly two-thirds of the population. If we add the Kuramas (derived from the mixture of various Kirghiz tribes with Sarts), this number is augmented to 1,088,500.

Population (by Races) of Russian Turkestan.

Uyezd	Russian (excl. troops)	Kirghiz and Kara Kirghiz	Kurama	Uzbek	Tadjik	Sart	Mongol	Other Races	Total	Percentage of Russians to other races
PROVINCE OF SEMIRECHIA—										
Vernoe	14,100	132,149	—	—	—	1,551	6,947	—	155,047	84
Kopal	4,792	119,615	—	—	—	165	685	—	125,257	2
Sergopol	4,352	89,853	—	—	—	—	3,849	—	97,685	23
Tokmak	840	123,227	—	—	—	*1,358	12	—	125,437	23
Issyk-kul	668	47,000	—	—	—	155	430	—	48,253	23
Total	25,052	511,844	—	—	—	3,229	11,914	—	551,679	44
PROVINCE OF SYR DARYA—										
Aulie Ata	—	100,750	—	—	—	1,810	—	—	102,560	—
Chemkent	—	149,490	—	—	—	21,250	—	—	170,740	—
Perovsky	—	100,090	—	—	—	—	—	—	100,090	—
Kazala	208	61,790	—	—	—	268	—	—	62,266	—
Kurama	—	110,000	48,500	500	8,500	25,000	—	—	192,500	—
Tashkent	—	260	—	—	—	47,848	—	935	49,043	—
Hodjent	—	4,300	—	21,400	60,070	—	—	49	85,819	—
Jizak	—	2,100	—	32,885	2,990	—	—	3,525†	41,500	—
Total	208	528,780	48,500	54,785	71,560	96,176	—	4,509	804,518	—
ZERAFSHAN CIRCLE	—	—	—	—	—	—	—	200†	288,000	—
FERGHANA PROVINCE	—	—	—	—	—	—	—	—	800,000	—
KULDJA DISTRICT	—	—	—	—	—	—	—	—	130,000	—
Grand Total	25,260	1,040,624	48,500	54,785	71,560	99,405	11,554	4,509	2,573,197	—

Russians.

The number of Russians in Turkestan is difficult to estimate with accuracy, as it changes with each transfer of troops. Of those serving in the country, very few remain in it for more than five years, the majority leave after three years. The number may be stated approximately at 70,000, or 30,000 without the troops.

The number of Russians in Semirechia is accurately known. If we deduct the troops from the 25,000 Russians, the remaining 20,000 will be found to consist of 17,800 Cossacks, 1,600 peasants, and 700 soldiers on unlimited furlough. The Russian population of the Syr Darya province consists exclusively of troops serving and discharged on furlough.

Russian Settlements.

The Russian settlements in Turkestan are of three kinds: forts or military posts; Cossack or other agricultural colonies; and factories or trading establishments. Free agricultural colonisation by peasantry has at present made but little progress. The Russian settlers in Turkestan consist mainly of Little Russians of the Voronej Government, and peasants from Siberia. Although up to this time the Russian agricultural colonies have not extended beyond Semirechia, yet from the numerous requests and permissions to settle in Syr Darya, which have been received and granted, there is reason to believe that the colonisation of this province of Turkestan will become ultimately as successful as in the one which is at present the more highly favoured.

The percentage of the Russian population to the native, exclusive of the troops, is greatest in Verny—8 per cent.; least in Issyk-kul and Tokmak. In the Syr Darya province nearly the whole Russian population consists of troops, constantly shifting, and consequently it would be useless to institute a comparison.

Turk race. Kirghiz.

In all the uyezds excepting the two southernmost of the Syr Darya Province and the Zerafshan Circle, the Kirghiz (1,040,624) form the bulk of the population. In the Kurama uyezd they, with the Kuramas, constitute the dense population around the few Sart settlements. A great part of the Tokmak, the whole of the Issyk-kul, the southern part of the Verny uyezd, and a small part of that of Aulie Ata are occupied

* Sarts and Foreigners.

† Turcomans.

‡ Afghans.

by Kara Kirghiz, the number of which tribe within Russian borders amount from 150,000 to 200,000 souls. They nearly all live in the mountains, and devote themselves to agriculture.

The Kara Kirghiz (Black Kirghiz) or Buruts, bear a great resemblance to the Kalmuks and Khalkas, pure Mongols. They speak a dialect of Turkish, without any admixture of Turkish or Arabic. They came originally from the country between the Ob and Yenissei, from which they were driven at the end of the 17th Century by the Russians and Jungars, and took refuge in the mountains of Ferghana. They are divided into several hordes, each of which has its manap or elder and its judge or biy. Kara Kirghiz.

The Kirghiz, or as they call themselves, Kazaks, extend from the Caspian across Central Asia to Siberia and China. Their language belongs to the Turco-Tartar family. They are divided into three great divisions, the Great, Middle, and Little Horde. The Little Horde is fixed in the west between the Rivers Yemba and Ural; the Great Horde in the east; while the Middle Horde, the most powerful, occupies the centre between the Sara-su and Yemba. The Great Horde was the last to become subject to Russia; this occurred in 1819.

The Kuramas dwell between Tashkent and Hodjent, and are divided into five tribes. They are a mixture of Kirghiz and Sart. Kuramas.

The Uzbegs, to the number of 55,000, live chiefly in the Hodjent and Turkestan uyezds; in the neighbouring khanates they form the bulk of the population. The majority lead a settled life, although some are nomadic. The origin of the Uzbegs is rather obscure, but they are probably descendants of the Hui-be (tribe of Turkish origin) and the Uigurs, and settled originally in the neighbourhood of the towns of Khoten, Kashgar, Turfan and Hamil. They crossed the Yaxartes in the 16th century, and after several successful campaigns, gained possession of Balkh, Khwarezm (Khiva), Bokhara, and Ferghana. All the notables of the towns of Central Asia and the reigning dynasties of the independent Khanates belong to this race. They speak the Oriental Turk or Jagatai tongue. Although presenting numerous Tatar characteristics they have a strong dash of Iran blood. The Kipchaks of Ferghana are Uzbegs, and according to Vambéry are the purest race. Uzbegs.

In the Turkestan uyezd live 3,500 Turcomans. These are a mixed race like the Uzbegs, whom they resemble both physically and morally. Their language is a mixture of Turkish and Uzbeg, with many Tartar words. They are a fine race, tall and athletic. Like the Uzbegs they are Suni Mahomedans, and very fanatical against the Shiahis. Only the Yomouts practice agriculture; all the other tribes are pastoral. Turcomans.

Of the other Turanian races there are a large number of Tatars (called Nogai by the Sarts and Kirghiz) distributed over the country. Near Tashkent is the village of Nogai-Kurgan. Tatars.

We now come to the members of the Iranian family: Tadjiks and Sarts. The Tadjiks and Galchas (mountain Tadjiks), a race of Iran extraction, were the primitive inhabitants of the country; they are the representatives of the ancient Oriental Iranians. With the Sarts they constitute the sedentary population of Central Asia. In appearance they do not differ much from the high-caste Hindoos of Northern India. They speak a pure form of Persian, free from Turkish or Arabic words. At the present time the majority live in Hodjent, Ura Tepe, and in nearly all the mountain valleys. The grouping of the Iran race in the mountains is explained in two ways:—Either that part of this race was swept by the wave of more warlike Uzbeg tribes into the mountains, where they succeeded in preserving their nationality, or, that living in the mountains and protected by the inaccessibility of their fastnesses, they were enabled to ward off the attacks of the Turk tribes, and in this way maintained their independence. The rest of the Tadjiks became crossed with Uzbeg and other Turk tribes; this process of amalgamation is still going on, and is exhibited in many phases. Aryan race.
Tadjiks.
Sarts.

Besides the Ura Tepe, Turkestan, and Hodjent rayons, where the Tadjiks live in the mountain kishlaks (villages), partly alone, partly with the Uzbegs, numbers of this race are also found at the sources of the Angren, where they live together with the Kuramas, and in the valley of the Chirchik, which contains a succession of Sart and Tadjik villages. Altogether the Tadjiks and Galchas in Turkestan may be computed at 71,000 souls.

The number of Sarts in Semirechia and Syr Darya amounts to about 100,000. They are nearly all residents in the Chemkent and Kurama uyezds, and in the town of Tashkent; nowhere in compact bodies, but distributed among the Kirghiz and Kuramas. The principal centres of the Sart population are Turkestan, Chemkent, and Bis-Pskent (Kurama uyezd). The Sart nationality, the result of the intermarriage of Turks and Uzbegs with Tadjiks, has formed in the above-named uyezds a distinct people, differing visibly in type and character from both the others. In the southern uyezds this inter-

mixture has not yet taken place to the same extent, and the inhabitants there have still preserved their type. The Uzbeks also use the term Sart for the inhabitants of towns generally.

In Semirechia, the number of Sarts amounts to about 3,230. The majority are occupied in petty trade; they have no settlements apart from the Russians. In spite of their small number in the northern part of Turkestan, compared with the Kirghiz, the Sarts exercise no slight influence over them. The mullahs whom they nominate as teachers and spiritual guides, are mostly Sarts; in their hands also lies the travelling trade among the auls.

Persians,
&c.

In the towns, and chiefly in Samarkand, live a considerable number of Persians, former slaves, Jews, Hindoos, and a sprinkling of Afghans. The Persians were originally brought from Merv, after the subjugation of that place 100 years ago by the Bokharian Emir, Shah Murad. Since that time they have been numerically increased by inter-marriage with Tajiks, and by voluntary migrations from Persia. They speak the Tajik language.

Jews.

The Jews are said to have appeared for the first time in Mawer-en-nahr some 300 years back, under the Emir Iskender Khan, one of the first sovereigns of Bokhara, in the Sheibani dynasty. They came from Persia. In Samarkand they live apart from the Sarts in a separate quarter of the town. Their language is Tajik.

Hindoos.

The Hindoos came to Turkestan from Peshawur, Bombay, Lahore, and Shikarpore. They are principally engaged in commerce or as bankers and money changers. The Hindoos are all of the male sex.

Afghans,
Gypsies.

The Afghans are chiefly the followers of the Afghan exile Abdurahman.

The Gypsies (*Liuli*) are for the most part sedentary. They profess the Mahomedan faith, and speak the Persian and Uzbeg languages. Their women do not veil.

Mazan.

There still remains a very curious nationality called Mazan. Some say that they are closely allied to the Gypsies, others that they came from Constantinople. They are petty traders in the bazaars. They are Mahomedans, but their women do not cover their faces.

With regard to the recently-annexed province of Ferghana, no accurate data are as yet to hand with regard to the distribution and numbers of the different races which inhabit it. The sedentary population consists mainly of Tadjiks and Sarts, with a sprinkling of Hindoos, Afghans, and Kirghiz. The nomad populations include Kirghiz, Kara Kirghiz, Uzbeks, and Kipchaks.

Although no accurate data are available for estimating the natural increase of the population of Turkestan, yet there is every reason to believe that the population of Central Asia was at one time far more considerable than it is in the present day. The depopulation of Semirechia in the last century was probably caused by the migration of the Kalmuks, who left behind them memorials in the shape of numerous cleverly constructed canals (aryks), tumuli, and tombs.

In many parts of the Syr Darya province ruins are often met with, where at present there exist scarcely any traces of life. There are also many remains of ancient canals not only in the valley of the Yaxartes, but in the much more inaccessible and mountainous parts along the course of the Chirchik and in the Chemkent uyezd. All these are indications of a once dense population.

When and from what causes the inhabitants were forced to abandon these countries is unknown; all that is certain is that the climatic and topographical conditions are such as to favour rather than to retard increase of population.

Russian Military Force in Turkestan.

Composition of the Military Forces in Turkestan. **STRENGTH AND DISTRIBUTION**—Rifle Brigade—Frontier Battalions—Field Artillery—Sappers—Local Troops—Cossacks—Distribution of Troops in February, 1877—Table showing the Strength of the Turkestan Troops during Russo-Turkish War 1877-78—Distribution of Troops on Outer Line of Defence: (1) Khivan Frontier, (2) Bokharian Frontier, (3) Kashgar Frontier, (4) Chinese Frontier, (5) Kuldja District—Distribution of Troops on Inner Line of Defence: Tashkent, Hodjent, and Verny—Nature of Forts in Turkestan—Barracks—ARMAMENT—Infantry and Sappers—Field Artillery—Cossacks—Provision of Warlike Stores—Field and Siege Parks—CLOTHING, SUPPLIES, &c.—Clothing—Intrenching Tools—Commissariat Supplies—Forage—INTELLECTUAL AND MILITARY CONDITION—Officers—Men—Discipline—Discharged Soldiers—Table showing Men Discharged to Purlough during the Six Years 1868-74—Drill—Target Practice.

The troops belonging to the military district of Turkestan consist of one brigade of rifles, seventeen frontier battalions of infantry, two brigades of field artillery, one company of sappers, some local and fortress troops, and detachments of Cossacks. There is no regular cavalry in Turkestan. STRENGTH AND DISTRIBUTION.

The rifle brigade consists of four battalions. Each battalion in time of peace consists of 22 officers, 477 non-commissioned officers and men, and 78 non-combatants. In time of war it comprises 26 officers, 829 non-commissioned officers and men, 96 non-combatants, and 69 camels. Each battalion consists of four companies. Rifle brigade.

The frontier battalions, of which there are seventeen, are intended for field or for local duties as required. In peace a frontier battalion consists of 21 officers, 582 non-commissioned officers and men, 72 non-combatants, and 15 horses; in war, of 26 officers, 1,022 non-commissioned officers and men, 92 non-combatants, and 68 horses. Each battalion consists of five companies—four line and one rifle companies. Frontier battalions.

There are two brigades of field artillery. The first artillery brigade consists of five batteries, one 9-pounder, two 4-pounders, and two mountain (3-pounder) batteries; the second artillery brigade consists of two 4-pounder and one mountain-battery; in all eight batteries. Each battery consists of four guns in peace, eight in war. The establishment of a 9-pounder battery in time of peace is 6 officers, 189 non-commissioned officers and men, and 29 non-combatants; in war, 6 officers, 281 non-commissioned officers and men, and 38 non-combatants. A 4-pounder battery in peace consists of 6 officers, 149 non-commissioned officers and men, and 29 non-combatants; in war, of 6 officers, 219 non-commissioned officers and men, and 37 non-combatants. A mountain battery consists in peace of 6 officers, 131 non-commissioned officers and men, and 36 non-combatants; in war of 6 officers, 254 non-commissioned officers and men, and 115 non-combatants. Field artillery.

There is one company of sappers, having the same establishment in peace as in war.* Sappers.

By an order of the 1st April, 1876, the local troops stationed in the Turkestan District were to be formed into three battalions of 1,200 men each, stationed respectively at Samarcand, Tashkent, and Verny, and fourteen local detachments of a strength varying from 139, 250, 300, to 400 men. Local troops.

In addition to the foregoing regular troops, there are numerous Cossacks. At the present time there would appear to be about ten regiments (each of six sotnias) of Cossacks, and three batteries of Cossack horse artillery; but a larger force could be brought into the district if necessary. Cossacks.

The Cossacks available for service in Turkestan are those of Orenburg, Ural, Siberian, and Semirechia. Of these, according to the new Cossack regulations, the Orenburg Cossacks maintain five regiments and four batteries in peace, seventeen regiments and eight batteries in war; the Ural Cossacks, three regiments in peace, nine in war; the Siberian three in peace and nine in war, and the Semirechia, two regiments. In all thirteen regiments and four batteries in peace, thirty-seven regiments and eight batteries in war.

The batteries of Cossack artillery have six guns in peace and war.

The following was the distribution of troops on the 13th February, 1877:—

1st Artillery Brigade	Tashkent.
2nd	Verny.
Horsed Mountain Battery	Tashkent.
Turkestan Rifle Brigade (4 battalions) ..	Tashkent.

* See table on next page.

1st Frontier Battalion	..	..	..	Karakol.
2nd	..	..	..	Kokand.
3rd	..	..	..	Samarcand.
4th	..	..	..	Osh.
5th	..	..	..	Katty-Kurgan.
6th	..	..	..	Samarcand.
7th	..	..	..	Hodjent.
8th	..	..	..	Petro-Alexandrovsck.
9th	..	..	..	Samarcand.
10th	..	..	..	Kuldja.
11th	..	..	..	Verny.
12th	..	..	..	Verny.
13th	..	..	..	Petro-Alexandrovsck.
14th	..	..	..	Margilan.
15th	..	..	..	Kuldja.
16th	..	..	..	Andijan.
17th	..	..	..	Tashkent.
1st Local Battalion	..	..	..	Tashkent.
2nd	..	..	..	Samarcand.
3rd	..	..	..	Verny.
Local detachments	at Kazala, Perovsk, Chimkent, Aulie-Ata, Hodjent, Chinaz, Turkestan, Sergiopol, Kopal, and Tokmak.			
Sapper company	..	..	..	Tashkent.

Troops not belonging to the Turkestan Military District.

3rd Western Siberian Frontier Battalion	..	Tashkent.
1st Regiment Orenburg Cossacks	..	Petro-Alexandrovsck.
2nd	..	Fort No. 1.
3rd	..	Andijan.
4th	..	Samarcand.
5th	..	Kokand.
Semirechia Cossacks	..	Almatin and Kopal.

During the Russo-Turkish campaign of 1877-78 the Turkestan force was placed on the war footing. According to the official returns the number of troops was, as shown in the table below, some 40,000 in all, inclusive of non-combatants; but if we deduct the latter and the local troops, there would be an available field army of 25,800. This number does not include the Cossacks. These latter (Orenburg and Semirechia), provided all the men were forthcoming, would add a further force of some 18,500 men and 52 guns. In all, 44,000 men and 116 guns.

	Officers	Non-Commiss- ioned Officers and Men (Com- batants)	Musicians	Officers	Non-Combatants	Horses
17 Frontier Battalions	533	18,300	249	60	1,434	616
Turkestan Rifle Brigade	122	3,536	85	14	350	165
1st Turkestan Artillery Brigade	40	958	15	1	149	359
2nd	34	610	13	3	142	295
Horse Artillery Battery	7	266	3	..	31	242
Sapper Company	7	304	3	..	15	6
5th Siberian Frontier Battalion	31	1,064	14	4	92	36
Field Troops	774	25,088	382	82	2,223	1,719
Local Troops :—						
Local Battalions	60	3,140	31	3	115	8
Local Detachments	54	4,680	41	..	164	..
Fortress Artillery	30	910	3	11	98	..
Local Troops	144	8,730	75	14	377	8
Administrative Services :—						
Staff, Topographical Department, Intendance, Hospitals, Clothing Stores, Arsenal, Laboratory, &c., &c.	123	147	49	219	1,756	16
Grand Total	1,041	33,965	506	315	4,356	1,743

In time of peace the troops are distributed throughout the district in scattered detachments, quartered in forts and redoubts, distant hundreds of miles from one another, and in many cases separated by waste and uninhabited districts.* Distribution of troops.

In the distribution of forts it will be observed that they are grouped in two lines: the outer or advanced, and the inner or reserve line. On the advanced line there are usually two or three fortified points on the frontier with each independent sovereignty: viz., on the frontier with Khiva, the Petro-Alexandrofsk, Nukus, and Kunia Urgench redoubts; on the frontier with Bokhara, those of Samarcand and Katty-kurgan; in the district bordering on Kashgar, the Karakol, Naryn, Muzart, and Gulsha forts; and on the frontier with China the redoubts at Bakhty and Borokhudzir. Lastly, we have the detachments occupying the Kuldja district. Let us examine the positions of these forts more closely:—

1. On the frontier with Khiva. This frontier, from the mouth of the Taldik to Meshekly, is protected by the river Oxus, the natural defensibility of which, and the absence of a military force in Khiva, enables the Russians to reduce their force here to a minimum. The troops, therefore, consist of only two battalions (nine companies), a division of field artillery, a division of mountain artillery, and one Cossack regiment of four sotnias; they are quartered in the Petro-Alexandrofsk, Nukus, and Kunia Urgench redoubts. Khivan frontier.

Fort Petro-Alexandrofsk, built in 1873, is situated on the right bank of the Oxus, about 6 miles from the passage of the river at Khanki, 3 miles from Shurakhan, and 1½ miles from the river bank.† From Khiva it is distant 35 miles.

The work is quadrangular in form, with flanking towers at the angles; they are the old walls of the garden of a Khivan dignitary. In the interior are barracks and mud-huts for the troops; wells have been dug to supply the garrison with water.

Petro-Alexandrofsk is also the administrative centre of the Amu-darya sub-district.

Fort Nukus, erected in 1874, is also situated on the Oxus, below Petro-Alexandrofsk, near where the Kuran-djarma branches from it. The form of the work is quadrangular, with flanking towers at the angles; the profile is strong. The interior space is calculated for one company, one sotnia, and two guns. There are good supplies of fuel in the neighbourhood, while on the islands there is excellent grass for the horses.

In order to protect the trade-route between Krasnovodsk and Khiva from Turcoman raids, a third fort was erected in 1876 between Kunia-Urgench and Sary-Kamish, about 14 miles from the former place, and on the great canal leading from the Oxus.

In addition to the troops above-mentioned, a convict-battalion of 700 men was formed in 1876 at Kasala, out of the Ural Cossacks, who were deported here from their own country for refusing to obey the new regulations for Cossack troops. They now form the settlement of Pervonachalny, on the Oxus, and will serve as a nucleus for a future Cossack force.

The communication between Petro-Alexandrofsk and Tashkent is maintained across the Kizil-kum steppe, through Kasala (Fort No. 1), a distance of about 420 miles.

Between Kasala and Petro-Alexandrofsk there is a weekly post, which takes five or six days. From Nukus or Kunia Urgench to Kasala is 370 miles, and from Petro-Alexandrofsk to Nukus, along the right bank of the Oxus, is 110 miles.

2. The frontier with Bokhara is much more extensive than that with Khiva. On the other hand it is well protected in its western part by the nearly waterless waste of the Kizil-kum, and in the eastern by the lofty and inaccessible Hissar range of mountains. It is in this central part that there is open and convenient communication between Russian territory and the capital of Bokhara: the postal road from Tashkent to Samarcand and Katty Kurgan. From this latter place to Bokhara is only 110 miles. Bokharian frontier.

As the Emir has a larger force at his disposal than any of the other potentates of Central Asia, the Russian forces are strongest on this frontier. Thus at Katty Kurgan, 14 miles from the frontier, is stationed a battalion of infantry and 1 sotnia of Cossacks; while at Samarcand, 45 miles to the east, are 3 frontier battalions, 1 local battalion, 3 sotnias, and a battery.

3. The frontier with Kashgar.

In the year 1868, a year after the ratification of the Chuguchak treaty, a small fort was erected on the left bank of the river Naryn, for the purpose of guarding the bridge Kashgar frontier.

* They ordinarily go under canvas on the 1st May (those in Semirechia in the middle of June), and return to barracks in September. The majority of troops are concentrated in camp at Tashkent, Samarcand, and Verny. During these concentrations manoeuvres are carried out. Sometimes the summer drills continue after the return of the troops to barracks, even until the month of November, as those months, owing to the absence of high temperature, are exceedingly favourable for drill throughout the greater part of Turkestan.

† So placed in order to be clear of the spring-floodings of the Oxus, which submerge the immediate banks.

at that point, and over-awing the subjects of Yakub Beg. The garrison consists of one company, one sotnia, and two rocket stands. As far as Fort Naryn there is a good carriage-road; thence to Kashgar, the road through the Turugart Pass might be easily made practicable for carriages.

Besides Naryn Fort there is another work at Karakol. Here and in the neighbourhood are quartered one battalion, 1½ sotnias and a mountain battery.

Both Karakol and Naryn are connected with Tashkent by post roads.

There is a small Cossack post (half a sotnia)—the Muzart post—in the valley of the Tekess, on the river Urten-Muzart, about 3 miles from the entrance of the well-known defile. Up to the year 1870, a strong force was maintained on the Upper Tekess, with a view to preventing a combination between the ruler of Kashgar and the Khan of Kuldja. This detachment fulfilled its purpose in so far that during the Kuldja campaign of 1871, the Kashgarees gave that country no aid. In 1873, the object of this detachment having ceased, it was withdrawn, and only a small post was maintained at Muzart.

Under the protection of this post, a Russian settlement, "Okhotnichaya Sloboda," has grown up in a picturesque valley, 18 miles west of the post, on the river Narynkol, where it falls into the Karakol, an affluent of the Tekess. This is the most distant settlement in Turkestan.

Lastly, we must mention the troops in the province of Ferghana, also towards Kashgar. These consist of 4 battalions of infantry and 2 regiments of Cossacks.

A fort has been constructed at Gulsha, the most eastern point where troops are posted in Ferghana. Its garrison consists of two companies, one sotnia of Cossacks, and four guns. A carriage road connects Osh with Gulsha (50 miles), and is carried for 8 miles beyond the latter place.

Chinese frontier.

4. On the frontier with China. The frontier between Russian Turkestan and China on the east and south-east is bounded by high mountain chains: the Tarbagatai, the Jungaria Ala-tau, and the Cis-Ili Ala-tau. The rivers Emil, Ili and Tekess, which flow between these ranges, intersect the frontier line almost at right angles. There are consequently no natural barriers, and at these points the country is quite open to incursions from without.

To guard these approaches there are the following forts and detachments:—

(a.) *South Tarbagatai* in Bakhty, near the old Chinese picquet of Kok-tum, on the Urdjar-Chuguchak road, about 12 miles west of the latter village. The detachment consists of one company, one sotnia, and two guns.

(b.) *Borohudzir*, on the frontier river of the same name, which falls from the right side into the Ili. Detachment of one sotnia and two guns.

As the South Tarbagatai and the Borohudzir detachments had to remain in position throughout the year, barracks were built in 1868–69, to shelter them from the inclemency of the weather.

In May, 1871, part of the troops of the Semirechia district were concentrated on the Borohudzir, and moving forward, took possession of the Khanate of Kuldja.

5. Kuldja District.—For the defence of this district (including the country along the river Kungess), a detachment, consisting of two battalions of infantry, one regiment of Cossacks, and four guns, are posted in the town of Kuldja and in Fort Suidun, about 25 miles west of Kuldja.

The Kuldja district forms, as it were, an advanced post to the possessions of Russia in Central Asia, protecting the district of Semirechia. The town of Kuldja is connected with Semirechia by a post-road established in 1872.

Inner line of defence

Having thus examined the outer or advanced line of fortified posts, let us turn to the inner or reserve line. This latter consists of Fort No. 1 (Kasala), Fort No. 2, Karamakehi, Perovsky or Ak Mechet, the fortifications at Julek, Turkestan, Chemkent, Hodjent, Aulie-ata, Tokmak, Verny, Kopal and Sergiopol.

Small as the garrisons are of the forts in the outer line, those of the inner line are still smaller; with the exception of those in Tashkent, Hodjent, and Verny, the garrisons usually consist of a company, or a sotnia or even half a sotnia of Cossacks.

Hodjent has a garrison of one battalion.

General reserve at Tashkent.

Tashkent is the central point wherein is concentrated the bulk of the troops forming a reserve to the whole of the advanced line.

In Tashkent are stationed seven battalions, four sotnias, six batteries and a sapper company. Part of these troops may be moved in any direction to reinforce the troops operating on one or other theatre of war, as was done in 1868, when the troops operating against the Emir of Bokhara were reinforced from Tashkent; in 1870 when reinforcements were sent to the troops engaged in Shahr-i-sabz; in 1871 when a few

companies were marched into Semirechia, and in 1873 and 1875, when a considerable part of the Tashkent garrison took part in the expeditions to Khiva and Kokand respectively.

In Verny are quartered three battalions, two sotnias, and three batteries. These serve as reserve to the advanced troops of the Semirechia district.

The distribution of the advanced forts in Russian Turkestan is, therefore, along a semicircular arc, convex towards the enemy; the forts of the inner line are disposed along a parallel arc. The forts of the inner line are connected by a post road, from which branch other roads to the outer arc. These branch roads are as follows:—From Tashkent to Samarcand and Katty-Kurgan, from Tashkent to Hodjent and Kokand, from Pishpek to Fort Naryn and Karakol, from the Altyn-Imel picquet to Kuldja, from the village of Abakumoff to Lepsa, and from Sergiopol to the village of Urjar.

From a European point of view, the forts in Turkestan would not stand criticism, and are hardly worthy of the designation of forts. They could offer no resistance to Europeans, but present a sufficient obstacle to a Central Asian foe.

Nature
forts in
Turkestan

The forts are of two kinds (1) those erected by the Russians, and (2) those adapted from the Central Asian fortresses, chiefly from the native citadels. The former are mostly found in districts frequented by the nomad, and the latter among the sedentary nationalities. The tracing of the former class is, as a rule, a quadrangular fieldwork with towers at the angles. Inside the towers are the powder magazines; while on the ramparts of the towers are placed the guns.

The forts of the second category are unlike anything European. After the occupation of a Central Asian town,* the Russian detachment being small, occupied only part of the wall, generally the citadel. The latter was then repaired, ramparts made for the guns, barbettes and embrasures cut, esplanades cleared, and so forth. Inside the citadel were formed the hospitals, stores, artillery and engineer depôts, &c. Outside, under protection of the guns of the citadel, were built the private houses of the officers, the shops of the sutlers and so forth. In this way a town sprung up, consisting of three distinct parts: the Russian fortress, the European quarter, and the native town.

In Tashkent the fort is built upon the old citadel restored. It is in shape a bastioned hexagon, of field profile, and about a mile in circumference. The citadel commands the town, and the guns overlook the native bazaar.

In Samarcand, the fort was also adapted from the old native citadel, by making an esplanade, levelling a number of the neighbouring houses, and making a broad street leading to the market place. Both the street and market place can be enfiladed from the fort.

There is another description of fort, where the strength consists in the garrison itself. Of such are Forts Bakhty and Borohudzir, which have no ramparts, and consist merely of a defensible barrack.

Nearly all the troops in Russian Turkestan are located in barracks. The barrack accommodation is very bad, consisting either of native huts or of huts of mud or sun-dried bricks, erected by native workmen.

Barracks.

At the present time the infantry in Turkestan are armed as follows:—The Turkestan Rifle Brigade with the Berdan rifle, 1868 pattern; the seventeen Turkestan frontier battalions, and all local troops with the Carl rifle. The sapper company are armed with the Krinka rifle.

ARMAMENT.
Infantry
and
Sappers.

Field artillery, both field and horse, and also the mountain battery, are armed with rifled breech-loading guns.

Artillery.

The armament of the Cossacks is very various. They have carbines of the pattern of 1818, dragoon carbines with bayonets, six-line and seven-line percussion arms, and lastly, among the Siberian Cossacks, even flint firelocks.

Cossacks.

The Cossacks of Semirechia are now under orders to be armed with the small calibre Berdan rifle.

In the fortresses are found smooth-bore field guns, 4-pr. M.L. rifled guns, and artillery of native manufacture.

The provision of the troops with warlike stores is maintained by the Government Laboratory in Tashkent. Cartridges and ammunition (powder, lead, &c.) are brought exclusively from European Russia. In spite of lead being found in the Kara-tau mountains, there is so little demand for it except for warlike purposes, that it is found more advantageous to bring it from Russia. The requirements both of the field and

Warlike
stores.

* A Central Asian town is generally also a fortress, that is to say, it is surrounded by a defensible wall.

fortress artillery are supplied from the district arsenal, also situated at Tashkent. This arsenal is able to manufacture not only the wheels for the carriages, but also the ammunition waggons. But the great drawback is the deficient supply of wood suitable for artillery purposes, much of which has to be brought all the way from Russia.

There are no field or siege parks. When an expedition is about to be undertaken field parks are formed, the stores being carried on hired camels or in carts. On the termination of the campaign the park is broken up.

Russian artillery stores are maintained from the home magazines, under the order of the chief artillery administration.

CLOTHING,
SUPPLIES,
&c.

Clothing.

The clothing of the soldier in Turkestan varies with circumstances. Climatic conditions, on the one hand, and economy on the other, have given rise to a costume which distinguishes him from his compatriots in Europe. For the greater part of the year he wears a linen blouse with cloth shoulder straps, chamois leather trowsers (*chambers*) dyed red, and a white cap with a hind flap to shelter the back of the head from the sun's rays. Instead of a knapsack he carries a linen haversac. The chambers were adopted from the natives; they are durable, cool in summer, and protect the legs from spear-grass. They are particularly well suited for mounted service. Officers are allowed to wear them in the field.

Cossacks, instead of the linen blouse, wear shirts made of camel's hair, known under the name of *armiachina*.

Intrenching
tools.

The following intrenching tools are carried:—Of the Turkestan frontier battalions, the line companies have 20 hatchets, 10 shovels, 5 spades, 25 *ketmens* (native shovels), while the rifle companies have 12 hatchets, 6 shovels, and 3 spades.

Each battalion of the Turkestan rifle brigade has 40 hatchets, 40 shovels, 12 spades, 12 mattocks, and 3 10-lb. crow-bars.

Each battery of artillery has 16 hatchets, 16 shovels, 4 spades, 4 mattocks, and 2 crowbars.

Commis-
sariat
supplies.

With the exception of the north part of the Semirechia Province, where rye is cultivated, the whole of the troops in Turkestan are supplied with wheaten flour; groats are also issued; millet, barley and rice.

Biscuit is prepared in two ways: by baking in the oven and baking in the sun. The last method is generally adopted by the troops during the very hot weather for the preparation of their ten days' supply. For this purpose wheaten cakes are spread on reed mats and exposed on the roofs of the houses to the sun's rays. In two days the drying is complete. This sun-dried biscuit does not however swell to the same extent as that baked in the oven, and becomes more easily damaged during transport.

Provisions are furnished by contract. The price of wheat varies from 1s. 4d. to 1s. 7d. per pound of 36 lbs. in Tashkent, to 6½d. in Aulie-ata.

Forage.

The ordinary sorts of forage met with are barley, jugara, jenushka (lucerne). In the northern parts of Semirechia and in the Kasala circle of the Syr-Darya province, meadow hay is found, and sometimes, but very rarely, oats; in the other parts of Turkestan oats and hay are unknown. Barley, then, is the usual food of the horse. It costs from 6½d. to 1s. 1d. per 36 lbs.

In some parts of the Syr-Darya Province, in the Zerafshan Circle, and in the Amu-Darya sub-district, jugara is used instead of barley. It is more nutritious than barley, and the ration may be diminished in consequence. 36 lbs. of jugara cost 9d. in Tashkent. It is grown to a large extent in Khiva, where it is used for human food.

Jenushka (lucerne) is much cultivated in Turkestan. It is cut four or five times a-year. About 10 lbs. are sufficient for a horse.

During a few weeks in the year underfoot grass is procurable. Unfortunately, in the greater part of the province of Syr-Darya and in the Zerafshan Circle, underfoot grass is very scanty, and the time during which it lasts is very short, as at the commencement of May the grass becomes burnt up by the sun. In Semirechia the meadows are more abundant, and grass lasts much later.

INTELLEC-
TUAL AND
MILITARY
CONDITION.

Officers.

The standard of education amongst the officers of the artillery, engineers, and rifle brigade is said to be good. The officers of the artillery and engineers have received instruction in special schools, while in the rifle brigade about 60 per cent. have received this instruction. In the frontier and local battalions the percentage of officers who have passed the course at a university, war-school, cadet-school, or gymnasium, is much less;

but the percentage is in this case more than one-third; the remainder have been educated at third-class schools or privately.

The Cossack officers are much behind the other officers in intellectual cultivation. The best are those of the Orenburg Cossacks.

The moral standard of the officers is described as "tolerably satisfactory."

Of the men, 93 per cent. in the case of the engineers, 76 per cent. in the case of the artillery, 65 per cent. in the case of the rifle brigade, and 45 to 48 per cent. in the frontier and local battalions, can read and write.

Drunkenness is the great vice among the troops; the great majority of crimes and offences are committed by men when in a drunken state. During the expedition to Khiva, when the troops were forbidden the use of spirits, and a ration of tea was issued, crimes and offences were, it is said, extremely rare. In order to diminish drunkenness the local authorities are striving to establish canteens, where the men can pass their leisure hours drinking tea.

The discipline of the men is improving each year. The chief offences are drunkenness, petty theft, absence without leave, breaches of the peace, and, amongst the Cossacks, negligence in the performance of duties. Discipline.

The total number of men punished in Turkestan in 1873 was 471, or about 1.5 per cent. of the average effective. The number of deserters in 1873 was 13 men (of whom 6 were apprehended), against 47 in 1872. The cause of the diminution in deserters is due to the difficulty of finding an asylum in the neighbouring countries, the chiefs of which, for the most part, give up the fugitives.

On the completion of their legal term of service in the active army, a large number of soldiers remain as settlers in Turkestan. Discharged soldiers.

The numbers below show the men sent on furlough for an indefinite term, and discharged during the respective years:—

	Syr-Darya	Semirechia	Total
Year ending 1st January, 1868	413	109	522
.. .. . 1870	408	341	749
.. .. . 1871	400	463	863
.. .. . 1872	552	218	770
.. .. . 1873	791	639	1,430
.. .. . 1874	918	685	1,603

The men who remain in the country usually become householders, artisans, sutlers, or take service as servants, cooks, &c., in the families of officers and officials.

Being so often employed in other duties necessitated by his service in a distant country (Government engineering works, defence of the frontier, &c.), the soldier in Turkestan is of course unable to direct so much time to all the branches of military training as his companion in arms in European Russia.

The best troops at infantry drill are, according to the inspecting officer in 1874, the three battalions of the Turkestan Rifle Brigade. The 4th Rifle Battalion was somewhat behind the others, a circumstance due to its being in the field in 1873, and its being employed in building barracks at Fort Petro-Alexandrovsik. The least good at drill were the local detachments. Drill.

The artillery drill was reported to be well done, particularly by the batteries of the 1st Turkestan Artillery Brigade. But the same could not be said of the companies of fortress artillery dispersed by small detachments in the various forts, and which are often, from want of officers, under the command of non-commissioned officers. At the head-quarters of the fortress artillery companies there are as a rule but very few men, and these are employed in the arsenals.

The Cossacks are less good at drill than the other troops, which results from the disadvantageous condition of their service. According to the rules of the Turkestan district, half of the Cossacks are relieved annually, the reliefs being carried out by half-sotnias; moreover the exigencies of Cossack service require the men to be dispersed in small detachments. Consequently this arrangement seldom allows the sotnia to be exercised as a unit.

Target
practice.

As regards ball-practice, the rifle battalions head the list with the predicates of "very good" and "excellent." The practice of the rest of the army is less satisfactory. Thus in the case of the frontier battalions in 1873 the average number of hits at 100 paces was 58 per cent., at 200 paces 46 per cent., at 280 paces 41 per cent., at 400 paces 36 per cent., and at 600 paces 29 per cent. The ball-practice of the local troops was inferior to that of the frontier troops. In the case of the Cossacks the ball-practice is very much inferior, partly due to the primitive weapons with which they are armed, and partly to the circumstance that the sotnia commanders seldom get their sotnias together for instruction.

GEOGRAPHY.

Russian Turkestan forms geographically part of the broad lowland known to some geographers as the *Turan*, to others as the *Central Asian*. This lowland extends to the north-west into Europe beyond the Volga, and traces of it may be seen even as far as the Carpathians.

The extent of the Central Asian lowland has been estimated at about 1,300,000 square geographical miles (English). Everywhere flat and little elevated above the level of the sea, it attains its lowest level at the Caspian, the surface of whose waters lie 81·4 English feet below that of the ocean.

The lowland is furrowed by two considerable rivers, the *Amu Darya* (Oxus) and *Syr Darya* (Yaxartes). Along their banks are distributed the centres of settled life. On the *Syr Darya* and in its basin lie Kokand, Namangan, Margilan, Andyjan, Hodjent, Tashkent, Chemkent, Perovsky, Kasala, and many others. On the *Amu Darya* and in its vicinity lie Khiva, Bokhara, Karshi, Kitab, Samarkand, Hissar, Balkh, Fyzabad, and others.

Besides these great rivers, there is the *Zerafshan*, which waters the rich *Miankal* valley and the towns of Samarkand and Bokhara.

In the absence of any regular rainfall these rivers, through the medium of artificial canals (*aryks*) cut from them, are used to irrigate the soil and render it fertile and productive. Very different is the country beyond the influence of these rivers, the steppe, scantily watered and sometimes completely barren, parched under the scorching sun, flat and without a vestige of vegetation.

In addition to these well-watered valleys and arid steppes, there is a third characteristic of Turkestan, the mountainous region with its high valleys, abundantly provided with streams and pasture grounds.

The Province of Semirechia.

General Characteristic Features. Origin of Name. **OROGRAPHY.**—Tian-shan—Trans-Ili Ala-tau—Boguti—Dalashik—Uch-Konur—Jelanash—Terske Ala-tau—Khan Tengri—Muzart Pass—Alexander Mountains—Tek-Turmass—Urtak-tau—Namangan Mountains—Kara-tau—Kichkene Kara-tau—Jungaria Ala-tau—Tarbagatai Mountains—Mugajor Mountains—Jamantau—Aksari Baba—Balkans. **HYDROGRAPHY.**—Rivers. Ili—Tekess—Borohudsir—Chu—Karatal—Lepsa—Baskan—Sarkau—Biyeu—Ak-su—Talass. Lakes Balkhash—Ala-kul—Issyk-kul—Tele-kul. **Steppe Characteristics.**

The topographical features of this province are very varied. In its western part predominate tracts of shifting sands and salt plains covered with the characteristic steppe vegetation, saksaul, julsan, and such like, but on the east the character of the district entirely changes to rich mountain valleys with a fertile black earth (yielding wild strawberries and succulent flowering grasses), and mountain gorges lying deep in the recesses of dense forests. No less characteristic is the south part of the province, the mountainous region of the Tian Shan, with the extensive lake of Issyk-kul, and the picturesque mountain valleys of the Naryn, Tekess, Chalkody-su, and others. This is the Issyk-kul uyezd, inhabited by the nomad Kara-Kirghiz and the descendants of Russian immigrants, who have been gradually extending southwards from the Irtish since the time of Peter the Great.

As its name implies, Semirechia (Djiti-su), is so called from the seven rivers which flow from the eastward into Lake Balkhash. The seven rivers are commonly accepted to be the Lepsa, Baskan, Sarkan, Ak-su, Karatal, Kok-su and Ili; although all writers are not agreed upon this matter.

In describing the mountain system of this province we must naturally commence with the Tian Shan, one of the largest and most important ranges in Central Asia. Tian Shan.

The name is Chinese, and signifies the Celestial Mountains. This appears to have

been the designation by which they were always known to the ancient inhabitants of these regions. Thus the Turks called them Tengri-dagh, the Huns, Kilian or Kiloman, words of parallel meaning to the Chinese name. Some Chinese writers call the range Sué-shan or Snow Mountains. Pallas called it Bogdo, after the name of the lofty mountain-knot Bogdo-ola. This treble-peaked group, covered with eternal snow, is considered by Pallas to be the centre of all the mountain systems of Central Asia.

On the meridian of the east end of Lake Issyk-kul, the Tian Shan, which presents the appearance of a compact mountain mass composed of chains connected by table-lands, stretches in nearly parallel ridges, united in places by short transverse branches. The northernmost of these ridges is the *Trans-Ili Ala-tau*, connected with the mass of the Tian Shan by the knot or pass of San-tash (near Taldy-bulak), to the east of Issyk-kul. The *Trans-Ili Ala-tau* encloses this lake on the north, and extends to the west as far as the *Buam* defile, at its western extremity. The length of the range is about 130 miles, or one-third longer than the Pyrenees. Westward of the *Buam*, as far as the town of Aulie Ata, stretches the *Alexander range*.

Trans-Ili
Ala-tau.

The *Trans-Ili Ala-tau* consists of two chief and lofty parallel ridges, known as the *northern* and *southern ridge*. These two chains are connected nearly on the meridian of the middle of the latter by a short transverse chain or knot which separates the valley between into two longitudinal valleys; along the western flows the river Kebin, an affluent of the Chu, and along the eastern winds the river Chilik, which gives its waters to the Ili. Let us examine these two ranges separately.

Northern
ridge.

The *northern ridge* forms an uninterrupted mountain-chain, rising in its central part above the level of eternal snow, falling somewhat towards both ends, and abruptly broken in its eastern part by the ravine or gorge of the Chilik river. The chain thus detached, lying between the valleys of the Chilik and Charyn, bears the name of Kuru-aigyr. Nearly opposite the mountain knot which connects the northern and southern ridges rises *Talgarnyn-tal-cheku*, the highest peak of the northern ridge, 15,000 feet in height according to Semenoff. From this peak, covered with eternal snow, the northern ridge gradually falls towards its extremities. Eternal snow is observed for about 30 miles on either side of the peak, but on the southern slopes of the ridge the snow does not lie with an unbroken mantle. On the other summits of the range the snow also lies in detached patches, so that the whole chain justifies its appellation of *Ala-tau*, or variegated mountains. The average height of the northern range may be taken at 8,600 feet.

Boguti.

The lower slopes of the range form an independent chain on the other side of the Chilik, called *Boguti*, which rises to a height of about 5,000 feet at the pass of Seirek-taz. The *Boguti* chain is separated from the main ridge by a small plateau, 10 miles in breadth and 3,580 feet high.

Southern
ridge.

The *southern ridge* is very like the northern, but appears lower in its central part. It, however, falls less towards its extremities, so that its average height is greater than the northern, and may be taken at 8,825 feet. The *Kurmekti* pass rises to 10,620 feet, higher, therefore, than any of the Swiss or Pyrenean passes.

This ridge is called on some maps *Kungei Ala-tau*. The word *Kungei* is used by the Kirghiz for the northern border of Issyk-kul, meaning, when translated *a slope turned towards the south*, just as the southern border is called *Terski*, i.e., *a slope facing the north*.

The southern ridge of the *Ala-tau* rises so abruptly from Issyk-kul, that there are scarcely any spurs or lower slopes on that side. The absence of any considerable indentations or depressions gives the whole ridge still more the appearance of a steep wall.

Although the *Trans-Ili Ala-tau* extends as before mentioned from the *Buam* defile to the river Charyn, still it must not be considered as ending at these points, for it is continued even to the *Cis-Ili* country, under the different names of *Kullok*, *Temirlik*, *Chanpanyn*, &c., while beyond, under the general appellation of *Nan Shan*, it forms an advanced chain of the Tian Shan, adjoining the gigantic mountain-knot of Bogdo-ola.

Dalashik.

Both the northern and southern ridges open out gradually at their eastern and western extremities, but into the valley so widened project small intermediate chains parallel to the principal ridges. The eastern intermediate chain is called *Dalashik*, which rises to a height of 7,835 feet (some peaks 9,530 feet), and separates the valley of the *Jenishke* from that of the *Chilik*. The *Dalashik* is of limestone formation, upheaved with its strata vertical, overlying granite. The summit is level, but the sides are furrowed with ravines. It gradually falls to the east-north-east towards the *Chilik*. In the *Jenishke* and *Chilik* valleys, the granite crops out from below the limestone. The western intermediate chain, *Uch-Konur*, separates the valleys of the *Little* and *Great Kebin*.

Uch-Konur.

At the east extremity of the southern range and to the south-east of the great bend which the Charyn makes round the Kullok Mountains, spreads the very elevated plateau of *Jelanash*, 5,300 feet in height. Its geological formation, a weakly aggregated conglomerate, leads to the surmise that this plateau was at one time a cavity surrounded by mountains, which in the course of a long period of time, probably by the action of glacial moraines, became gradually filled up with sand, clay, pebbles, &c. The dried-up bed of the lake forms the present *Jelanash* plateau. Its soil is so soft and friable, that the rivers which traverse it, the Merke (three streams of that name), the Kegen and Karkara, affluents of the Charyn, the chief feeder of the Ili, have furrowed for themselves beds, 700 to 1,500 feet in depth,* hidden from the sun even at noonday.

The Karkara flows in a northerly direction from the plateau at the foot of *Khan Tengri*, the highest peak of the *Tian Shan* (24,000 feet).

From the *Trans-Ili Ala-tau*, there stretches to the north-west the inferior chain of mountains which forms the water-parting of the *Chu* and *Ili* river systems. The chain falls gradually towards the north, and merges in the plain in the neighbourhood of *Lake Balkhash*. The highest point is near *Kastek* (*Suok-Tiube*, 10,000 feet). Near the river *Ragaity* the height of the mountain sinks to 6,000 feet, and at the river *Kurdai* to 4,000 feet. Across this latter river passes the post-road from *Verny* to *Tashkent*. These mountains are passable everywhere without difficulty. Even opposite *Kastek* and *Tokmak* there are several convenient passes, while that of *Bish-Mainak*, traversed by the above post-road is practicable for wheeled carriages. The mountain ridge itself to the north-west of the *Kurdai* does not present any sharp peaks, but is for the most part continuously undulating, sometimes stretching as a table land, along which it is possible to march, there being roads over the entire ridge from *Bish-Mainak* to *Lake Balkhash*.†

Let us now turn to a description of the range to the south of *Issyk-kul*, known under the general denomination of the *Tian Shan*.

The *Tian Shan* range forms a gigantic indented ridge rising to an absolute height of 15,000 to 16,300 feet. It presents the appearance of an endless succession of giant peaks (some of them 24,000 feet in height), covered with a dazzling, unbroken mantle of snow. According to *Semenoff*, between the sources of the river *Koshkur* (the commencement of the *Chu*) and the majestic group of the *Tengri-tagh*—220 miles—this snowy mantle is only interrupted six times, viz. :—three times at mountain passes below the snow-line, and three times in the defiles of rivers which have their sources on the northern slopes of the *Tian Shan*, and force their way through the main ridge to the southern side.

This range, which for convenience may be called *Terske Ala-tau*, forms the water parting between the affluents of the *Issyk Kul* and those which feed the *Naryn*. The passes over it from the side of *Issyk Kul* are as follows:—To the east of the *Ak-su* post (*Fort Karakol*) is the *Turgen Ak-su*, west of it the *Dengerme*, *Tosor*, *Barskoun* (11,800), *Keregetash*, *Ton*, *Kanur-ulen*, *Ulahom* (13,000). Of these the *Turgen-Ak-su* is impassable for camels.

The *Terske Ala-tau* is wooded as far as the *Ton* defile 27 miles west of the *Barskoun Pass*, i.e., for the eastern two-thirds of *Issyk Kul*. In the west part of the lake it is destitute of trees except an occasional juniper.

On the shores of *Issyk Kul*, the north slopes of the *Tian Shan* or the *Terske Ala-tau*, although very abrupt, are not so steep as those of the *Trans-Ili Ala-tau*.

The snow-line on the northern slope of the *Tian Shan*, turned towards the strongly heated plateau of *Issyk Kul*, stands at 11,500 to 12,000 feet. In the gigantic mountain group of *Khan Tengri*, the eternal snows feed glaciers of great breadth, which, however, do not descend below 9,000 feet, i.e., the upper limit of Alpine shrubs. At the sources of the *Sary-yassy* river system *M. Semenoff* discovered five broad glaciers and the so-called *Glacial Sea*, exceeding in dimensions the well known *mer-de-glace* of the valley of *Chamounix*.

The existence of eternal snows and glaciers in the *Tian Shan* gave rise to part of this range between *Khan Tengri* and *Issyk Kul* being called *Mus-tagh*, the word *mus* in *Turko-Tartar* signifying ice. According to *Degini* and *Strahlenberg*, from this word *mus* was derived the old name of the ridge *Imaus*. The passes across these icy ridges are dangerous and difficult. Living creatures are seldom met with.‡

* *P. Semenoff*. Journey from *Verny* through the mountain pass of *Suyok Tiube* and the *Buam* defile.

† *V. Poltoratzky*. General sketch of the country to the west of the *Trans-Ili* between the rivers *Chu* and *Syr*.

‡ *Uspensky*. The Basin of *Lob-Nor*.

Muzart
pass.

The mountain-pass *Mussur-davan* or "pass of glaciers," situated near Ak-su, lies over one of the most important snow-summits of the Tian Shan.

On entering this pass on the north side of the Tian Shan, the road lies on both sides of the Urten Muzart river; the breadth of the defile is about a mile at this point. The river flows in one bed under the right bank of the defile; here, owing to the rapidity and depth of the stream it is impassable.

About one and a-quarter miles above the defile, the little Muzart joins the Urten Muzart from the left. The waters of the former have a milky appearance, showing the glacial source of the river. On the promontory formed by the junction of the rivers there is a fine grove of tall straight-grown birches, many of them 15 inches in diameter.

At the junction of the rivers and across the larger, is a solid bridge built by the Chinese during their domination. Beyond this bridge lies one of the most difficult parts of the Muzart defile; the river flows here at the bottom of a gorge between perpendicular rocks, the road winding with difficulty along a narrow ledge overhanging a precipice. It is a most difficult pass, unsafe for travellers except on foot; animals must be led, and even in this case must not be too heavily laden.

A little further on, the road widens; a pine forest clothes the mountain sides and reaches in places to the river itself, so that the road passes through an avenue of trees.

Still further on, the road emerges into a rather broad valley along which the Urten Muzart winds in several branches. The slopes of the mountains are covered with forest, the fir, willow, birch, and mountain ash, predominating. From here it is not far to the first glacier, situated sixteen miles from the entrance of the defile. The absolute height of it is from 7,500 to 8,000 feet, judging from the vegetation. From the south-east falls into it a second lateral glacier. It is at this point from the south side, that the Urten Muzart escapes with a waterfall from under the main moraine. Beyond the glacier the defile bends nearly at right angles to the eastward, and here other small glaciers descend into the defile. Finally it is hemmed in by a huge glacier; the road turns again to the south and ascends the small glacier of Yalyn-hatsir, which also forms the summit of the Muzart pass.

The most difficult part of the road is the descent on the south side of the Tian Shan to the town of Ak-su. The road passes here over glaciers in which steps are cut, partly in the ice, partly in the rock. Caravans are unladen here, and horses and packs descend separately.

The Muzart pass formed at one time the only communication between the Ili province and Kashgar, but since the insurrection of the Dungans, and the capture of Kuldja, it has been little frequented, and consequently at the present time the pass presents many obstacles.

The defile of the Urten Muzart river is covered with rich pasturage. It is shut in by steep almost vertical cliffs, without transverse valleys. Over these cliffs dash waterfalls and sparkling rills.

Alexander
mountains.

That part of the Tian Shan, or more correctly of its northern chain, the Trans-Ili Ala-tau, which lies to the west of the Buam defile, is called the Alexander mountains. The *Alexander range* gradually rises from the Buam defile to the Ala-archa river, 9,000 to 10,000 feet high, judging from the Alpine vegetation. Eternal snow is seen upon it opposite Fort Tokmak near the Shamsi river; its highest peaks (15,000 feet) are found near the rivers Ala-archa and Ala Medyna. Even at the Shamsi pass, which is tolerably easy, unmelted snow may be seen in the hollows in the middle of summer. The eternal snows, covering the peaks 13,000 to 14,000 feet high, extend as far as the sources of the river Kara-balta. From this point the range gradually descends to the Merke, near which, at the sources of the Uriandi it is not more than 9,200 feet. Further west between the sources of the rivers Chanar and Makmal, the Alexander range again rises to a height above the snow-line (13,000 feet), but westward of the last-named river falls again gradually to the town of Aulie Ata, near which point the headland Tek-Turmass terminates the range. This headland is only 2,600 feet in absolute height, and 150 feet above the level of the river Talass; it forms an undulating plain of sandstone, above which, at a distance of 5 miles from Aulie Ata, rise barren hills of porphyritic sienite.

Tek-Tur-
mass.

Down the northern side of the range flow numerous streams, affluents of the Chu, and of its chief tributary, the Kuragaty. The northern slope is covered with forest to a height of 5,000 feet to 8,000 feet (according to Semenoff), but its southern slope is entirely treeless. The main ridge between Aulie Ata and Merke is connected in places by mountain knots with a second parallel range. This latter separates the valley of the Talass from that of the Chirchik.

The low passes over the Alexander range, as for example the Kyr-Jol pass at the sources of the Urianda, are covered with excellent pasturage; long grasses, the moun-

tain poppy and the peony grow even at a height of 7,500 feet, *i.e.*, up to the limits of perpetual snow in the ravines (at the end of May). In August, however, this snow also disappears. The pass itself is free from snow even in May, and is covered with low grass. A few juniper trees and black currant bushes are met with at the top of the pass near the Urianda River No. 2.

Urianda River No. 3 flows through a deep gorge in the limestone, with cliffs on each side rising to a height of 1,000 feet; the bottom of the defile and every projection is thickly studded with the mountain ash, currant, and other bushes. Higher up on the cliffs is found the juniper, while the lower sandstone spurs are covered with grasses, relieved by the wild rose with its creamy petals.

The valleys of certain rivers, *e.g.*, the Talass and its affluents, are covered with poplars, willows and other trees, while the birch graces the mountain defiles.

The Alexander range, in its highest part opposite Pishpek, is connected by a mountain knot with the broad range on the south, known under various local names—*Urtak-tau*, *Sussamir*, *Kara-bura*, &c. Up to the year 1864 there was supposed to be a single broad range south of the Alexander, called *Kazikurt*; but in reality there are a number of short ridges running in different directions.

The *Urtak-tau* trending west gradually falls, and near *Yas-kichu*, about 30 miles Urtak-tau. from the sources of the *Arys*, ends in a steep headland not more than 3,950 feet in absolute height. To the west of this headland there is a limestone height, separated from it by a dry flat valley, half-a-mile broad. Eternal snow in small patches is seen along this range as far as abreast of the mouth of the *Sary Bulak*, 14 miles above *Yas-kichu*. At the sources of the river *Mashat* a small range separates from the *Urtak-tau*, which runs in a south-westerly direction, and ends about 20 miles north-east of *Taskkent*. From this range, near the sources of the River *Badam*, separates in a westerly direction a low but steep and narrow branch (30 miles long) called *Kazikurt Ata*. As it separates from the main range it falls gradually, but towards the extremity again rises with a steep double peak. This peak, called also *Kazikurt Ata*, is twice the height of the range, and upon it, according to local tradition, the ark of Noah rested after the Deluge.

Snow falls upon the summit of *Kazikurt Ata* as early as September, but disappears and comes again by November, so that the height of the peak does not exceed 7,000 feet.

From the peak of *Kazikurt Ata* there runs a flat height, the water-parting of the rivers *Arys* and *Chirchik*, with a high isolated crater to the south-west of *Chemkent*.

To the south of the *Urtak-tau* and *Kazikurt Ata* ranges rise others, as yet only partially explored, which fill up the Province of *Ferghana*, and reach as far as the *Syr Darya*. Of these the *Namangan range* is even higher than the *Urtak-tau*. Many of its summits have an absolute height of from 15,000 to 17,000 feet. According to *Severtsoff*' Namangan mountains. the snow line of this range is at a height of 11,000 feet.

The average height of the crest of the *Namangan range* is, however, not greater than that of the *Urtak-tau*; the peaks alone rise to a greater elevation. The peaks are in some cases pointed, in others they appear like crenelated towers surmounted with snow platforms, exceedingly varied and picturesque in appearance (*Severtsoff*).

We have already described the Alexander range from the *Buam* defile (near *Tokmak*) to the *Tek Turmass* headland (near *Aulie Ata*), where it terminates. A considerable part of the range here described, *viz.*, from the defile of the river *Kara Balta*, lies within the borders of the *Syr Darya* Province. In prolongation of the Alexander mountains is another range of less magnitude, the *Kara-tau*, or *Black Mountains*. Kara-tau. A description of this range may be conveniently introduced here.

The *Kara-tau* range is of importance, not from its elevation, but from the fact that the first mines worked in *Turkestan* are to be found here. Excellent coal and lead are worked in this district.

The range, as before said, terminates close to *Fort Julek*. About the meridian of *Julek* projects the *Kara-murun Mountain* (*Black-nose* or *promontory*) which rises abruptly from the extensive sea of sand, and forms the true western termination of the *Kara-tau*. From *Kara-murun* nearly to the sources of the *Arys* the range trends south-east. The south-west slopes are rocky, whilst the middle of the range between the rivers *Batpak*, *Aristandi*, *Sassyk*, *Chayan*, *Little* and *Great Bugun*, has the appearance of a highland plateau with deep valleys.

The south-west slopes are steepest and most rocky between the rivers *Boroldai* and *Arys*. The difference of character is so marked that the natives call this part of the range by the special name of *Boroldai Tau*. The rivers *Boroldai*, *Koshkar-Ata*, and *Little Bugun* have furrowed out deep channels, which can only be traversed with difficulty.

Still there are in this part of the range, as well as to the westward, several more or less convenient passes—Turlan, Chilik, Jelan, Kulan and others. These names are borne also by the highest mountains in the vicinity of the passes. The isolated mountains Chayan, Arkarly, &c., are also included in the Kara-tau.

The summits of the Kara-tau do not rise to a height above 5,000 or 6,000 feet, and in summer are entirely free from snow. Hence the name *Kara-tau*, or Black Mountains, as opposed to Ak-tau or white (snow) mountains.

The Kara-tau, or more correctly the Boroldai, is connected with the Ak-sai by a saddle at Chakpak; here the range has an absolute height of 5,000 feet, and gives rise to two rivers, which water very fertile valleys, the Boroldai and Bugun. At the sources of the former rivers is found wood for building purposes, distributed over an area 14 miles long by 3 miles broad.

The highest part of the Kara-tau lies to the west of the river Kumyr-tass, where the range takes a north-westerly direction. Here it attains an elevation of 7,000 feet. The summits of the Turlan pass, according to the hypsometrical calculations of M. Freze, attain a height of 6,800 feet, or nearly double the height of the passes at Bugun.

Kichkene-kara-tau

The *Kichkene-kara-tau* (Little Kara-tau) is the name given to the northern lower spurs of the main Kara-tau range, from which they are separated by a longitudinal valley. This minor range ends between the River Kumyr-tas and the Turlan Pass. It descends to the plain on the north in broad, steepish spurs, furrowed with waterless valleys. These spurs, dry and barren, are of alluvial formation; at their feet lie numerous salt marshes and salt lakes. The streams which rise in the range are unimportant, and lose themselves immediately on entering the steppe.

In its highest part the Kichkene-ala-tau forms a single ridge, but westward of the town of Turkestan a second low chain stretches parallel to the Kara-tau, along its south side. The northern slope descends abruptly to the steppe.

The other mountain ranges of Semirechia which remain to be described are the branches of the Jungaria-ala-tau, and the Tarbagatai, which lies on the northern frontier of the province.

Jungaria-ala-tau.

The *Jungaria-ala-tau* extends from north-east to south-west, between Lake Ala-kul and the river Ili. Its average height reaches 6,000 feet, but isolated peaks, such, for instance, as those at the sources of the Lepsa, Sarkan, Baskan, Ak-su, attain a height of 12,000 feet and more, according to Shrenk's computation. The limit of eternal snow, according to the same observer, is found at 10,700 feet.

The mountain chain of Irek-habirg connects the Jungaria-ala-tau with the main Tarbagatai range. The highest points in the Little Ala-tau are the peaks of Kurenbil; more to the south run, nearly in a westerly direction, the snowy mountains of the Koranyn-tau, at whose northern foot lies the town of Kopal. Still more to the south in the same range is the mountain pass of Chigil-tash, through which runs the summer route to Kuldja from Kopal. From this point, still more to the south, stretch the snowless Altyn-imel mountains, as far as the Chulak inclusive, forming a single chain with many mountain passes, Yaksi-altyn-imel, Jaman-altyn-imel, Tuz-ait, Chumur, Tizgin, &c. Chulak is the name given to the range which falls towards the river Ili, and ends abruptly about 10 miles from that river; hence its name Chulak, "cut off" or "curtailed." To the north of Kuren-bil lie, one behind the other, the heights of Jilty, Karagai, Kuge-tau and others. The western branches of the Little Ala-tau are very ramified, and extend as far as the middle course of the rivers which fall into the Balkash.

To the east of Kopal lie some unimportant branches of the Ala-tau: Bayan-Jurek and others, which stretching northward, bear the names Suok-tau, Jilty-Kara, Ragaini, Dulan-Kara, &c. All of them are furrowed with rivers (Ak-su, Bien, Kyzyl Agach), and end on the west with the Chichen-kara crater. To the west of Kopal, below the mountain plateau of Jon, commencing with the sources of the river Balykhta and above Ulshess, lie the detached mountain craters of Karakoi and Burakoi, which afford excellent winter quarters for the Kirghiz of the Great Horde. Further on, beyond the river Kok-su, are Labasy, Keren, Altivoit-Kaden, which form a separate range, uniting with the important mountains Ark-alyk, Arkarly, Molai-sary, Mai-tiube, and others.

The valleys between the above-named mountains rejoice in excellent pastures, where the nomads love to congregate. Here was the centre of Jungarian territory before the khanate of that name finally ceased to exist.

Tarbagatai mountains.

The *Tarbagatai* range (or range of marmots; *tarbaga* = marmot) forms one of the western outliers of the Altai, and separates Turkestan from the Semipalata province. The range rises to a very considerable elevation. Theodoroff determined trigonometrically the height of the highest point to be 9,800 feet. The mountains of Pass-tau,

according to the same observer, rises to a height of 8,868 Paris feet; but with the exception of two masses of eternal snow, the snow lies in isolated patches (Semenof).

From the Tarbagatai, and the most western branches of the Jungaria Ala-tau, westward to the Caspian Sea, extends the true Central Asian steppe, nearly level and treeless, covered at different places with sand-dunes and shifting sands, salt marshes, sors (dried-up salt swamps), salt-lakes, &c. Only in its western part is there a low mountain chain—the Mugajor—a continuation of the Ural. The southern limit of the Ural is generally considered to be the mountains on the left bank of the Ural—the Guberlinsk, Girialsk, and others. But in reality the range projects into the Khirgiz steppe, beyond the river Ural, commencing as low hills, which gradually rise in height, and ultimately bear the name of Mugajor. Although this range is different in outward appearance, its geological structure serves to identify it with the Ural.

The *Mugajor Mountains* consist of a series of rocky craters, on the slopes of which has gradually formed a layer of earth of greater or less fertility. In the valleys wood of stunted growth is found, and frequent springs, which feed the affluents of the Ilik and Or. The highest point of the range is Mount Airiuk. Mugajor mountains.

To the south of the Mugajor-tau extends a chain of low heights, of a salt formation, which serves to connect the range with the Ust Urt. The chief group of these eminences is known as the *Jaman-tau*. Jaman-tau.

Through the Ust Urt stretches a low chain of mountains from south-east to north-west, between the Mangyshlak peninsula and Buzatchi, known as the *Ak-tau*. These consist of barren rocks of no great elevation.

South of the Ust Urt its continuation may be traced in the *Aksary Baba Mountains*, which consist for the most part of barren rocks. Still further south, near Krasnovodsk Bay, rise the *Balkan Mountains*, consisting of an isolated agglomeration of hills with five peaks. These mountains extend north-west and south-east for about 35 miles. At the south foot lies the old bed of the Oxus (Uzboi). The Balkans rise to a height of 5,000 feet. They are rocky, but in consequence of the abundance of springs, are covered with very good pasture. Aksary Baba mountains.
Balkans.

The north shore of Balkan Bay is bordered by the low, rocky mountains of Kaipat, Kubadagh, Shegadam, and Ujram, behind which opens out the valley of Kubadagh. The Shegadam Mountains border the bay on the north-east, becoming gradually lower, and join the Balkans on the south side of the bay. The extremities of the Balkan range lie 10 miles from the sea-shore.

To the south of the Balkans extends a large salt plain, covered in places with sand hillocks and salt marshes. In this plain rise the mountains of Keppet Dagh, in a south-east direction. They are separated by the narrow valley of the Gurgun from the Elburz Mountains, which lie within the Persian frontier.

Such is the orographical character of Semirechia, or rather of the northern part of Russian Turkestan, as in the preceding pages we have described not only the mountains of Semirechia, but those connected with them, the Alexander mountains and the Kara-tau, which form part of the Syr Darya Province.

Let us now pass to a consideration of the hydrography of the province of Semirechia. HYDROGRAPHY—
Rivers.
Ili.

One of the most important rivers in Semirechia is the Ili. It is of special importance for the country, because it does not lose itself in the sands or become dissipated in vast marshes, as is ordinarily the case with a steppe river, but discharges its waters into the great, navigable lake Balkhash.* The Ili takes its rise in the Tian Shan within Chinese territory, and is formed of many streams, the chief being the Kash, Tekess, and Kungess. At the point where it enters Russian territory it is already a considerable river in respect of breadth, depth and velocity. The entire course from the source is estimated at upwards of 450 miles; from the Ili Post to Lake Balkhash the distance is about 250 miles.

At this post the Ili receives from the left the rivers Talgar and Kaskelen. It now takes a general north-west direction between high rocky banks, which rise gradually, and at a distance of about 17 miles reach their greatest elevation of 300 feet above the level of the river, with steep declivities in places. Further on, the banks get lower, and at the mouths of the Kere-bulak (right bank) form on either side of the river high plateaux,

* Before the recent disturbances in Western China hopes were entertained of establishing communication by steamers from Lake Balkhash along the river Ili to Kuldja, but these hopes have not at present been realised.

which are terminated on the right by the spurs of the Malai-Sary Mountains, and on the left by the river Kurtu, beyond which points stretches an expanse of deep sand. These sands, here nearer to, there further away from, the river, form a valley from 1 to 6 miles in breadth; they continue uninterruptedly on the left bank as far as the Balkhash, but on the right only as far as Chilgaryn, where the Ili, giving off the Bakanass on the right, changes its course to a more westerly direction.

Between the Bakanass and the right bank of the Ili the sands are no longer continuous, but form isolated dunes connected in places into considerable masses. About 75 miles before reaching the mouth, the Ili divides into several branches, of which the principal are the Kurlu, Kana-kly, Jaman-kly on the right, and the Kok-tal on the left. These and other branches form a broad delta several hundred square miles in extent, called *Kamau*, chiefly a reed-grown marsh, and under cultivation only in a few places.

The breadth of the Ili within the limits described varies from 250 to 1,200 yards; its depth from 6 to 30 feet. Both breadth and depth, however, vary with the season of the year. In May, June, and July they are at their maximum, and in October and November at their minimum. But the quantity of water in the same month varies from year to year, according to the temperature of those months.

The bed of the river between the high banks is sandy and stony, between the sandbanks it is sandy and in a few places muddy. The current runs at the rate of from 2 to 4 miles per hour. In spring the stream is particularly rapid, when the turbid waters of the Ili undermine its banks, and uproot bushes and even large trees.

The river forms many islands, overgrown partly with willows, partly with reeds, and sandbanks. These banks, which frequently change position, somewhat impede navigation, although as the main branch has sufficient depth of water, flat-bottomed boats are able to pass without much difficulty at any time of the year. It is very probable that the river could be navigated as far as the Kuldja country.

The Ili is crossed at the Ili Post by ferry. There are no fords across the river, as the depth of the water is never less than 6 feet. The Kirghiz find places where the deep channel is narrow, so that they can cross partly by wading and partly by swimming. Of such places the principal are at Sary-temir and Kekrel-togoi.

Tekess.

The *River Tekess*, the chief affluent of the Ili, issues from the west side of the high group of the Khan-Tengri. At its sources the Tekess flows from east to west through a valley, which separates the principal mass of the mountains from the outlying spurs, or as they are called by the natives, the Kara-tau (Black Mountains). After proceeding about 30 miles in this direction, the river bends to the north, forces its way through the outlying spurs of the Tian Shan, thence gradually bearing away eastward, passes round a high rocky mountain, Tash-tiube, or Tekesnyn-bash (10,000 feet high). It afterwards keeps the same course as far as Uch-kapkak, near which, emerging into a broad valley, it bends away to the north-east, a direction it retains until it falls into the Ili.

As far as Tash-tiube the Tekess flows in a narrow rocky defile; its foaming torrent dashes with a terrible roar over the boulders which form its bed. Further on, its course is not so rapid, and the mountains receding from its banks, leave a valley 1,200 yards broad. This valley is closed by the Uch-Kapkak on the right, and by Ula-basktau on the left bank.

After passing through this gorge, the Tekess issues into a broad valley, along which its turbid waters roll over a sinuous bed.

The mountains which enclose the Tekess valley, particularly on its south side, are covered with a fine fir forest, which in places extends continuously for 20 or 30 miles. It is particularly dense between the sources of the Naryn-Kol and Urten-Muzart. These woods should furnish in the future an inexhaustible source of wealth, as the timber can be floated down the Tekess to the Ili, and thence along this river to the treeless shores of the Balkhash.

The Tekess throughout its course flows nearer to the left side of the valley, and its affluents come from the right bank out of the main range. These are the three Kapkaks, the Karakol, Chon-Muzart, Muhar-Muduna, Urten-Muzart, and the Ak-su, with its affluent the Khotor. The Karakol and both Muzarts have their origin in glaciers, and in summer become so swollen that it is impossible to ford them.

The banks of the Tekess and of all its affluents are covered with bush and patches of wood; birch of small size is found here, particularly on the Karakol. In some places the bush forms a dense thicket, to traverse which is a matter of some difficulty. The undergrowth consists chiefly of the prickly thorn, wild rose, and stunted birch.

The valley of the Tekess is deserted for the greater part of the year; and in the summer only is it enlivened by the nomad dwellings of the Bogins (a Kara Kirghiz tribe)

of the Issyk Kul uyezd. In November and January the Kirghiz bring their horses here for the winter. Until the insurrection of the Dungans and Taranchees, the Kalmuks, Oluits, and Kotuns used to nomadise on this river. But in 1865 they migrated northward, and from that time the valley has presented a death-like appearance. And yet it is one of the best mountain valleys in respect of suitability for settled life. The remains of fields and irrigating canals show that cultivation commenced at Uch-Kapkak. According to the Kalmuks, wheat does not ripen above the Karakol; barley only is sown; but below the Karakol, on the Ak-su and both Muzarts, all cereals grow in abundance, owing to the temperate climate, the fertile black soil and the abundance of water.

The valley of the Ili, 1 to 6 miles in breadth, has a clay soil, and is partly sown with millet. On the immediate banks it is so thickly overgrown with willows and reeds, that in some places it is nearly impossible to reach the water. Along the rest of the valley are scattered thorn, saksaul, jidda,* and a few poplars.

The Ili valley would be suited for settlements were it not for the insufficiency of timber, of which the first Russian settlers made too unsparing a use. As fuel there is in some places saksaul, thorn, and other shrubs, but for building and other domestic purposes there is no other than that which might be floated down from the mountains whence the river Tekess derives its source.

Traces of ancient settlements may be seen along the entire extent of the Ili; on the right bank below Maral-Togoi are numerous canals leading from the river, which, according to the statements of the Kirghiz, were used by former inhabitants for irrigating their fields and pastures; the land is said to be excellent for agricultural purposes: the Kirghiz, who nomadise on the right bank between Maral-togoi and the Balkhash, obtaining a return of from ten to twenty-fold.

The islands in the river-bed are chiefly grown with willows and reeds. The valley abounds, among others, with *kendir*, which affords an excellent material for spinning. Another product is *uchkat*, from the fibres of which the Kirghiz prepare rope of an inferior quality.

The shrub *uchkat*, with its straight stalk 6 to 12 feet in length and 2 inches in thickness, is also used by the Kirghiz as fuel. The smoke is, however, exceedingly caustic, and hence it is that the Kirghiz, who nomadise in places which abound in this shrub, suffer in winter from diseases of the eye to a very large extent.

The prevailing wind in the valley is the north-west, blowing from the sandy and barren steppes of the Bepak-dala and the shores of Lake Balkhash. In the hot season this wind drives the sand and brings the rain-clouds, and in winter produces severe storms and cyclones, which last for days in succession. The high and thick reeds which grow in abundance on the banks of the Ili, particularly in the delta of the river, give the best defence to the Kirghiz against hurricanes and cold-blasts, and afford them protection and convenient winter quarters.

In the reeds on the banks are found tigers, panthers, and wild-boars; the latter in large numbers. Of birds there are pelicans, swans, geese, duck, snipe, and quantities of pheasants.

According to the statement of the Cossacks stationed in Fort Ili, the fisheries of the river might be profitable, especially those of Lake Ala Kul. The Kirghiz fish a good deal in summer. In the river are found in large numbers the osman and marnik, the roe of which is poisonous.

The River Borohudzir.—This river, with its valley and neighbouring mountain district, belongs also in part to the basin of the Ili, although it never reaches that river. The Borohudzir, from the ruins of the fort of the same name (Karaul-bass in Kirghiz), formed, until the occupation of Kuldja, the old Russian frontier with that of Western China. It takes its name from the issue of the defile between the mountains of Bel Bulak and Great Kaitass, about 2½ miles above the ruins of the Borohudzir fort, and flows for a distance of some 30 miles. About 2 miles before it reaches the Ili (near the ruins of the Chinese fort Ili-Karaul), the river is hidden in high and dense reeds, and forms a marsh. The river is rapid, but not deep; its water is clear and wholesome. After rain, like all other mountain streams, it becomes turbid and unfit for cooking purposes. The bottom of the river is covered with stones, often of great size.

Borohudzir.

The valley on either side, watered by cool springs and the canals cut from the river, abounds in excellent pastures and meadows. The grass and clover, which grow here in abundance, are very succulent and nutritious. The soil is fertile and well suited for cultivation, in proof of which the fact may be mentioned that the yield of corn is twenty to thirty-fold. Vegetables are produced in large quantity. Cotton is cultivated by the Chinese immigrants, but it yields in quality to that of Bokhara. The river banks

* Wild olive.

are covered with willows, and in places with thick reeds. Building wood may be procured from the sources of the Usek and in the mountains of Sarlytash, about 35 miles from the head-quarters of the Borohudzir detachment; but it is not easily brought down. Wood for fuel, such as poplars and saksaul, is found in abundance about 16 miles from the head-quarters; the former on the Ili, the latter in the Aidarly-Kum.

On the river are found duck, snipe, and pheasant; in the reeds on the banks wild boars in large herds.

The Borohudzir valley in December and January is covered with a thin layer of snow. At the end of December the river is frozen over, but early in February the ice commences to melt, and towards the end of the month the whole valley shows green. In summer the valley, owing to the heat, is insupportable, the temperature reaching in the day time 122° F. Rains fall very seldom, and the air becomes suffocating. Besides snakes, scorpions, and tarantulæ, spiders, mosquitoes, flies, &c., thrive, and are very troublesome to animals, especially to camels and horned cattle.

About 35 miles from the head-quarters of the Borohudzir detachment is the district of *Kok-kezen*, situated at the junction of the Great and Little Usek. The locality is picturesque, abounds in good pastures and wood, and is well suited for agriculture. The banks of the Usek are covered with high and thick reeds.

The River Chu.—This is the second important river of Semirechia; half a mountain torrent and half a sluggish steppe river, it takes its rise in the eternal snows of the Tian Shan. Formed of a multitude of small mountain streams, the Kyzart, Suok, Karakol, &c., which flow from west to east, the Kochkur, which is the name under which the Chu is known in the earlier part of its course, flows through an open picturesque valley, 6 to 12 miles in breadth. The soil of the valley is gravelly and strong, therefore little suited to agriculture. On the other hand, these mountain valleys present suitable spots for the nomad dwellings of the Kara Kirghiz.

The valley of the Kochkur is very tortuous, its main easterly direction often changes to the north-east, and when approaching Issyk Kul it takes a northerly course. Up to this point the bed of the river is blocked with huge rocks, but the valley now widens, and the river flows between low but rocky banks to Kutemaldi. Here the Kochkur gives off a small tributary, the Kutemaldi, which disembogues into the Issyk Kul. The fact of this connection with the lake led to the river Chu being supposed for a long time to flow from the lake, the Kutemaldi being deemed the commencement or upper waters of that river until investigation showed the real direction of the stream, and proved the Kochkur to be the true source of the Chu.

Near Kutemaldi the Chu makes a sharp bend to the west, nearly at a right angle, and flows in a narrow valley, abounding in excellent pastures; it afterwards inclines to the north, passes round the extremity of the Turu-aigyr mountains, and enters the Buam defile, a broad cleft in the Alexander range.

At its entrance into the defile, the Chu is not so impetuous as to prevent its being forded in places. The right bank is covered with a dense thicket of osiers, aspens, prickly thorn, and other characteristic flora of the mountainous parts of Semirechia.

The further we proceed the more gloomy and picturesque does the defile become, the more scanty the vegetation. The mountain slopes which overhang the valley rise in huge terraces broad and flat. The defile contracts gradually; at the gorge of Uch Kurukel (affluent on the left bank of the Chu), one of the narrowest parts of the Buam, the defile becomes less sombre, and shortly opens out into a broad mountain-valley enclosed within picturesque cliffs. This valley bears the name of Sary-dala (Yellow valley). Here, at Ala-bash, on the left bank, there are very peculiar rocks of indurated clay, which present the appearance of a series of twisted columns, high and naked, broken horizontally in places.

The mountain valley ends properly at the cross gorge of the Terekti (an affluent of the left bank of the Chu), where the gorge commences in all its wild splendour. In the present day the gorge is levelled, and along it runs a good carriage road for postal communication with Issyk-Kul. Not long ago the traveller had to make his way along narrow ledges overhanging the impetuous river, to scramble along the koidjols (narrow mountain tracks or sheep paths), and to ford the foaming torrent at the risk of being borne away by its force. But now there is a made road, and those difficulties and dangers have ceased to exist.

Remarkable for its picturesque grandeur is the gorge of the Great Kebin; here at one time was the narrowest part of the defile. The point of junction of this valley with the Buam defile is almost impassable. The porphyritic rocks of the cleft approach the river with such perpendicular sides that there is no room on the banks even for a narrow path. To penetrate up the Kebin by boats also is impossible, owing to the rapids in the river.

In the gorge of the Great Tebin the rocks often assume most fantastic shapes. For example, one of them has the appearance of a solitary lofty column, like a huge pillar. In the defile, between the cliffs, small groves of osiers and hawthorns are here and there met with. Thick twisted stems of a dendroid juniper (*Juniperus pseudo-sabina*) cling to the rocks, and sometimes grow to a height of 14 feet, with a circumference at the base of $2\frac{1}{2}$ feet. This tree is as dark a green as the cypress, but is distinguished from it by its spreading branches and crooked trunk.

The river Chu after receiving the waters of the Great Kebin, flows for 15 miles in a north-west direction until joined by the Little Kebin. It here takes a due westerly course, which it retains for 16 miles as far as Airan-Tiube, $3\frac{1}{2}$ miles below Fort Tokmak. The character of the river in this 30 miles of its course is nearly identical throughout; its distinguishing peculiarities are an extraordinarily rapid stream (4 to $5\frac{1}{2}$ miles per hour), a stony bed, and an almost entire absence of vegetation along the banks.

The valley of the Chu, at first insignificant in size, gradually widens, and after receiving the Little Kebin, has a breadth of rather more than 1,200 yards; opposite Tokmak it is as much as 4 miles in width. Watered by many small streams and springs, the valley is rich in vegetation, and its banks are covered with excellent pastures of immense extent.

About 8 miles from the Buam defile, the river separates into several branches, and the further we descend the more does the number of branches increase; at length it becomes impossible to distinguish the main branch from the others, and the river forms a compact archipelago of rocky low-lying islands, of varying dimensions. The water rushing impetuously in the intervals, bears to these islands the wood which has drifted down. Here the river overflows in places to a distance of 500 or 600 yards, feeding the extensive marshes which surround Tokmak and taint the air with miasma. The depth of the river at this point is not less than 2 feet. Forging at some places, Tokmak for instance, is not always free from danger, particularly in summer, when the volume of water is increased by the melting of the snows. The present direction of the road through the Kastek Pass and the bridge made in 1870 over the Chu at Pishpek, have removed these inconveniences.

From Airan Tiube the river takes a general north-west direction, which, with slight variations, it retains for 30 miles, as far as the Kara-su; this latter enters the Chu from the right bank. Besides the Kara-su, there are two other rivers which join the Chu at this part of its course from the left, the Kegen at 13 miles, and the Issagati at 24 miles from Airan Tiube.

Beyond Airan Tiube the Chu gradually unites into one bed. Although in other places it again becomes divided by islands into several branches, these latter have little water, and the main branch is very marked. The breadth of the river is from 120 to 230 yards; its depth varies up to 3 feet.

The valley of the river on the left bank is at the commencement about 4 miles broad, but opposite Ak-Djar only 1,200 yards; on the right bank it varies from 200 yards to 2 miles in breadth. It is overgrown partly with reeds, partly with grass. After the river Kara-su, the Chu, taking a westerly course, commences to approach the rather high right bank, and bending gradually to the south, after a course of 10 miles, passes round the rocky mountain headland of Chumich.

From the confluence of the rivers Surali and Kuniuk, nearly to the place where the Chu disembogues into Saumal-Kul, the river is navigable; its depth is never less than 4 feet, and the greatest 14 feet. The breadth of the river in that part of its course between Chulu Ford and It-Kichu is from 200 to 400 feet. From It-Kichu the river commences gradually to narrow, and after 40 miles, on entering between sand banks, has only a breadth of from 85 to 140 feet. Thirty miles beyond this again the river, although broadening to 210 feet, divides into numerous branches, the main stream being only 28 feet broad.

The bed of the river is everywhere sandy, and at the mouth it is muddy in places. The low banks, but 2 feet in height, are overgrown with high reeds and partly with willows, which are first seen 10 miles above It-Kichu; below this tumulus, besides the willow, the poplar, the jidda, and various prickly shrubs are found.

As before stated, the Chu disembogues into the Steppe lake, Saumal-Kul. In reality this lake is a broad bed, filled by water from the Chu. The general slope of the locality surrounding this bed is indicated by the direction of the rivers Chu, Sary-su, and Jani-su.

From the preceding we may conclude that the Chu between the Buam defile and Fort Tokmak is unsuited for navigation. The latter may be said to commence for small boats about 12 miles below the fort. Navigation is thenceforward possible up to the

division of the river into branches and inundations, overgrown with reeds, near lake Tobukti-Chaganak.

Karatal.

The River Karatal takes its rise in the snowy summits of the Ala-tau, and pursues generally a south-westerly course as far as its junction with the Kok-su, the most important of its tributaries.

After its junction with the latter river, which joins it from the left, the Karatal passes round the extremity of the Tiué-Mainak mountains, on the south and west, and continues in a north-west direction until the Biji joins it from the left. This river is the last affluent; it has little water, but never actually dries up, as it is fed by springs. In the lower part of its course, for the last 10 miles, the Biji in spring becomes very full of water in consequence of its receiving some branches from the Kok-su, such as the Makanchi with the Mokur, and the Tentiak, which formerly were, in all probability, artificial canals, but now-a-days have become streams watering the fertile plain between the Tiué-Mainak and Altu-ait mountains.

From the mouth of the Biji the Karatal takes a northerly course as far as Temir-tiulei; here dividing into several branches, of which the three principal are the new Karatal, the old Karatal, and a third without a name, it falls into Lake Balkhash. The other mouths of the river discharge themselves into a morass some miles before reaching the lake.

The entire course of the Karatal from its junction with the Kok-su to Balkhash is about 170 miles. The stream at the former point runs at the rate of $4\frac{1}{2}$ miles an hour, but as the lake is approached, the rate declines to 2 miles per hour.

The depth of the river is very variable; in July it amounts to 21 feet or more, in September it commences to decrease, and in October it declines to 4 feet in places, and becomes fordable. In summer it is nowhere fordable. The depth in the same month varies from year to year. The breadth of the river is from 70 to 150 yards. The bed is sandy clay.

At the Karabulak settlement, where the post-road crosses the Karatal, there is an excellent bridge. Over the Kok-su, at the Kok-su and Tsaritsin settlements, there are also good bridges. Fords exist at Janaly, Tamar-utkul, Aral-utkul, and other points.

The Karatal flows in a valley from $1\frac{1}{2}$ to 3 miles in breadth, bounded at the mouth of the Biji by a high plateau which extends on the left as far as the steppe, and on the right as far as the mountains of Burul-tiube, Ak-tash, Chaldir-tiube, and Yesik-kissik. Beyond this, at Tas-suat, the sands border the river on the left; beyond the mountains of Mikainar sands also fringe the valley, so that for a distance of 75 miles a sandy district borders the valley, which is continued also round the southern shore of the lake. This valley has a clayey soil, and is in many places under cultivation. From Temir-tiul to the Balkhash, for a distance of 25 miles, the valley is overgrown with reeds; above this district along the bank to Tamar-utkul willows are alone found.

Still further up the river there are no trees, and grass only grows where the valley is irrigated by means of *aryks*.

The Karatal valley does not offer any great convenience for settlements owing to the dearth of wood and the absence of suitable places for agriculture, especially in the lower part of its course.

The river abounds in the two prevailing fish of Central Asia, the osman and marnik, in appearance like the nelma or Siberian salmon. It is remarkable that the roe, and generally all the inside of the marnik, is poisonous, while the flesh is innocuous.

Lepsa.

The River Lepsa.—Of the other rivers which flow into the Balkhash, the Lepsa is deserving of mention, on account of its fine mountain valley and rich pastures. Particularly fertile are the sites of the Russian settlements, the Lepsa (Chubar-agatch) and the village of Constantine.

The site of the Lepsa settlement, which was at one time the favourite haunt of the Khans of Jungaria (Kalmuks), is renowned for the salubrity of its climate. Spring commences here at the end of April. The head-waters of the Lepsa, which run fine in summer, are in that month impetuous torrents, bearing away rocks and trees in their course. In spring heavy rain falls, moistening the soil, while in summer frequent thunder storms are heard in the mountains. Owing to the elevated situation of the Chubar-agatch (Lepsa) valley, the heat in summer is not so much felt, and the nights are even chilly. In summer rain falls less frequently, still the grass does not become burnt up as in the Kirghiz steppe. The bright green swards, variegated in colour, are freshened daily by the dew, and retain their freshness until the autumn, which commences ordinarily in October, and is accompanied by heavy storms. In November snow falls, and in December the winter sets in. At this season of the year severe storms rage in the mountains, bearing down avalanches into the valley, where the Lepsa settlement is situated.

The Lepsa, or Lebsi, in the Chinese maps, takes its rise in an outlying range of the Ala-tau, the Kuketau-davan (*i.e.*, defile of the blue mountains). It is formed by two streams, called the Terekti. After passing Chubar-agatch (variegated wood), the two streams unite in the mountains of Ichke-ulmess, where the Lepsa flows between steep and mountainous banks over a stony bed to Karagali. There emerging into the clay plain at the east foot of the Kutebai-barlu, the river Terekti falls into the Lepsa; from this point the Lepsa flows along the Makachi valley, bordered by the shifting sands of the Ak-kum, as far as the Lepsa picket.

From its source downwards the river flows very rapidly, particularly in spring, but from the Lepsa picket to Lake Balkhash its course is much more gentle. At the source the banks are high and rocky, but further on they are low, although steep. The water is sweet and wholesome, although up to the middle of May very turbid; it clears in summer. The depth at the commencement is from 1 to 10 feet; further on it increases, and near the Lepsa settlement, at full water in the pools, it is as much as 18 feet. The breadth varies from 5 to 60 yards. Full water lasts from the first week in May to the middle of June. It is coated with ice in the last days of October, and the ice breaks up in the beginning of April. The whole course of the river is about 235 miles.

The River Baskan flows from the Ala-tau. The stream is neither broad nor rapid, but very sinuous. Its banks are clayey and soft, the bed muddy. It flows from the left into the Lepsa. Baskan.

Rivers Sarkan and Biyen.—The Sarkan flows from the Ala-tau, and falls from the right into the Ak-su; the Biyen takes its rise in the same range, and is very rapid, but not deep. A mile above the Arasan settlement there is a bridge over the river. At this point the bed is granite, filled with huge boulders. Sarkan and Biyen.

The River Ak-su ("white river," in Mongol Chagan-usu) rises in the same mountains. It is smaller and narrower than the Lepsa, but quite as rapid. Towards its embouchure, for a distance of 25 miles, the Ak-su bears the name of Tentek-su (raging, wild river), because it so frequently changes its course. The Tentek-su before reaching the Balkhash, passes through two lakes; its embouchure is overgrown with reeds. Ak-su.

The river Talass, although of some importance, has not the same body of water as the Chu and Ili, which water the south-east part of the Kirghiz steppe. The Talass takes its rise in the mountains not far from the western extremity of Issyk-kul. Here issue the Karakol and Uch-kosh-sai, which form by their union a rapid torrent, the Talass. Both streams wind through narrow, wooded valleys among rocks, and are thorough mountain streams. The Talass itself, after the confluence, forces its way through the Cha-Archa by a rocky but most picturesque mountain gorge. Talass.

The defiles at the sources of the river and of its affluents are studded with groves of poplar, willow, hawthorn, and other trees. Higher still is found the birch, the zone of its growth depending on the nature of the valley.* Thus it is found on the Cha-Archa at a height of 3,200 feet, while it is not found on the Karakol at a height of 4,800 feet. The woods fringing the Talass descend as far as the Chaldanyn-su, *i.e.*, to an elevation of about 3,400 feet, and with them are connected the woods along the tributaries of the former stream.

After the union of the Kara-kol and Uch-Kosh-sai, the valley of the Talass widens, but still retains a completely steppe character. The bed of this latter river and of the Kara-kol become frequently divided into branches, forming wooded islands. Islands are also to be met with at the point where the Talass forces a path through the defile of the Cha-Archa, the bare black rocks rising nearly perpendicularly from the water's edge. After making its way through the Cha-Archa, it flows northward as far as the foot of Tek-Turmas (the extremity of the Alexander range), separating frequently into branches and forming islands, mostly covered with excellent meadows. From the extremity of Tek-Turmas the river takes a north-westerly direction to the town of Aulie-ata, when it bends round the promontory and flows north-east. Below the town of Aulie-ata it enters the steppe. For about 5 miles the valley remains green with the gardens of the town, but beyond that point its banks become reed-grown, like all the principal steppe rivers. The current of the river at Aulie-ata runs very rapidly, although the stream is divided into several branches. Crossing at the fords, especially at full water, is rather difficult. At this town the post-road from Tashkent to Verny crosses the river.

Full water, varying much in level, lasts from May to the middle of July, and is dependent upon the melting of the mountain snows where the Talass and its tributaries take their rise. The river is most swollen after 3 p.m. in the day, when the noon-day sun has produced its effect on the mountains. The water is lowest in September, but at the end of the month it again increases in volume from the autumn rains.

* Severtsoff, "Travels in the Western Tian Shan."

The Talass disembogues into the steppe lake Karakul, which is really nothing more than a series of inundations separated by sand dunes.

As regards volume of water, the Talass is a smaller river than the Chu; all the numerous affluents fall into it, which is not always the case with the latter river below Tokmak. The lower course of the river Talass has little water, and gets blocked up with sand, and thus becomes transformed into a series of deep pools. The country bordering on the lower Talass is much frequented by the Kirghiz in winter.

As regards the irrigation of the adjoining district, little has been done except between the town of Aulie-ata and the mountains of Cha-Archa, where we find a succession of cultivated fields watered by aryks cut from the river, even in the Cha-Archa defile.

LAKES.
Balkhash.

Semirechia, besides its numerous streams, has a number of lakes. The abundance of its water, as we have before stated, distinguishes it from the neighbouring province of Syr Darya, which is destitute of that element, and has a dry summer heat, and a thoroughly continental climate.

Of the lakes the most noteworthy are the Balkhash, Ala-kul, Kara-kul, Issyk-kul, Son-kul, Chatyr-kul, and Sairam-nor.

Lake Balkhash in point of size, is one of the most important lakes in Asia; it lies in the south-east part of the Kirghiz steppe, to the west of the town of Kopal. Its length, from north-east to south-west, is about 400 miles; its breadth, from north to south, from 5 to 55 miles; its circumference about 900 miles. The greatest depth of the lake, according to the soundings, is 70 feet; it gradually shallows towards the shore, shoals a mile and a-half or more in breadth being visible in places. The bottom is mostly sandy mud, but there are many places where it is stony and gravelly. The banks on the north-east, north, north-west, and part of the south-east are mountainous, while on the south shore about broad sand hills which commence at the lower spurs of the Ala-tau.

In some parts the banks of the lake form considerable peninsulas; the most remarkable of these are Chaukhar, Karjun-tiubek, Kok-tiubek, Tar-tiubek, Burliu-tiubek, Uzun-aral, Sary-issyk, Ak-tiube, Kos-agach, and others of less importance. The banks of the peninsulas which project into the lake on the aforesaid sides are rocky and stony, so that it is only possible to land upon them when the lake is smooth. The peninsulas which project on the south side are low and reed-grown, and cannot be approached on account of the shallowness of the water.

The water in the lake rises when the snow melts in the valleys, and afterwards from the overflowing of the rivers. This happens towards the end of July.

The water in the lake is brackish, but is suitable for cooking, and has no deleterious effect on the health of men and animals. Near the mouth of the Ili the water is of better quality. In the north-east part of the lake the water is much more salt. At the south end of the lake, called It-ichmess (Ala-kul), the water is so bitter and pernicious that animals on drinking it die; hence its name, It-ichmess, which signifies "a dog will not drink it."

There are very few islands in the lake; the most considerable in point of size are Algazy-kalgan, Baig-abyl, Mai-kamysh, Ultarakty, Uch-aral, and others of less magnitude, near the south-east shore. The banks of these islands are rocky, and the soil is indurated clay, partly stony. The island of Ultarakty has a sandy soil. All are covered with reeds.

It is remarkable that the west shore of the lake, and the islands near it, shoal up year by year. Near Kur-Bokanass the water has receded 2 to 2½ miles further from the shore since 1853. The small lakes opposite the mouth of the Karatal, shown on the surveys of 1853, are now entirely dried up, having formed salt lands.

The country surrounding Lake Balkhash is extremely varied, and is very scantily covered with vegetation. To the north and north-east about low mountain spurs, which end at the banks, either in gentle slopes or in steep rocky cliffs of slight elevation. The slopes are barren; along them flow small streams, which lose themselves in the valleys before reaching the lake, in some places for 30 or more miles. On the west and north-west sides there abuts on the lake a sterile plateau known as the Bek-pak-dala or Hungry Steppe, which terminates at the shores of the lake, while on the south and south-east stretches an undulating sandy steppe. The soil along the shores of the lake, except the south part, is mostly stony, and seldom salt clay. There are no spots suited for agriculture; ploughing the land would not repay the farmer's trouble. Of woods, meadows, and other necessities of domestic life, there are none; in the valleys alone we find reeds, and on the hills bushes and wormwood. The chief want is fresh water; the streams and rivers which disembogue into the lake have water only in spring; on the setting in of the hot weather the water dries up, and is only found in deep pools, and in these it soon becomes bitter and putrid.

Fish abound in the Balkhash, especially the marnik, the perch, and the osman. Fishing is difficult, as the bottom of the lake and the embouchures of the rivers are obstructed with drift wood.

The lake freezes at the end of November, but sometimes not till the first half of December; the ice breaks up in March. The thickness of the ice is not great, but in winter it is passable. The winds are strong and gusty, but not continuous; they never blow constantly from one quarter.

Storms occur frequently, fogs seldom, and mostly in autumn; these latter are not, however, so thick as to interfere with navigation. Large boats are necessary for this lake.

The streams, Ayaguz, Karatal, and others, which flow into the lake, are perfectly unsuited for navigation, because their mouths are overgrown with an impassable labyrinth of reeds; on this account the water, although ultimately reaching the lake, submerges a large district in consequence of the sluggishness of the stream.

This lake is the most important in Semirechia, as it connects the Akmolla district with the basin of the Ili and consequently with the districts of Western China.

The *Ala-kul* is the third largest lake to the east of the Caspian (Aral, Balkhash, *Ala-kul*); it is not far from the Balkhash, and at no very distant date was joined to it. The salt lands and undulations of shifting sand, running in streaks from one lake to the other, leave no doubt that the waves of a sea rolled here at a time not very remote.

The *Ala-kul* now forms an entirely separate water-basin; it is the receptacle of the water which drains from the circumjacent range of the Barlik, *Ala-tau*, and *Tarbagatai*. It consists properly of three lakes, known under the general name of *Ala-kul* (variegated lake). But it is still uncertain if the whole basin is called by this name, or only the larger eastern part with its bitter salt water. The middle part of the basin is called by many of the natives *Uyali*, and the western, with its fresh-water, *Sassyk-kul* (putrid lake). On the Chinese maps the whole lake bears the name *Alak-tugul-nor* (lake of the variegated ox). Probably the name *Ala-kul* was derived from the variegated appearance the lake presents with its numerous islands, in opposition to the *Zaisan* and *Issyk-kul*, where there are no islands.

The absolute height of *Ala-kul* is 1,200 feet. The appearance of the locality leads to the belief that there is no great difference between the levels of Lakes *Balkhash* and *Ala-kul*. It is a curious fact that, according to the traditions of the Kirghiz, the level of the *Ala-kul* rises at times, and then subsides again. On the Chinese maps *Sassyk-kul* and *Uyali* are not marked, so that the basin of the *Ala-kul* is shown as one lake. The Kirghiz state that even in the time of their fathers the waters of *Ala-kul* extended one-third of a mile further than at present; afterwards the level of the waters began to fall, and twelve years ago was so much lower than at present that small islands situated about 250 yards from the shore were joined to it. Subsequently the level of the water began once more to rise, and is still rising. Not many years back it was possible for caravans to pass along the isthmus of *Uzunai* and *Naryn-uziak*, but now both these isthmus are covered in the middle with water.

From the neighbouring mountains an abundance of water flows into the lake. The principal streams are the *Karakol* and *Tentek*, discharging into *Sassyk-kul* and *Urjar*, *Hatyn-su* and *Emil*, disemboguing into *Ala-kul*; all are of considerable size in spring, but at other times are fordable. The *Emil* is the largest of them. The mouths of these rivers are transformed into a series of small reed-grown lakes. The *Tentek* does not reach the lake, but loses itself in the reeds on the south shore of *Sassyk-kul*, the north shore of which is likewise covered with a dense belt of reeds. In spring the water submerges the reeds; these rot in summer and emit a putrid smell, from which circumstance the lake received its designation.

From the southern extremity of *Ala-kul*, there extends for about 13 miles a reedy district of small lakes, ending in *Jelanash-kul*. This lake is $5\frac{1}{2}$ miles long, by $2\frac{3}{4}$ broad, with brackish water; it is called *Jelanash-kul* or open lake, from the fact of its being visible from all sides.

Issyk-kul.—This lake lies in a basin surrounded on all sides by the highest mountains of the gigantic range of the *Tian Shan*, capped with eternal snow. Its general direction is from north-east to south-west. *Issyk-kul*

According to *Semenoff's* observations, the shores of the lake, distant from 10 to 14 miles from the feet of the mountains, are not everywhere level; in many places they consist of abrupt terraces; thus the basin of the lake appears to have diminished at no very distant time. The geological formation of the present shore-terraces is, in *Semenoff's* opinion, undoubtedly the deposit of the lake itself. The considerable extent of this deposit throughout the entire cavity of the lake shows that the latter occupied

in former times an incomparably larger area. The diminution of the waters may have proceeded from two causes. Either from evaporation, when, in consequence of the dryness of the air, the area of the glaciers and snow on the summits decreased, and with them the streams from which they are fed; or, the more grandiose hypothesis, that the Trans-Ili Ala-tau were broken through at the Buam defile by a gigantic convulsion of the basin of the lake, in consequence of which the waters of the lake were able to make their way out through the defile thus opened, or rather were the cause of this cleft being formed.

The lake is very deep; its water is salt and nearly unfit for drinking. It never freezes all over, although its inlets and bays are covered with ice in winter. From this circumstance it received the Kirghiz name of Issyk-kul, and the Chinese of Je-hai. Both signify *warm lake*. Among the Mongols and Kalmuks the lake is known under the name of Temurtu-nor or *ferruginous lake*. The cause of its not freezing must be sought in its saltiness, its great depth, and the height of the surrounding mountains.

The length of the entire cavity of Issyk-kul from the entrance of the Chu into the Buam defile on the west, to the mountain pass of Santash on the east, is about 170 miles; the breadth from the southern foot of the Trans-Ili Ala-tau to the northern foot of the Tian Shan is from 45 to 50 miles. The basin of the lake occupies the deepest part of this cavity, and is 120 miles long and 35 miles broad. The area is about 2,260 square miles. Consequently between the banks of the lake and the spurs of the mountain ranges surrounding the cavity, there lies a flat or gently sloping littoral region some 6 to 10 miles in breadth. The northern shore is called *Kungei*, i.e., slope facing the south, and the southern *Terskei*, or slope turned towards the north. From this the Kirghiz call the Trans-Ili Ala-tau the Kungei Ala-tau. The outliers and advanced range of the Tian Shan, bordering the lake on the south, are called by the Kirghiz the Kirghizin Ala-tau, this name being extended to that part of the Trans-Ili Ala-tau which lies to the west of the Buam defile, and is in immediate prolongation of the advanced chain of the Tian Shan.

Semenoff determined the height of the level of the lake to be 4,540 feet; Goluboff by barometrical observations fixed it at 3,500 feet.

On the east and south-east, near the embouchures of the Tun and Jurka rivers, two important headlands project into the lake, viz. :—Kok-ulu-usun and Kara-burun; on the other sides the promontories are insignificant.

The water of the lake, as before-mentioned, has a bitterly saline taste; its colour is dark blue, but very pellucid. The bed near the banks is sandy and stony, but in its wet part it is more muddy. The lake abounds in fish, viz. :—osman, carp, marnik, and bream.

The north shore of Issyk-kul from the Dulan-bulak river westward, is not high, but steep; it consists of mud and sand, and in places of fine auriferous sand; the east and south-east shores of the lake as far as the river Jurka are high and steep, and consist also of mud and sand.

The valley along the north side of the lake is called Kungei-dala, and on the south Terskei-dala. The soil on the east side for half its extent is sandy clay, partly black earth, and the lands here are very fertile. The Kara-Kirghiz employ themselves in agriculture; they sow wheat, barley, and millet; the yield depends upon irrigation by canals, but is always abundant. The valley lying round the west part of the lake has a more gravelly soil, hence it is little suited for agriculture. Pasturage on this side is not plentiful.

Of plantations there are none, a circumstance which proceeds more from the barrenness of the soil than from climatic causes. Along the shores of the lake extends a belt of bush of the charganak, willow, barberry, &c., upon the hilly and swampy soil, which varies in breadth from 1 to 30 miles.

On the north side of the lake the mountain spurs of the Trans-Ili Ala-tau approach to a distance varying from 200 yards to a mile from it, but at Kesse-senguz, between the rivers Kurumdu and Dulana, the mountain spurs border the lake with their rocky cliffs. On the south side of the lake the mountain spurs of the Tian Shan also approach the lake in many places, making it sometimes even impossible for a horseman to pass. The road in these places is a steep narrow path, scarcely practicable for pack animals.

Issyk-kul is seldom in a tranquil state; it is subject to the influence of periodic winds, particularly from the west and east.

The winter here is very rigorous; it commences in November and terminates at the end of February. The snow falls to a depth of 4 or 5 feet. In the western part the snow fall is less, and consequently there is more pasturage for cattle. The spring is the best time of the year, though, unfortunately, it does not last long; it rapidly passes into summer. In May, June, July, and frequently in August, the thermometer in the sun reaches 122° F. Rain and thick fogs are very frequent, and of long duration.

The streams which flow into the lake from the south, to the west of the river Jurka, along which passes the caravan-road to Kashgar, are the following:—Chichkan, Ak-terek, Sarybulak; three rivulets called Jargilchak, Bars-koun, Tamga, Tosar, Kodja, Urakyr, Ton, Ak-terek, Sor-bulak, Bir-bulak, and Ulakhhol. All these streams with their numerous affluents, issue from the northern slope of the Tian Shan range. Their upper valleys are shut in by steep rocky mountains and cliffs. All the streams flow in a direction from south to north, with a rapid course over a stony bed. The north-west slopes of the mountains and the banks of the streams are grown with pine and other woods and bushes. On issuing from the mountains, some of the rivers have high and steep banks, while others flow over beds of sand and pebble within low banks.

The rivers which flow from the north into the lake commencing from the river Duana, are the following:—Jangiz-agach, Sugutti, Tchentass, Chelpanati, Karagaili-bulak, Uch-koi-su, Chektal, Diur-su, Kabyrga, Turu-aigyr, and three bearing the name of Taldy-bulak.

All these rivers flow from the southern slopes of the Trans-Ili Ala-tau or its adjoining chain, the Turu-Aigyr, which ends at the river Chu. The upper valleys are enclosed within steep rocks. The streams flow from north to south, and dash with great rapidity over their stony beds. The north-west slopes of the mountains and the banks of the streams are clothed with pine and other woods. These rivers vary in length from 35 to 12 miles from their sources to the lake. They are not so full of water as those flowing from the south side of the lake. The breadth of the streams varies from 7 to 21 feet, the depth 1 foot or more. The most important is the river Turu-Aigyr, along which passes the road from the lake to the Great Kebin river, where it bifurcates, one road leading through the Kok-mainak pass down the Chu, the other through the Kaskelen pass to the town of Verny.

All the district of Semirechia which lies to the west of lake Balkhash and to the south of the mountain ranges of Chunak, Sassyryny, Bulat, Munglu, and Beleudti, as far as the Yaxartes, consists of a barren desert, enlivened only at long intervals by the nomad dwellings of the Kirghiz. The rivers Chu and Sary-su separate, as it were, this area into two distinct parts.

The *Sary-su* flows through an infertile salt district, watered, in addition to this river, by other steppe streams, which dry up in summer. In spring the *Sary-su* overflows a considerable area, and the inundations continue for a fortnight or month, according to the amount of snow in the mountains. The soil adjoining the banks is suitable for cultivation; the Kirghiz sow wheat, barley, peas, and millet. Navigation is impracticable, owing to the shallowness of the water and the number of sandbanks. In the bed of the river grow willows, jidda, and other trees in abundance. To the north of it are fine forests, but in the more accessible places nearly all the trees have been cut down.

The *Sary-su* falls into lake Telekul by a narrow channel with flat banks. In the lower part of its course it spreads into a broad reed-grown inundation. The bed of this inundation is salt mud, swampy in summer.

Telekul-tata is the district enclosed by a bend of the inundation towards the south; it is connected with lake Telekul by a broad channel overgrown with thick reeds. The lake at Telekul-tata shown on the maps has no existence.

Lake Telekul consists of several lakes connected together by broad channels, by means of which they form one sheet of water 8 miles in extent from east to west, and 4 miles in breadth. The lakes are surrounded with high reeds. The water is stagnant, and has no stream; its greatest depth is $4\frac{1}{2}$ feet. The bottom is of very tenacious salt mud. Telekul.

In spring, when the *Sary-su* is full of water, the level of the water in lake Telekul rises to a height of 5 feet, and then all the inundable area is submerged. The water, both in the lower part of the *Sary-su* and in the Telekul, is brackish in autumn, but not bitter, so that in extreme cases it may be drunk by human beings.

The banks of the streams which water the steppe are low-lying, partly sandy, but mostly overgrown with reeds, which at the mouths form an impenetrable thicket. Such, for instance, is the mouth of the Ili, the Kamau, which has been already described. In many steppe rivers the reeds stretch for 10 or 15 miles on either side, especially where the river is liable to overflow its banks. Beyond this band commences the desert, generally undulating, and consisting of a series of hillocks with gentle slopes on the leeward side. Sometimes the hillocks assume the shape of horse-shoes; their general form is, however, dependent in a greater or less degree upon the direction of the wind, which causes the masses of sand to shift their positions. Steppe characteristics.

Sandy tracts give place here and there to salt lands, but sometimes reach to the

banks of the small steppe lakes. Some of these latter contain fresh water, others have bitter salt water, and abound with fish. Where no lakes exist, near the caravan routes, wells (kuduk) have been dug, in which tolerably fresh water is found. The *kuduks* are merely deep holes with a narrow opening; they have nothing round them, or any sign by which they can be seen from a distance. The idea that there are certain grasses in the steppe which indicate the presence of a sub-soil containing water is a complete fallacy.

In sandy districts which become very hot in summer the snow does not remain long in winter. The sand greedily absorbs moisture, and prevents the snow from lying. Moreover, the wind blows the snow away, or the particles of sand, which are good conductors of heat, mixing with it cause it to thaw and disappear. On this account sandy steppes are favourite places of resort for the Kirghiz in winter; their cattle can more easily obtain food there from under the slight covering of snow. The Cis-Balkhash is a favourite spot in winter for the Kirghiz, who find protection from storms and bad weather amid the standing reeds, or under cover of screens of plaited reeds, with which they fence round the khibitka or yurt.

Sandy tracts of irregular shape, alternating with clay salt lands, and more fertile (comparatively) districts are scattered throughout Semirechia. But the further west the more barren do these districts become, and the deeper are the shifting sand-dunes. These deserts (*Kum*) are called by various names; to enumerate all would be unnecessary. The more important are therefore selected.

Shifting sands, growing saksaul and jangil, extend for nearly 100 square miles from the left bank of the Sary-su. These deserts are called Jiti-konur and Moyun-kum. Still more remarkable, for the size of the sand hills and for their difficulty are those to the north of the mouth of the Lepsa. To the south of the Karatal river lie the impassable sands of the Aulié-kum. Along the left bank of the Karatal, and in the dry bed of the Bokanass there is a sandy tract, which even the Kirghiz are unable to cross in their wanderings.

The Trans-Ili deserts are still more impracticable. For instance, the deep sands between the rivers Korbelen and Kurtu-koin-kum, beyond the river Kurtu-tau-kum, and along the shores of Juvan-tiube, a bay in Lake Ala-kul.

Sandy tracts are mostly waterless, that is to say, there is no water on the surface. But from this it does not follow that they are altogether deprived of moisture. The water lies lower, under the sandy stratum, and flows as an underground stream.

In consequence of the insufficiency of moisture on the surface, the sands, for the most part, dry up under the hot wind, become a waste, and in consequence devoid of life. But this cannot be said to be the case with the entire steppe. Only the shifting sand hills are devoid of vegetation; the firmer tracts of sand, where the sand is mingled with particles of carbonate of lime, are covered with a comparatively abundant vegetation. In the low-lying districts, which are more humid, stunted trees and grasses are found; where the soil is harder, excellent pasturage is met with.

Shifting sand-dunes or *barkhans* occupy a comparatively insignificant part of the steppe, so that absolutely barren places are rather uncommon. These *barkhans* are most rare in the eastern part of the steppe near the shores of the Balkhash. The further west we proceed, the larger and more frequent they become.

In the tract between lake Balkhash and the Chu the *barkhans* attain a height of from 15 to 35 feet. As we descend the Chu they become lower and less frequent, and on the west, near Saumal-kul, the *barkhans* border Lake Telekul as low hillocks, mingling with the partly hard, partly shifting, sands of the Orenburg steppe (Kara-kum). On the Yaxartes, where the sandy steppe approaches the banks, high sand hills clothed with rather dense bush are frequently seen; the sands near Fort Julek are particularly difficult.

We have already stated that in sandy localities streams are found underground; otherwise it would be difficult to explain how the masses of snow and rain water, which accumulate in the steppe in summer and winter, are got rid of. Moreover, some important rivers, as the Chu and Sary-su, on reaching the steppe disappear under the soil, but all the time are continuing their underground course, and at the further end of the desert re-appear above ground as rivers. Thus the Sary-su flows in the depths of the Muyun-kum. Many steppe rivers discharge themselves as underground streams into the Yaxartes.

The climate of sandy districts is less rigorous, and this circumstance, together with the abundance of grass in the sands during winter, attracts the nomads in that season. They are particularly sought after when other districts suffer from jut or rime.

Nearly the entire centre of the described district is occupied by the Bek-pak-dala, or *Hungry Steppe*, which has attracted considerable attention, at least on the maps, from its mysteriously terrible name. But it must be remarked that this name was given it by the Russians; Bek-pak-dala signifies in Kirghiz, the *Lousy Steppe*.

We ought to state that the Hungry Steppe is not more barren than the Ak-kum, Kara-kum, Arys-kum, Jiti-konur, Kuramany-kum, or the large sandy waste south-east of the Balkhash, the Sary-ishik-atrau. Across the Hungry Steppe passes an excellent caravan road from the town of Turkestan to Akmolli and Petropavlovsk.

Level plains, with a clay or sandy soil, alternate here and there with salt lands, called by the natives *takirs*. These are the remains of pristine lakes and other water basins of more or less importance. A strange impression is produced by one of these *takirs*, with its covering of white salt. From a distance it looks like a small lake covered with ice, embosomed within green banks or a greyish-yellow girdle of glowing sand. Wind meeting this salt land raises aloft its caustic, bitterly saline particles, the cause of frequent diseases of the eye among the nomads. In the rains these *takirs* or salt lands are converted into tenacious, deep marshes, with pools of stagnant reddish-brown water. Unlucky is the caravan whose road lies among such localities. The camels, slipping along, sink into the tenacious mud, and are only able to move forward with the greatest difficulty.

Sometimes the *takir* is in the form of a narrow long strip, the remains of a former river. It is called *darya-lik*.*

Beds of rivers, when drying up, form pools or cavities filled with salt water. When the heat is very intense these pools also dry up, leaving salt-basins more or less marshy. They are then called *sors*, if swampy, and *takirs*, if dry and hard. Lastly, *gak* is the name for a little lake or pool which dries up to a considerable extent in summer, but still remains a distinct sheet of water.

Of these different kinds of salt lands (wet and dry), the *sor* is the most baneful and dangerous; the camels in these localities suffer from a peculiar malady called *sarpa*, a sort of foot-rot.

Salt lands which are largely impregnated with salt are almost barren. We say *almost*, because the thin stubbly vegetation showing here and there does not in the least alter the generally naked and barren character. It is otherwise with clay soil which is scarcely at all impregnated with saline matter. Here we find succulent grasses, the ash of which is rich in soda. They are low-growing, with a thick stalk, and instead of leaves have succulent shoots.

The saline crust consists of finely-divided crystals of sulphate of soda with a very slight admixture of chloride of sodium. The crystals of sulphate of soda in sandy places are much more coarse than in localities where the soil is clay.

In Krasovsky's opinion† the rigorous climate of sandy districts is to be ascribed partly to the reflection of the solar rays from the bright surface of the sand, and partly to the mixture of snow and salt, a compound producing artificial cold.

Let us revert to the description of the Hungry Steppe. Under the name of Bek-pak-dala, is included the district from the Balkhash to the valley of the Sary-su on the west, and the river Chu on the east. On the south-west the Hungry Steppe joins the Muyun-kum or Ak-kum by a narrow neck between the mouths of the Chu and Sary-su. The Muyun-kum is a sandy tract, bounded on the south by the Kara-tau and the fertile districts lying at the northern foot of this range; on the east by the river Kurogati, and on the north by the valley of the Chu.

On the north-east the Hungry Steppe is intersected by spurs from the mountain ranges which project into it under various names:—Chunak, Karacha, Myn-bulak, Bulat, Sasirli, Munглу, Kublu, and others. These mountains give rise to numerous streams which furrow the steppe in different directions; but these streams only contain water in spring, and dry up at the commencement of summer. The interior of the steppe is waterless, so that the caravans plying between Turkestan and Akmolinsk experience great want of water for a distance of 40 miles.

The rivers, or rather spring water-courses of the Hungry Steppe, empty themselves on the south-west into small salt lakes situated on the left bank of the Sary-su, while the streams flowing south and south-east lose themselves in the southern part of the desert, towards which the Hungry Steppe falls in terraces. In some places the clay-hills, which intersect the sandy plains, approach the lower parts of the rivers Sary-su and Chu, forming headlands and high steep cliffs (Krasovsky). Wells (*kuduks*), in the absence of running water, give life to the passing caravans. The depth of the wells varies from 15 to 150 feet. Those dug in hard soil yield generally a bitter salt water, but the wells in sands are

* *Darya* is Persian for river.

† Krasovsky, "Materials for the Geography and Statistics of Russia; the District of the Siberian Kirghiz."

distinguished for the sweetness and abundance of the water. When the wells have not been cleaned out for some time the bottom becomes covered with animal and vegetable refuse, blown in by the wind, and the water gives off the odour of sulphuretted hydrogen. During heavy storms particles of dust, salt &c., are blown into the wells, and the water becomes turbid and brackish.

A. Meier observed in the Kirghiz Steppe, on the road between Fort Perovsky and Orenburg, a peculiar description of natural spring issuing at the surface of the ground. These springs are met with in clay soil, generally at a short distance apart, and present the appearance of a truncated cone with cup-shaped hollow at the top. The hollow is about 3 feet in diameter; it is full of water, which never overflows, but at the same time does not diminish, no matter how much is taken from it. Round the hollow is a bed of sand, always humid from filtration, and overgrown with the ordinary steppe vegetation. Most of these springs were met with near Myn-bulak, but they are also found in other parts of the steppe, sometimes in the middle of a barren salt plain.

The soil of the Hungry Steppe consists mainly of clay with an admixture of lime. Here and there are distributed at intervals salt marshes and sands, either shifting or firm. The vegetation is scanty owing to the want of water; wormwood, *chy*, occasionally *kipets*, and *boyalitch*, are the chief growths. The animal kingdom is represented by the wild horse, which roam in large herds, and troops of giraffes.

The Province of Syr Darya.

General Characteristic Features. OROGRAPHY—Alexander Mountains—Aksai—Kurama-tau—Mogol-tau—Kashgar-tau—Alai Plateau (Dasht-i-alai)—Trans-Alai Mountains—Passes in the Trans-Alai—Kizil-yurt—Altyn-Dara—Pamir—Zerafshan Mountains—Shahr-i-Sabz Mountains—Deinau Range—Nurata-tau or Kara-tau—Ak-tau—Guduu-tau. STEPPE DISTRICT—Kizil-Kuun—Kara-Kuun—Bek-pak-dala. HYDROGRAPHY—Syr-Darya (Yaxartes)—Chirchik, Angren and Keless—Aral Sea.

While the province of Semirechia is filled with the stupendous chains of the Tian Shan, and its mountain knot of Khan Tengri, with the mountain masses of the Trans-Ili, and the Jungaria Ala-tau, the province of Syr Darya contains on its southern borders mountain ranges of no less majestic a character. All the east and south part is mountainous. In this province we find the most varied contrasts; while in the west, there stretches a low-lying plain, sandy or salt, the remains of some former sea, in the east and south rise gigantic mountain chains, covered with eternal snow, attaining an elevation of upwards of 20,000 feet. In the high valleys live the ancient inhabitants of Central Asia, driven from their homes by the hordes of warriors who from time to time swept over that country. In the mountain fastnesses the aborigines of Asia sought to preserve their lives and independence.

General Characteristic Features.

The western part of the district is waterless, burnt up with the sun, and covered with masses of sand. A prickly, coarse vegetation characterises this miserable waste. Thickets of saksaul are in plenty, but afford no shade. In the depth of the steppe we find only wormwood and *julsan*, with succulent leaves, very seldom the *chi*. In the west and south parts of the province the numerous mountain ranges give rise to an abundance of streams and brooks. The inhabitants lead the water to the fields and gardens, moisten the thirsty soil, and obtain excellent crops. In this part agriculture and gardening constitute their chief employment.

The opening up of roads and the development of the system of artificial irrigation, engage the attention of the administrative authorities. There is a bridge over the Yaxartes at Hodjent, and another is contemplated at Chinaz; a bridge exists at Kuliuk on the high road from Tashkent to Toi-tiube; a bridge over the Chu at Pishpek, and one contemplated over the Arys on the Chenkent-Turkestan high road.

Let us first trace in outline the mountainous parts of Syr Darya.

It has been already mentioned in the observations on the Province of Semirechia, that the Alexander range extends from the Buam defile to the town of Aulie-ata. The highest part is at Pishpek; here the snowy peaks present the most fantastic shapes. The further we proceed towards Aulie-ata the more the range decreases in height, terminating ultimately in the low promontory of Tek-Turmass. This part of the Alexander range from the village of Karabalta lies within the borders of the Syr Darya province. It is here, on the meridian of the former Kokand fortress of Karabalta, that the Aksai (Urtak) chain, bounding on the south the broad Talass valley, separates from the main range. Through the centre of this valley meanders the river Talass. Of its numerous affluents the more important that flow from the north are the Karakol and Jar-su; from the south, the Kalba, Bishtash, Uyurl-mural Kymys-tak, Kara-bura, and others. The Aksai range gradually getting lower stretches nearly to Chemkent.

Alexander Range.

Ak-sai.

From the Ak-sai there separate to the south-west branches, which divide the valleys of the right affluents of the Yaxartes. Here, in the Aksai range, among the sources of the rivers Kara-bura and Kara-kiz, is found, remarkable for its grandeur, the water parting of the river systems of the Talass and Yaxartes.

Branches of the Aksai fill the entire north part of the Kurama uyezd, forming long defiles and sometimes also valleys, densely populated and well adapted for agriculture. These are the auriferous valleys of the Angren, Chirchik, and Keless, of which we shall speak in detail presently.

The broad and fertile valley of the Angren, the granary of the Tashkent rayon, separates the branches of the Ak-sai from the Kurama-tau and Mogol-tau. These mountains are called differently at different places. The Mogol-tau, an elevated range, stretches to the very bank of the Yaxartes, where on the opposite bank rises as a dark mass a second range considerably higher, and forming an outlying chain of the Ak-tau or Karli-tau. In former times this range was called Kashgar-davan, a term of no

Kurama-tau
Mogol-tau.

meaning, as the words signify simply a "pass into Kashgar." Evidently such cannot be a name for a range of mountains. K. V. Struve, in his map of Kokand, calls it the Turkestan range. The native name Ak-tau is very indefinite, meaning white (*i.e.*, snowy) mountains. This extreme western branch of the Tian Shan will be described in detail, and with it the mountain masses of the Zerafshan Circle.

From the stupendous mountain mass of Khan Tengri to the east of Issyk-kul, the centre of the Asiatic continent, there separate to the west some massive branches of the Tian Shan, which fill with their ramifications all the mountainous district south of the lake, the Naryn country, and the eastern part of Kokand. We have already spoken of the range which bounds the cavity of Issyk-kul on the south, one of the parallel ranges of the Tian Shan. The entire locality south and south-east of the lake is an elevated Alpine country; here are ranges rising to the considerable height of 12,500 feet, and this at the most accessible of their passes. Such are the mountain passes of Molda-asu, Jaman-davan, Tash-rabat (12,900), Suok (12,740), and others. Between the ranges lie the high mountain valleys of Kochkur, Juvan-arik, Jungal, Naryn, Arpa, At-pash. These valleys with their excellent pastures are favourite haunts of the nomad Kirghiz. In the mountainous country beyond Issyk-kul we find broad plateaux, *e.g.*, the plateau of Son-kul, Chatir-kul, Aksai, which rise to a height of 11,000 feet (Chatir-kul plateau). On this elevated spot Colonel Poltoratski's detachment, on the 25th and 26th July, suffered severely from the cold; at night the water froze, while snow fell at intervals during the day. The Son-kul plateau, although also lying above the limit of vegetation, differs in character; it is covered with excellent pastures, and in the summer months is enlivened with the tents of the Kara Kirghiz.

From the Chatir-kul plateau the Tian Shan runs as a high massive range, separating Ferghana from Djity Shahr (Kashgar), and beyond that from Karategin. This range (Ak-tau, Kashgar-davan, Turkestan range) has, as we have already stated, no definite name in Central Asian geography. The more correct would be to call it Kashgar-tau, which name it might retain as far as the pass into Kashgar—Terek-davan—in the basin of the river Kurshab, the south arm of the Yaxartes. The continuation of this range, sometimes called the Alai, but more correctly the South Kokand Mountains—is described under the orography of Ferghana. See p. 78.

Westward of the Terek-davan, the Kashgar range broadening, forms a wide plateau, which until the exploration of Fedjenko, Skoboleff, Severtsoff and others was entirely unknown.

Beyond the South Kokand range, stretches a second in a parallel direction; this range, of striking grandeur, is called by Russian explorers the Trans-Alai, by English observers the Kizil-yart, extending the name of the pass to the entire range. The Trans-Alai, in its eastern part, rises everywhere above the snow-line, but west of the Altyn-dara defile, it becomes lower, and isolated snow-peaks are alone seen. Of the passes over it two are known:—the Kizil-yart (14,000 feet) leads to Kara-kul, on the Pamir Hargoshi (of hares), and the Ters-agar, or Altyn-dara, leads to the Muk-su. Its highest points lie near the Kizil-yart defile. To the west rises the so-called Kaufmann peak, and to the east, the triple peak of Gurumdi, of not less height than the first-named.

Between the South Kokand and Trans-Alai ranges, lies a longitudinal valley or elevated table land, extending almost due east and west, with a slight inclination to the south. In its eastern part it is intersected by a considerable spur, across which leads a scarcely noticeable pass into Kashgar, the Ton-murun. This ridge forms the water-parting between the basins of the Aral Sea and Lake Lob (Lob Nor). To the east of it flows the Kok-su, running away to Kashgar, while to the west flows the Kizil-su, which is one of the tributaries of the Oxus.

This elevated valley or table land extends from the Ton-murun to the mouth of the river Kok-su.* It extends from east to west for a distance of 60 or 70 miles. Beyond the mouth of the Kok-su the valley pursues its original direction, but it alters in character, and loses the name of the Alai. Through this valley flows the Kizil-su, which after the junction of the Muk-su in Karategin, receives the name of Surkh-ab, then traverses Hissar under the name of the Vaksh, and after union with the Punja, forms the Oxus. The bed of the Kizil-su, through all the extent of the Alai, lies towards the northern border of the valley, and at a distance of little more than a mile or two from the foot of the spurs of the South Kokand range.

From the left bank of the river commences a barely perceptible rise to the foot of the Trans-Alai range. The entire valley stands at a considerable elevation. On the

* Not to be confounded with the before-mentioned river flowing to Kashgar. The Kok-su now under consideration, falls into the Kizil-su about 4 miles below Daraout Kurgan. It is sometimes called the Ichkelik Kok-su, after the Kara-Kirghiz tribe which nomadises on the lower Alai.

South Kokand Mountains.

Trans-Alai Mountains.

Alai Plateau.

meridian of the Archat Davan pass, the bed of the Kizil-su is at an elevation of 10,121 feet, while near the mouth of the Kizil-yart defile, at the foot of the Trans-Alai, the height is 11,309 feet; lower down at Archat-bulak it is 9,963 feet. Daraout Kurgan lies at an elevation of 7,993 feet, and the great Karamouk is 7,818 feet above the level of the sea. The highest point of the Alai, the Ton-murun pass, has not yet been measured, but it is probably not less than 12,000 feet.

The crest of the South Kokand range rises considerably above the eastern part of the Alai plateau, thus the Archat pass is 1,800 feet above the bed of the Kizil-su, which flows at its feet.

The Trans-Alai range, on this meridian, throws out some branches, which are however unimportant, as the distance from the mouth of the Kizil-yart defile does not exceed 15 to 20 miles. Further westward, between the main chain of the South Kokand mountains and the Alai, appear outliers which become more marked as the valley contracts. These outliers, 20 miles or so above Daraout kurgan, reach to the very bank of the Kizil-su, so that the road at this point leading to Karategin has to pass along a ledge for a short distance; at the same time the Alai does not lose its character, for the foot of the Trans-Alai range recedes to a distance of about 6 miles. Not until the mouth of the Kok-su is passed, do the spurs from both ranges hug the river, and then the valley loses its name of the Alai.* In places these spurs recede, forming level and rather broad plains, particularly where the transverse valleys open. Such for instance are the plains of the Great and Little Karamouk. The plain of the Great Karamouk was probably occupied at one time by a lake. It is closed on the west by a spur, through which the Kizil-su makes its way in a narrow defile.

These spurs or branches have altered the character of the road. Whilst as far as Daraout Kurgan it passes, with the exception of one place, along fairly level ground, somewhat similar in character to the Turkestan steppe, below this point we constantly meet with ledges, ascents and descents. The road to the Great Karamouk (19 miles) follows the right bank of the Kizil-su. In the vicinity of Daraout (1½ miles below Daraout Kurgan) the valley narrows and becomes a mountain defile, and the road passes over ledges, here and there bridged, for about ½ mile. The valley, although much narrower than in the upper part, is nowhere less than ¾ mile wide; the willow, poplar, &c., form shady copses. Here and there are seen fields of barley, wheat, clover and oats, of the Kirghiz, more especially where the Kok-su falls into the Kizil-su (10 miles below Daraout-Kurgan). The river below the mouth of the Kok-su is unfordable. The river runs in a great number of channels, the principal stream being 70 to 100 feet wide; the current is exceedingly rapid. The mountains to the north of the Kizil-su are only about 9,000 feet high; those on the south are higher, but neither attain the snow limit. Forests of juniper clothe the lower spurs. At the Great Karamouk the valley is 1½ miles wide, and continues so for 5 miles. The river is fringed with trees, and rich pasture lands abound. The road between the Great and Little Karamouk for 2½ miles passes along a so-called *kia*, i.e., a path along a declivity, frequently a considerable height above the water, but this declivity presents no difficulty. Further down the Kizil-su, towards Gharm, the capital of Karategin, the road is said to present serious difficulties.

With regard to the hydrography of the Alai plateau, it may be observed that the bulk of affluents of the Kizil-su come from the Trans-Alai range. The few right affluents of the river are unimportant. This proceeds of course from the greater elevation of the Trans-Alai range, which is covered with masses of snow, whilst on the same meridian, the South Kokand Mountains are comparatively low and devoid of snow. The first affluents, rising above the Kizil-yart defile, are the Kichi-kara-su, Katta-kara-su, Gurumdi, Nitchke-su, Mashali, Djinike. All these help to swell the Kizil-su, which even on the meridian of the Archat pass is a considerable stream, ¾ mile in breadth. As its water is obtained for the most part from the melting of the snows, its depth varies at different hours of the day. Thus at noon it has been found to reach to the horses' knees, and the same night it has been found to be up to their bellies, and a strong current running.

From the Kizil-yart defile the important Kizil-yart-su makes its way to the Kizil-su, while from the Altyn defile flows the river Touz. All these affluents, which are fed by the snows of the Trans-Alai, are distinguished by one general characteristic, shared in by the Kizil-su itself, viz., the water is of a red colour and opaque. There is no doubt that this colouring proceeds from the washings of certain rocks having a wide distribution over the entire Trans-Alai range. The rivers flowing into the Kizil-su from the right bank do not present this peculiarity; they are clear and pellucid.

* At Daraout kurgan the valley is not more than 1,200 yards broad.

The first important right affluent is the Daraout-su, which enters at Daraout Kurgan; further westward we meet the Kok-su, Ak-su, which joins at the Great Karamouk, and the Kichi-Karamouk-su.

Throughout the Alai, the Kizil-su flows in a broad bed, and on this account is divided into several arms, which wear away the adjoining banks and bring down large masses of lime, sand, and clay. Owing to this circumstance, the river is fordable at almost any point in the Alai; only at one or two places where its waters flow in one branch, does it become unfordable. Such places occur much more frequently below Daraout, where the river is hugged by the mountains. About three miles below this last-named place we find the first bridge over the Kizil-su; there is a second below Daraout and the Great Karamouk. Thence to Karategin there are no more bridges. There are fords below Daraout where the river issues into level country, or where it divides into several arms. For instance, among others, there is a ford at the Great Karamouk. In spring, possibly, the river even at these places becomes unfordable.

On the Alai and in the defiles of the mountains bounding the plateau on the south, are found excellent pastures, where the Kirghiz congregate in winter. In all probability the same peculiarity occurs which was remarked with regard to the high plateaux of Sonkul and Chatyr-kul, where the snow does not form a deep layer in winter. The snow-clouds are stopped by the high mountains which border the plateau. At least, Protzenko found no snow in May on the plateau of Sonkul (9,000 feet) which, from the height of the plateau, would be impossible were the snow to fall thickly there (Severtsoff). The same may be assumed to be the case with regard to the Alai plateau. That part of it which was visited by Fedjenko in the summer of 1871 was found to have an entirely steppe character. The Kirghiz sow here a good deal of barley and even wheat; there are fields of jenshke (lucerne), which they cut twice in summer. The sandy steppe and the meadows near the rivers are covered with thick succulent underfoot grass (*Festuca*). The whole of the fields seen by Fedjenko were *obi*, that is to say, irrigated by means of artificial canals.* All this tends to prove that the climate of the Alai is not rigorous.

The Alai plateau is bounded on the south side by the majestic range of the Trans-Alai mountains, the Kizil-yart of English travellers; these mountains are much higher than those bordering the Alai on the north. The average height of the Trans-Alai range is not less than 18,000 to 19,000 feet, while isolated peaks rise to a height of 22,300 feet; to the west it falls away, is intersected by the Kizil-su (Surkhab), and joins the Hissar range.

Trans-Alai
Range.

The Trans-Alai range is not a single chain, but a rather complex system of mountain ridges connected together; between these lie important longitudinal valleys and basins. When viewed from the Alai plateau two deep saddles are seen in these mountains; the eastern, with the defile and pass of Kizil-yart leading to the Karakul; and the western, with the defile and pass of Altyn-dara, leading to the Muk-su, the southern source of the Surkhab. These saddles or indentations separate three centres of elevation, of which the middle one, that between the two passes, is the most prominent, rising to a height of 22,300 feet at the Kaufmann Peak. The highest peaks on either side of the Kizil-yart are on two different ridges; the northern intersected by this defile, and the southern inclosing it. The distance between the ridges is about 10 miles. The *northern*, or *Gurumdin*, is about 13 miles from the Kizil-yart, and presents towards the east a row of peaks, 17,000 to 20,000 feet high; afterwards it separates into two chains: the northern, falling in declivities, inclines somewhat to the north-east, throws out at a distance of about 6 miles a branch to the north, which falls towards the Ton-murun Pass in a saddle, by which this branch is united to a ridge from the South Kokand Mountains, thrown out near the Shart Pass. The *Southern* ridge strikes south-east almost at a right angle, and its steep peaks, highest of all at Peak No. 6† (near the bifurcation) preserve the original height of the Gurumdin ridge. Between the Kizil-yart and the bifurcation on the east, this ridge is higher than all those to the southward in the same range. It separates the affluents of the Kizil-su, the Oxus system, from the affluents of the Kok-sai, the Tarim system, so that it forms part of the great Pamir water-parting, and is not broken by a single defile.

But to the west of its intersection by the Kizil-yart defile, the Gurumdin ridge is so often seamed by the affluents of the Kizil-su, that it is broken up into a series of separate peaks, and approaches the southern ridge at Kaufmann Peak, which is situated in the southern ridge, between the defiles of Kizil-yart and Altyn-dara.

* In Central Asia fields irrigated by means of canals are called *obi*, in contra-distinction to *liabni*, or those which derive their moisture from natural causes, rain, &c.

† In the Russian survey (M. Skassy's triangulation) the peaks of the Trans-Alai range are indicated by numbers, commencing with No. 1, Kaufmann Peak.

From Kaufmann Peak the south Trans-Alai ridge falls to the east and west to two defiles: to that on the west, Altyn-dara, it ends in a low hill, which resting in the bottom of the longitudinal valley of the river Ters-agar, divides this stream into two branches,* of which one, the Touz Altyn-dara, flows to the north to the Kizil-su, and the other to the south to the Muk-su. East of the Altyn-dara defile, this ridge forms the divide between the two so-called upper waters of the Surkhab, but near Kaufmann Peak and a little to the east of it, there abuts on the south a massive range, covered with eternal snow, and dotted with peaks, which divides the sources of the Kok-sai and Muk-su from one another, and from the affluents of the Kizil-su. This massive range is an important feature in the complex orographical system of the Pamir.

East of this massive range, the south Trans-Alai ridge falls in steep declivities to the Kizil-yart Pass, up to which point it forms the water-parting of the Kizil-su and the western upper waters of the Kok-sai; but to the east of the pass the main divide, as we have seen, runs to the north along the Gurumdin range, while the southern, as yet not broken through, separates the Kok-sai from its affluent the Kaltyn-kamish. Here it is already lower than the Gurumdin, and its highest peaks do not exceed 14,500 to 15,000 feet. Still further east, about 30 or 35 miles from the Kizil-yart, this ridge is intersected from north to south by the Kaltyn-kamish; subsequently it is pierced again from south to north by the Kok-sai, after which it approaches the Mus-tau ridge at the Maltabar Mountains. The Mus-tau commences as a steep promontory on a high plateau, south of the Kizil-yart Pass, with which it is connected by a low hill, intersected by the Kok-sai; further east the Mus-tau rising higher and higher forms the right bank of this river, until its bend northward and afterwards runs along the Kashgar Darya, and is terminated in a promontory on the Kashgar plateau nearly due south of Kashgar.

Kizil-yart Pass. The defile of Kizil-yart, with its river the Kizil-yart-su, issues from the Trans-Alai range, under the Kizil-yart Pass. The top of the pass lies at an elevation of 13,740 feet. The Alai steppe at the north entrance of the defile is not more than 10,100 feet, while the south exit of the pass, on the Pamir, after crossing the range, is at a height of 13,420 feet. Consequently the Pamir is upwards of 3,000 feet higher than the Alai. This difference in height is very evenly distributed along the Kizil-yart defile, a distance of about 16 miles, so that the ascent is gentle, averaging less than 250 feet per mile; the last half mile to the summit of the pass is rather steeper. On the whole the Kizil-yart Pass is easy, but the road along the defile is difficult, being among fallen rocks or along the stony bed of a stream, which loses itself in the boulders some distance above the north end of the defile. The latter has two characteristics; the lower part for 3 or 4 miles in the lower spurs is broad and grassy in places, while further up the defile becomes very narrow, and grass is seldom seen. The road, according to Kostenko, might be made fit for carriages.

Passes over
Trans-Alai.
—Kizil-yart

To the south of the Kizil-yart Pass stretches a broad plain, the middle of which lies about 50 or 60 feet above the two sides, where lie the two sources of the Kok-sai. This plain is enclosed by snow mountains, and is generally barren of grass.

The east continuation of the plain forms the valley of the Kok-sai. Above the junction of the two sources of this river the plain gradually narrows, and 10 miles east of the Kizil-yart Pass it passes into a shady defile at a height of 12,700 feet.

Along the Kok-sai passes the caravan road from the Kizil-yart to the Kara-kul and Kashgar. In avoiding the impassable cleft, through which the Kok-sai passes the Mus-tau, the road crosses the mountain ridge. Up to the end of October the snow offers no impediment to the passage of caravans (Severtsoff).

Altyn-Dara Pass. This pass is approached from Ferghana by the Isfairam defile. The road crosses the Kizil-su at Daraot-Kurgan, and then passes up the Touz Altyn-dara river, which has a general south and north direction. The river runs through a valley about 27 miles long by a mile or so in breadth, and is filled with boulders; it has abundant grass on its banks. The road follows the right bank of the river, which is fordable at all points; it is an easy road, although there are narrow ledges in places where the spurs abut on the river bank. The mountains on each side are bare and rocky, and here and there attain the snow-line (15,000 feet); the lower spurs are covered with verdure. On reaching the point where the Ters-agar stream gives rise to two streams,* as above-mentioned, the road passes along the southern branch for 10 miles, when it falls into the Muk-su. This latter river flows with many branches in a deep and narrow cavity between lofty, wild, and precipitous mountains, those on the south being covered with snow for two-thirds of their height. Several peaks, rising to 25,000 feet, stud the range,

Altyn-dara.

* This is a very peculiar phenomenon. The headwater, the Ters-agar streamlet, falling from a snow-capped summit on the west, gives rise to two streams flowing in opposite directions; in this way the defile and the source are common to both streams.

while glaciers reach from the summit to the valley below. The valley is most picturesque. The range on the northern or right bank has a height of from 14,000 to 15,000 feet, and is only covered with snow in places. The pathway lies along this side, but after about 30 miles becomes impracticable on account of the boulders. Juniper and birch are occasionally seen on the mountain side. The Muk-su, which is formed of several streams besides the Tirs-agar, is not fordable: it has an east and west direction, bearing a little to the south. It eventually passes into Karategin, where it joins the Kizil-su to form the Surkhab affluent of the Oxus. The Muk-su is a shorter stream than the Kizil-su, but has a much larger body of water; its colour is opaque-white from the limestone through which it passes, and also from its glacier source.

Pamir.

Beyond the Trans-Alai lies the Pamir, a district at present imperfectly explored. The natives know it as Pamil, and call it "roof of the world," distinguishing Pamil-Kalian (great) from Pamil-Khurd (little), and these again from the Pamil-Hargoshi (of bares), Pamil Alichor and Pamil Taghdungbash. The whole district is so exceedingly elevated that the rarefaction of the air causes difficulty in breathing.

As the Pamir belongs partly to China (Kashgar), and partly to the principalities of Shignan, Wakhan, &c., its description does not properly enter into an account of the Russian possessions in Turkestan. It will therefore be more fully described in a subsequent part of this work. Suffice it for the present to say that the Pamir, instead of being a vast plateau as at one time supposed, consists of a mass of bare mountains, attaining elevations of 25,000 or 26,000 feet, snow-capped, and stretching in various directions, intersected by more or less wide valleys and gorges, as denuded of vegetation as the mountains themselves. The mountains are of a soft formation, covered with fragments of schist; the declivities are bare and sterile. When the Pamir has been more explored, it will be probably found that Humboldt's view of there being a distinct range running north and south, connecting the Tian-shan with the Himalaya system is perfectly correct. This meridional range has been seen by Hayward from the east, and by Russian explorers from the west. The Pamir, as a rule, is extremely sterile, and has a rigorous climate; small patches of grass are alone found on the banks of the streams. The Pamir has several lakes, some of which have large dimensions. From Victoria Lake issues one of the sources of the Oxus. From Kara-kul, according to English geographers, issues one of the chief sources of the Murghab branch of the Oxus, but the most recent Russian explorers are at issue with the English on this point, and affirm that Lake Kara-kul has no outlet.

From Ferghana to the Alai there are numerous passes,* but further westward the passes in the Southern Kokand Mountains are very few. The most important in the latter group is that from Sokh to Yarkush. The defile along which the road runs is passable with great difficulty. It traverses eight passes, over a lake fordable in the shallow parts, thence enters a glacier, called by the inhabitants *Tarak*, or comb, from the number of crevasses which have to be passed. To avoid danger, they attach across their bodies long poles, so that in the event of falling into a crevasse, they may catch themselves at the edge, and be supported until succour arrives. From the glacier the road leads to the Karategin village of Yarkush, and from thence through Sokau to Gharn.

A little to the west of this pass lies the Zerafshan glacier, 36 miles long, according to the natives; this, however, is an exaggeration. Its western end, according to Soboleff, is about 55 miles east of the meridian of Hodjent, and by barometrical measurement about 9,000 feet above the sea level. The glacier runs from east to south-west, is connected with many lateral glaciers, and near its extremity fills the valley for about one-third of a mile in breadth, with a very gentle descent. In it are seen moraines composed of boulders of different kinds of rocks not met with in the adjacent mountains.

Besides the principal glacier there are some lateral glaciers in the defiles opening into the Zerafshan valley. (D. K. Mysheukoff.)

Zerafshan
Mountains.

All the mountainous country to the west of the Zerafshan glacier forms one massive elevation running nearly due east and west. The breadth of the mass is about 70 miles.

This mass consists of three parallel chains of mountains running east and west. The northern longitudinal valley is occupied by the river Zerafshan. This valley in places widens, and at other points contracts, to such an extent as to form a cleft through which the river Zerafshan dashes with the force of a mountain torrent, and makes the valley resound with the echo. The parallel valley on the south is occupied by the Yagnob, which, according to the natives, also flows from a huge glacier (Fedjenko). This valley is very similar in character to the Zerafshan; it is narrow in places, but at

* See later, under Ferghana.

others extends as a plain, upon which are dispersed the poor *kishlaks* (villages) of the mountain Tadjiks (Galchas), the inhabitants of the country, and of the Yagnobeas, a race whose origin is not yet determined.* The northern group of mountains bordering the Zerafshan valley are generally called the Turkestan Mountains, the second parallel chain, the Zerafshan Mountains, and the third most southern group, the Hissar Mountains. These names, being more general, may be conveniently substituted for the present special names derived from villages, passes, &c. Thus, for example, the northern Turkestan range bears the names Osmut-tau, Kurkazin, Pshagar-tau, Rabat-tau (after the Rabat-su), Ak Darshan-tau (after the village of that name), Tl'cumazar, and so forth.

In the mountain group of Chap-dara, the parallelism of the ranges is sharply broken; here the rivers run north and south. This locality may be called the Magian mountain region, after the name of the Bekate, at one time independent, but now forming part of the Zerafshan circle.

The Magian mountain region is filled with rocky mountain ranges, having stony passes difficult of access. The defiles, along which flow the rivers Shin and Magian are narrow and uninhabited; there are only a few places suitable for settlements.

The high rocky mountains of Daürich and the peaks of Clumakha, Bilga, and Hirgazan, surround the small cavity in which lies the majority of the villages of the former Magian Bekate. Beyond these mountains, that is, beyond the centre, Bilga, rises the mountain mass of Hazrati-sultan. Towards Magian it terminates in a broad perpendicular wall, while in the direction of Shahr-i-sabz it falls gradually. The height of the mass does not, however, exceed 15,000 feet. The renown which Hazrati-sultan enjoys is due to the legend that a saint named Hazrat-sultan-Khodja-daür was saved on it, and still lives there.†

Beyond the group Hazrati-sultan extends the broad and fertile Shahr-i-sabz valley, bounded on the north by the Shahr-i-sabz range, and on the south by the Deinau mountains, a prolongation of the Hissar range. Shahr-i-sabz Range.

The northern slope of the Shahr-i-sabz mountains is intersected by several long and deep defiles, *e.g.*, Jam, Aksai, Oalik, Kara Tiube, Urgut, and so forth. The slopes of the Shahr-i-sabz range are rather barren, and are green only in those places where lie the springs, from which the mountain streams derive their sources. These streams (*chashma*) are utilised for irrigation. The Shahr-i-sabz mountains have generally a desolate appearance.

The Deinau range which bounds the Shahr-i-sabz valley on the south, is much higher than the Shahr-i-sabz range, and is covered with eternal snows. From its defiles issue several streams, of which the chief is called Kashka-darya. This river flows past the town of Kitab to the town of Chirakchi, and ultimately passing Karshi, discharges itself into a small lake.‡ Deinau Range.

Let us now pass to the range which bounds the Province of Ferghana on the south.

At Jizakh the massive range bifurcates; one branch, the main, runs in the original direction further to the west, forming mountains which border the Zerafshan Valley on the north. We shall speak of them in detail later. The other chain takes a north-west direction, and is separated from the main range by the defile of Jelan-ata.

This range, called Nurata-tau (Kara-tau), stretches in a north-west direction for 130 miles. At first the range runs north-west, as far as the village of Kurek, 5 tashes (26 miles) from Jizakh. The breadth of the Nurata-tau is from $1\frac{1}{2}$ to 3 tashes (8 to 16 miles). Nurata-tau is considerably higher and more steep at its western end. Properly the range ends 20 miles beyond the village of Temir-kayuk. Further on in the same direction outlying ranges stretch in succession for 12 to 20 miles more. About 10 miles south of these secondary ranges, nearly behind their centre, lies the fort of Nurata. Nurata-tau.

Five to 8 miles north of Nurata-tau, runs the Auzekeng chain of hills. This chain borders on the north the Jizakh valley, which therefore is bounded on the south by the Nurata-tau, to the west by the Nurek-tau, and to the north by the Auzekeng-tau. This valley in spring is rich in pastures, which however become burnt up in summer. From Nurek, in the same direction, Auzekeng-tau joins with a chain the hills of Tiuya-burun-tau, which continue a little further towards Yani-kishlak.

To the north of Tiuya-burun-tau, about 16 miles from Yani-kishlak, commences the

* It is supposed that they came from Kashmir.

† A. Fedjenko. "Notes on the Magian Bekate."

‡ A. Fedjenko. "Topographical Sketch of the Zerafshan Valley."

salt lake, or more correctly, the mud basin of Tuz-kul, according to native statements, 16 miles in length. This lake extends lengthwise nearly parallel to the Nurata-tau, and to a point rather beyond the extremity of this range. In spring, when there is abundance of water, these salt mud flats become a lake, but drying up in summer, are transformed into a mud swamp with salt water on the surface, through which a man may pass, but a horse will sink in and probably remain. There are passages across the lake here and there which are used by the caravans and the Kirghiz. To the north of Tuz-kul, and in places to the south of it, are sand dunes, the commencement of the Kyzyl-kum desert.

Parallel to the road passing by the north foot of the mountains there are numerous bridle paths over the mountains which serve to connect the villages together; thus for example, between Jizakh and Nurek there is a bridle path; from the latter place there leads a road to Yani-kishlak, past Bogdana; this road is suited for arabas, trains, &c., from near Bogdana to Yani-kishlak, the rest of the route being passable only for horses. From Yani-kishlak to Safar-ata lead four bridle-paths. Generally speaking every mountain village is connected by a path with other roads nearly all of which are easy.

Besides the above roads, the whole range of the Nurata-tau is intersected with cross bridle paths, leading from the villages on the south slopes to those on the north. Of these passes the most easy is the Saur-bilé about 5 miles from Yani-kishlak; this pass was traversed by the grandfather of the present emir with the whole of his artillery, when he marched to punish the refractory inhabitants of the villages on the northern slopes of the Nurata-tau.

Only one of the passes over the Nurata-tau is at all difficult, that near the village of Ukhm; it is impracticable for pack camels.

Ak-tau. Parallel to the Nurata-tau, sometimes called Kara-tau, runs the Ak-tau range, at the extremity of which lies the Bokharian fort of Nurata. The Ak-tau is much more elevated than the Nurata-tau; it extends as far as the meridian of the village of Nakruta; here the Ak-tau is broken by a small valley, and loses its name. The continuation of the Ak-tau, a less lofty range extending nearly parallel to the Nurata-tau, bears the name of Karacha-tau. These mountains are again broken through nearly opposite the village of Savruk. Beyond that point extend the more lofty mountains of Gudun-tau, which also end in the steppe.

Gudun-tau. The Gudun-tau terminates nearly opposite the village of Jambashi. The whole of the district between the two nearly parallel chains of mountains consists of a valley, which at its west end becomes more undulating; but on this side of Savruk the level steppe commences. All this valley or steppe is well populated and covered with fields; much more rain falls here than in the steppe near Jizak; the rainfall is sufficient for the corn, and consequently there is hardly any artificial irrigation.

There is no wood whatever in the mountains suitable for building purposes; the almond-bush alone grows here and there, but is scarcely fit for fuel. In the gardens of the villages there are none but fruit trees. Trees with acerose leaves are only met with in the mountains near Ukhm, a village situated in a defile of the mountains.

STEPPE
DISTRICT.
KYZYL-KUM,
KARA-KUM,
AND BEK,
PAK-DALA.

The very broad tract, intersected nearly diagonally by the Yaxartes, consists of boundless sandy or clay-salt steppes. It is a waste, animated only by the tents of the nomadic Kirghiz, who freely traverse it from end to end.

The steppe to the north of the Yaxartes is distinctly divided into two halves by the Sary-su. The western half bears the name of Kara-kum (Black Sands), and the eastern Bek-pak-dala (Hungry Steppe). This latter is a distinct cavity or hollow, surrounded on three sides by mountain ranges; on the east it is bounded by the extreme northern branches of the Alexander range, which stretch away under different local names, gradually getting lower, and merge into the steppe near the west shore of Lake Balkhash. The river Chu, and its affluent the Kurogaty, mark the entire eastern frontier of the Hungry Steppe. On the south the steppe is bounded by the extreme branch of the Tian Shan, the Kara-tau, which terminates near the Julek fort with the height of Daud-hodja. On the north it is bounded by the extreme branches of the Altai, forming here a mass of mountains under various local names. On the west, as before stated, the river Sary-su may be considered the border of the Bek-pak-dala. The direction of the course of this river, and of all its affluents, shows that the general slope of the country is from north to south, while the direction of the courses of the rivers Chu, Kurogaty, Talass, and all streams flowing from the Kara-tau range, proves that in its southern parts the steppe has a general slope to the north. Hence in the middle of the steppe a cavity must be

formed, and in fact we find there a broad low-lying district, occupied by a succession of lakes commencing from the Kara-kul, and ending in a series of inundations formed by the river Chu, after its issue from the Kuramanyk-kum. This series is ended by Lake Telekul. At this point we also find the greatest depression in all the steppe to the north of the Yaxartes.*

To the west of the Sary-su extends the broad sandy steppe of Kara-kum. It is difficult to discover how this name arose; whether from the fact that this steppe is really covered with a dark, coarse sand, resulting from the disintegration of the different mountain rocks, or whether, as some think, the name of the steppe was given in consequence of the colour of the vegetation, dark and bushy. In any case the word *kara*, i.e., black, is not used here in the sense of dark and of bad omen. The Kara-kum is in favour among the Kirghiz, who find in it excellent winter quarters. In sandy places there is much less snow; it lies in so shallow a layer that cattle can easily obtain fodder from underneath it. A light screen of chi protects the *julameik* of the nomad from the snow-storms, and for the rest he does not concern himself.

The entire surface of the steppe is undulating, and covered with barchans or sand dunes. Roots and plants, which the winds have not succeeded in uprooting, have given firmness to a great part of these barchans. But here and there we find hills of drifted sand, completely barren and infertile. A layer of sulphate of soda is nearly always present on these sands. In different places appear *solonchaks* (*sors*): bare tracts covered with a white layer of salt.

Alternating with these sandy districts we meet with tracts of clay, covered with polynka, chi, and occasionally saksaul.

The deserts of Kara-kum are undoubtedly the deposit formed in bitter-salt water; this is proved by the fossil shells found in them, *Cardium* and *Mytilus*, which species are also met with in the clay-salt soil of the steppe. Leman believes also that a proof of the comparative recency of these sand-dunes is afforded by the remains of seaweeds and reeds in perfect preservation. This sandy drift, the deposit of the sea, is in the present day still in process of formation; particularly evident, for instance, is the receding of the Aral Sea at Sary Cheganak Bay. The sand left by the sea, and subjected to the influence of the rain and wind, soon assumes a hilly character, a distinctive feature of the formation of the Kara-kum (Meier).

In sandy, steppe districts the wells are not deep, and have good water; it is impossible to say the same of the wells in clay-salt soil, where the water is nearly always bitterly saline. Even the rivers flowing through these steppes, e.g., the Irgiz and others, are brackish.

The same characteristics are found in the other sandy tracts to the north of the Yaxartes, e.g., the Arys-kum, and the Barsuks (Great and Little), lying to the north of the Aral Sea. The Barsuks afford excellent winter quarters for the Kirghiz; the wells are not deep, but the water is fresh, sweet, and sufficient in quantity; while, for abundance of underfoot grass for cattle, the Barsuks may compete with the Kara-kum.

The Kizyl-kum (red steppe) lies on the south bank of the Yaxartes. It is far from being the barren waste of shifting sand which many suppose. On the contrary, barren shifting sands are very rare and are of small area. At the present time, since A. P. Fedjenko's travels in the Kizyl-kum, in the summer of 1871, the eastern border of the Kizyl-kum sands is precisely defined; this border is the river Yaxartes, between Julek and the bend of that river at Chardara.

The Kirghiz have elaborated a very definite nomenclature for the different varieties of steppe. Thus, for example, firm sand they call *kungyr-kum*, shifting sand, *bashpak-kum*; hills of drifted sand, *urme*; isolated sandhills in the steppe, *biyurat*.

As a rule the Kizyl-kum consists of low hills (from 30 to 60 feet in height), often extending in regular rows in a north and south direction. The surface of these hills is more or less thickly covered with *rang*, a description of sedge. The roots of this sedge form a dense network to a depth of 5 or 6 inches, which serves to render the sand immovable. Besides binding it, *rang* plays another very important rôle; it may be said, without exaggeration, that it is due solely to the *rang* that the Kizyl-kum is habitable. Its leaves afford excellent fodder for sheep, but for larger herbivorous animals there is some difficulty in getting sufficient of it; this accounts for the absence of horned cattle, the insignificant number of horses, and, on the other hand, for the large number of sheep. Level clay tracts, thickly overgrown with *rang*, are called *rangjoi*; these afford the best pasturage.

A very characteristic feature of the Kizyl-kum is the extensive growth of shrubs—

* Exclusive of the Caspian cavity.

saksaul and such like—which cover the sandhills. Being destitute for the most part of flat leaves (the leaves of the saksaul are pointed), and affording no shade, they give the Kizyl-kum a very peculiar appearance. The saksaul (*Holoxylon ammodendron*) attains its principal development in places which the Kirghiz call *téü*. These are the level spots, with a sandy clay soil between sandhills; here the saksaul forms thick bush, and attains a considerable height. Its average growth is 6 or 7 feet. The crooked stem of the plant makes it unsuited for building purposes, moreover it is so brittle that a great billet falling on the ground breaks into pieces, although at the same time it is so close-grained as to blunt the axe. It forms an excellent fuel, gives out great heat, and its embers preserve their calorific powers for a very long time. Saksaul plays an important part in the Syr Darya steppe, being burnt into charcoal in large quantities for transport to Bokhara. To burn it, the Kirghiz *batgushes*, *igenches* (cultivators) go to the Kizyl-kum from the Syr Darya, and even from the neighbourhood of Tashkent.

The western part of the steppe is more covered with sands than the eastern half, which abounds in rocky hills. In Fedjenko's opinion the Kizyl-kum does not belong to the number of the more recent sea deposits. It is a hard sandstone, from which the surface layer of porous sand was formed by disintegration, under atmospheric influences. This sandstone is seen above the surface of the ground in many places, and appears in the form of hills (Fedjenko).

Through the centre of Kizyl-kum stretches the almost unexplored range of the Bukan-tau, and on the south-east border of the steppe rises the Nurata Kara-tau range, about which we have already spoken.

THE RIVER
SYR DARYA
YAXARTES)

The hydrography of the Syr Darya district will be commenced with a description of the Yaxartes, the largest and most important in all Turkestan.

The Syr (Yaxartes of the ancients), has been known for a long time from the works of Greek and Arab writers; but all that was known, for the most part, was the country about the lower part of the river; our ideas about the sources were very vague and confused. It was merely known that the Yaxartes took its rise in the vast Tian Shan, but where, in what precise locality, and with how many sources, remained unsolved up to very recent times.

By recent reconnaissances and geodetical surveys, the source of the river has been at length determined; it bears in the mountains of the Tian Shan the name of Naryn. The large and broad valley of the Naryn, extending nearly due east and west, and shut in by lofty mountain ranges, presents the most natural bed for gathering the waters of many streams and brooks, which issue from under the eternal snows of the Tian Shan. The great length of the Naryn valley influences the volume of water of the stream traversing it. Besides minor affluents, the enumeration of which would be of little use, into the Naryn fall the following important mountain rivers: the little Naryn, At-bash, and Jumgal.

After piercing the Chichukty range,* the Naryn enters the Province of Ferghana, and near Namangan joins the Yaxartes; the latter then becomes a large river with a considerable volume of water.

The origin of the Yaxartes is unquestionably the Naryn, from the mass of water, the depth of bed, and the length of its course. But the natives affirm that the Naryn is merely an affluent of the Yaxartes, and that the main stream is a more southerly branch, formed of the junction of two rivers, the Tara and Kara-kuldja. Below the junction of these two main sources there also fall into the river the Jassi on the right, and the Kurshab on the left side.

The course of the Yaxartes through Ferghana has not yet been explored; all that is known is, that although the river has a large volume of water with a bed of considerable depth, its navigation is impeded by the Bigovat rapids, near Irdjar. Within the Province there are no fords over it, and the natives cross by boats or rafts (*sal*).

Beyond the Russian fort of New Chinaz the banks are steep; at the first step into the water the depth is as much as 7 feet, while in some places sandbanks are met with, which are ever shifting; the breadth of the river here is about two-thirds of a mile, with a strong current. Notwithstanding these obstacles, the Yaxartes between New Chinaz and Fort Perovsky is accessible even for keeled boats.

From Baildyr-Tugai to Fort Perovsky, a distance of more than 400 miles, the river flows between low banks which are submerged when the waters rise. During

* This is the local name for part of the range; further on, the range is called Kagart-tau, Jasi, Suok-tau, &c. In the most recent Russian map (1876) the range is called the Ferghana Mountains.

these inundations the banks of the river are transformed into reed-grown swamps varying from 1,000 yards to 3 or 4 miles in breadth. The width of the river in this part is already very considerable, viz., from 300 to 600 yards. The depth is seldom less than 21, but is often as much as 35 feet. The rapidity along the main channel is not less than 3 knots, and reaches even 5, equivalent to $4\frac{1}{2}$ miles an hour.

At Fort Perovsky the breadth of the river is about 300 yards, and when its waters are at their lowest level the depth is $17\frac{1}{2}$ feet. The rapidity of the stream is 3 feet per second, 6 and even 8 at times, according to the season of the year, which determines the influx of water into the river.

Besides this the rapidity of the course varies even during the day. The greatest rapidity is in the morning, about 10 or 11 o'clock; then it diminishes until 2 P.M.; after which it again increases, and towards evening attains sometimes the rapidity of the morning.

Owing to the considerable velocity of the stream and the sandy-mud bottom, the water constantly becomes muddy, but clears rather quickly; it is very sweet, and has no deleterious effect on the health, either of the natives or of travellers.

As the sectional area of the river averages 8,224 square feet, taking the rapidity of the stream as 3 to 8 feet per second, the volume of water per second will be 312,500 cubic feet, that is 21,588,000 pounds (Russian), or 1,948,950 gallons. This calculation gives a pretty fair idea of the size of the river, and of the vast body of water which it discharges into the sea. But the dimensions of the Syr Darya are very much increased during the floods, which occur several times a-year.

The inundations of the Yaxartes, due to the influx of water, are not regular in their periodicity. On an average we may assume that there are three principal inundations; the first commences in March immediately after the thaw of the ice, and lasts for about ten days. The influx of water at this time is very large. The second influx of water commences in May, when the snow in the mountains melts with the summer heat, but this flood does not take place every year, nor is it generally very extensive. After this the level of the river falls until June, when the greatest inundation occurs, which often overflows the banks for a considerable distance. Afterwards the level of the river commences gradually to fall; occasionally the waters come in once more in August, but not always, and only for a brief period.

A few miles below Perovsk the Yaxartes divides into two streams, the Jaman Darya and Kara-Uziak. The Jaman Darya forms the principal arm of the Yaxartes, but at the same time is very much more shallow, in consequence of the division of the mass of water into two streams. The Jaman Darya (bad river) has a very tortuous course, is full of banks and false channels, so that at low water a boat with a draught of 2 feet is only able to navigate it with difficulty. The little water in the Jaman is the chief obstacle to the development of navigation on the Yaxartes.

The Kara-Uziak (the other branch of the Yaxartes) is quite unnavigable. At first, for a distance of 24 miles it flows in a deep regular channel, giving off some effluents to the right and left; further on it spreads out into an innumerable number of reed-grown swamps and shallow lakes, and after passing Lake Kok-aryk, these inundations, 60 or 70 miles in length and 10 to 20 in breadth, branch at first into several arms, and afterwards unite in one bed, which extends for 50 miles as a deep regular river. At Fort No. 2, the Kara-Uziak joins the Jaman Darya, and the two streams after their reunion receive their former name of the Yaxartes.

From Fort No. 2 to the mouth, the navigable channel of the river is straight and deep, so that it is accessible to boats of considerable draught.

The embouchure of the Yaxartes forms three estuaries; the principal body of water, separating at the mouth into three branches, flows chiefly through the centre branch, but here also the navigable channel is narrow, has little water, and each year changes its direction from the clay and sand drift, which is carried down by the rapid course of the stream. The depth of the navigable channel nowhere exceeds 3 feet; the northern and southern branches have so little water that the Kirghiz ford them.

The Yaxartes is covered with ice at the end of November, and thaws at the beginning of March, consequently it is only navigable for nine months in the year. Unfortunately the navigation is not capable of great development. The impediment which has hitherto stood in the way (and probably will long continue to do so) is the small volume of water in the Jaman Darya, through which pass all the boats proceeding up and down the river. In order to overcome the difficulty, various measures have been adopted at different times. Thus, for example, some of the more tortuous sinuosities of the Jaman have been cut across with canals, for the purpose of increasing the fall of the river; works were commenced for widening the effluent Kitkan-su, which

connects the Kara-Uziak with the Jaman, while a project was submitted for clearing out the Kara-Uziak of its reeds and other growths. But none of these measures entirely attained the object. In order to navigate the Yaxartes with success, it is considered important to dam the Kara-Uziak, which was formed accidentally within the remembrance of the local Kirghiz from the flow of the waters of the Yaxartes into an arik. But even were the damming of the Kara-Uziak successfully effected, the navigation of the Yaxartes would probably be little improved. The banks of that river in summer are almost untenanted, because the whole of the nomad Kirghiz population removes at that season to the interior of the steppe, in order to escape from the innumerable mosquitoes and flies. The sandbanks at the mouths of the Yaxartes present more difficulty to the passage of boats than those in the Jaman. The principal navigable channel at low water has a depth of not more than 2 or $2\frac{1}{2}$ feet, and only at full water does it attain $3\frac{1}{2}$ or 4 feet; besides which, it is very narrow, muddy, and subject to frequent change. The sandbanks commence 10 miles from the Aral Sea, and are almost continuous. The silting up of the mouths proceeds from deposited sand or mud. To this cause must be ascribed the formation of the island of Kos-aral, which covers the issue of the river into the sea. The left mouth of the river, or the Shavarly, is very shallow and overgrown with reeds. The principal bed of the right mouth lies between a sandbank, stretching from Kos-aral northward and the nearest islands to it; the navigable channel passes close to the bank. Another arm of the right mouth lies between the islands and the peninsula of Anadym. The appearance of these islands, their size and the direction of their arms, are, like the navigable channels, subject to frequent change from the influx and efflux of sea water due to the wind, from water coming in or going out of the river, and from ice.

At the present time there is only the Imperial flotilla on the Yaxartes, instituted in 1853 for the transport of Government stores and property. But the steamers are very unsuited for the navigation of this ever-changing river; they have a large draught and little power, so that when proceeding up stream with barges in tow they can scarcely make headway against the rapid current; hence their speed is very moderate—not more than $2\frac{1}{2}$ to 4 miles an hour.

Cost of coal
for flotilla.

To these drawbacks may be added the extreme scarcity of fuel. The steamers of the Aral flotilla (head-quarters Kazalinsk) use either anthracite, obtained from the Don, and costing nearly 2 roubles the poud (£11 a-ton), or the local saksaul, which forms the principal fuel for the garrisons of the forts on the river and the local inhabitants. But saksaul grows very slowly, and is not to be had in abundance, so that in the present day it has to be brought 60 miles to Kazalinsk and 25 miles to Perovsk. According to Rear-Admiral Butakoff, the quantity of saksaul growing on the Yaxartes is so small, that if much used it will only suffice for a few years.

The Tatarinoff coal mine, opened in the mountains, near Chemkent, and the Pervushin mines, at Tashkent, may perhaps supply the wants of the flotilla in fuel.

The Yaxartes is not passable everywhere, as its banks are in many places inundated and overgrown with reeds, and in other places are intersected by numerous canals.

The Kirghiz of the Yaxartes are in general excellent swimmers, and this fact accounts for the absence of any artificial means of passage, which consist exclusively of reed rafts called *sals*, and a few bad boats. These boats were either built in Khiva and brought to the Yaxartes by way of the Aral, or else in Ferghana. They are like flat-bottomed ferry boats, with double prows, some 28 to 50 feet in length, and 21 inches to $4\frac{1}{2}$ feet in depth. In crossing the river the boat is dragged by swimming men or horses. In going up stream a tow-rope is used; in going down the boat is propelled by poles, which take the place of the rudder and oar. Towing in the river is difficult; in some places the men have to make their way through thick reeds, in others they have to pass many canals, great and small, some deep, others shallow, full and empty.*

It has been already mentioned that the bed of the Yaxartes is not continuous, but divides near Perovsk into several branches; at the same time a general description has been given of two of its chief branches, the Kara Uziak (black stream) and Jaman-Darya (bad river). Besides these two branches there are several others about which we will now speak.

About 20 miles from Perovsk there separates from the Yaxartes the Ber-kazan branch or Sagazy, which has a breadth of 45 yards at its source, and a depth of 10 feet. The bed of the Ber-kazan is not continuous, but extends as a succession of reed grown inundations and lakes, bearing different local names, and at last disappears in the Kara-Uziak swamps, having in all a length of 30 miles. The series of small lakes, or more correctly, reaches, which edge the north borders of the Kara-Uziak inundations, leads to

* Maksheef, "Description of the Mouth of the Syr Darya."

the belief that the Ber-kazan extended more to the westward than at present, and in all probability joined the Kara-Uziak not far from its mouth.

The Ber-kazan branch itself is narrow and has flat banks; during high floods, therefore, water issues from the Yaxartes and inundates a large tract called the Ber-kazan inundation. All this low tract is overgrown with reeds. When the water falls in the Yaxartes, the low ground dries up and the branch as well. Water only remains here and there in the pools, and these also dry up in autumn. Along the margin of the Ber-kazan inundations, to the east and north, runs from Sary-cheganak (a bend of the Syr) a road called formerly *Razboinichei*, because in olden times gangs of Kokandies passed along it to plunder the Kirghiz who nomadised near these inundations. In the present day this road is overgrown with saksaul and prickly grass.

Below Fort No. 2, the Yaxartes forms some more unimportant branches and streams, such as the Kazala, 45 yards broad and 14 feet deep. Its water is so expended in inundations and aryks that there is ultimately no defined bed and it flows as a scarcely visible canal.

From the lower course of the Kazala, branches to the north the valley of the Aigerik, considered one of the most fertile localities along the Syr. Here the Kirghiz have carried on agriculture from time immemorial. The Aigerik valley is 15 miles long; its greatest breadth is 7 miles.

Besides this there separate from the Yaxartes at different points the branches Ututliau, 45 miles in length, falling into the Aral, the Kak-aryk, and some others.

We purposely left out the two principal effluents of the Yaxartes, the Yani Darya and Kuvan Darya, so as to speak of them in detail.

The Yani Darya (or Jani Darya) is the south branch of the Yaxartes, and falls into the Aral at its south-east part. According to tradition, this river was formed artificially at the end of the last century, when the Karakalpaks, driven from the lower part of the Yaxartes by the Little Kirghiz horde, had to seek a fresh locality for their abode. Part of the Karakalpaks proceeded up the river and quickly dug a large canal for agricultural purposes, from which was formed the branch of the Yaxartes called at first Karakalpak Darya and afterwards Yani-Darya (new river).

The Yani-Darya separates as a branch of the Yaxartes from its left side, about 4 miles from Perovsk. From its commencement as far as Kutkunchuk, the course of the river is westerly, after which it flows to the north-west as far as the Batpak, but beyond that, to the south-west, its course is very tortuous, along a bed 180 yards broad. The banks of the river are mostly flat, and in many places overgrown with reeds. On the higher ground saksaul grows in abundance. The water of the river is pure, sweet, but rather muddy; its course is very gentle.

At full water the Yani overflows to a considerable distance as far as the stream called Batpak-utkul. The water issues here from the bed of the river, partly in canals, and partly in the effluents called the Batpak-utkul and Sultan-kan-uziak; this latter stream issues from the Yani-Darya on the left bank, about 9 miles from its source.

The Batpak-utkul separates from the Yani as a broad estuary overgrown with reeds. This stream joins the inundations of the Kuvan Darya.

The Kuvan Darya separates also from the Jaman Darya, not far from Perovsk, and trends in a continuous bed towards the south, as far as the ruins of the old fort Kul-ike, on the bank of the Kuvan; after proceeding about 16 miles, the Kuvan divides into three arms, and forms an inundation overgrown with reeds. In the whole extent, from its source to its separation into arms (about 35 miles), the Kuvan is deep, and is about 70 yards broad. The rapidity of its course is from one to two knots. The banks are low, covered with reeds and partly with grass.

The continuous inundation formed by the Kuvan extends about 45 miles from east to west, and 12 miles in breadth.

Near this inundation, about 50 miles from the old Fort No. III, stood formerly the ruined Khivan fort of Hodja-niyaz. Here, as the Kirghiz relate, the Khivans obstructed in 1847 the course of the Kuvan by building a dam so as to keep the nomad Kirghiz away from the fort. In fact, beyond the ruins of Hodja-niyaz is seen the dry bed of the Kuvan, which extends as far as the Aral Sea. Winding through the salt plain, and among the sands, the bed of the Kuvan has the appearance of a rather deep ravine, 35 yards broad. The banks of the bed are low, and from there being no water in it, are completely barren. About 6 or 7 miles from the Aral Sea, the bed of the Kuvan separates into several branches, which lose themselves in reeds.

The dry stream of the Daryalik connected formerly the Jaman with the Kuvan; it was upwards of 80 miles long.*

* Maksheef.

The lower part of the Yaxartes is infertile and uncultivated, and not until we have passed Julck do we meet in places Kirghiz fields; the cultivated region cannot however be said to commence until the town of Turkestan. Here the numerous affluents of the Yaxartes enable agriculture to be carried on. Occupying the first place as regards fertility is the Tashkent, or more properly the Chirchik rayon, the granary of the Syr Darya district. This locality owes its fertility to the abundance of water, which the Chirchik, the most important affluent of the Yaxartes, bears along its deep bed, and to the number of aryks dug from it.

The Chirchik takes its rise in the mountains of Ak-sai (western continuation of the Alexander range), eastward of the Kara-bura pass, from the junction of the two rivers Chatkal and Pskem; from this place to the furthest mountain village of Sailik, a distance of 25 miles, it flows along the bottom of a narrow and deep defile, from which no aryks are cut. But about 3 miles from Sailik the receding mountains give room for its waters, and here it gives off the ancient and large Zakh-aryk. Rapidly falling and opening out, the valley of the Chirchik at Tashkent has a breadth of 25 miles, and presents a swampy reed-grown locality, intersected by numerous arms and canals bearing the general name of Sary-su (yellow water). In its further course the Chirchik valley approaches nearer and nearer to the valley of the Angren, the second important river of the Tashkent rayon. Below Kunduzok there is no water parting between the valleys of the Chirchik and Angren. Both valleys merge into one, and the Chirchik falls into the Yaxartes, about 7 miles from the dry mouth of the Angren, also an affluent of the latter river.

At this place the Chirchik flows rather slowly, and along a clay bottom. The Angren, exhausted by the numerous aryks cut from it, never actually reaches the Yaxartes. Its valley, up to then always full of water, is here dry and sandy in parts, and always overgrown with prickly shrubs.

The combined valleys of the Chirchik and Angren are terminated somewhat higher up by some low, almost flat spurs of the Kurama mountains, which end in the Dihanata hills.

Along the other side of these hills stretches the Angren valley, renowned for its fertility. From Turk to Kindjagal, surrounded by mountains, it extends as a narrow band of rice fields, in the midst of which are seen here and there hamlets nestling amid clumps of trees. The spurs of the receding mountains form a second terrace to the valley. On it are scattered villages surrounded with gardens and corn fields.

The valley of the Angren at Karis commences to lose its original character. The lower part of the valley is covered with stones, and there are no rice fields. The upper terrace passes into a high undulating steppe, in places under cultivation, and as it approaches the Yaxartes gradually becomes more dry and sandy.

On the other hand, the arm of the Angren called the Kidjigen, preserves longer the original character of its valley, and only beyond the Buké district cuts for itself a deep bed between high banks, dry and sandy.

These two valleys, watered by the Chirchik and Angren, form without doubt the most rich, fertile and populated part of the Kurama uyezd. The long valley of the Keless is not without importance. Taking its rise from the junction of seven rivers in the mountainous locality called Jiti-su (seven rivers), the Keless flows south-west for a distance of 90 miles to the Yaxartes, bordered on either bank by a rather broad fertile valley, covered with rice fields, particularly in the neighbourhood of Tashkent.

The left bank of this part of the valley is bordered by low clay sand hills, which form the water-parting of the Chirchik and Keless, while the right bank, of much greater height, forms part of the high waterless steppe, which, intersected by ravines, extends along the whole of the north-west end of the Kurama uyezd, enters the Chemkent uyezd, and ends at the Aris valley. As we approach this valley, the steppe falls considerably; fresh wells become more and more frequent. This steppe, deserted in the Kurama uyezd, is well populated in the Chemkent uyezd, by wealthy tribes of Kirghiz, the Kungrad and Sergalia.

In speaking of the valleys of the Angren, Chirchik, and Keless, it should be stated that both the Angren and Keless, and particularly the latter, are indebted to a considerable extent for their water to the Chirchik, which through the Zakh aryk fills the Keless, and, through its broad arm the Kara-su (black water), gives water to the Angren. In this way the Chirchik is the chief source of the water of the Tashkent rayon. Its large volume of water is remarkable, even at the sources, where each of the affluents of the Chirchik, the Pskem, Chatkal, Ters, San Alasha, Kok-su and others, has more water than the Keless, while in that respect the three former do not even yield to the Angren.

Tashkent also partly uses the water of the Chirchik; from the Chirchik separates above Niyazbek the Boss-su branch, which flows through Tashkent. The Boss-su in its turn gives off the branches Kara-su and Salar, which feed all the aryks of Tashkent.

We will close our topographical sketch of the Syr Darya Province by a few remarks upon the Aral Sea, the only great water basin of Central Asia. Unfortunately it is far from affording those advantages which its appearance leads us to expect. It lies between infertile and sparsely populated shores. THE ARAL
SEA.

The Aral Sea, or more correctly the Aral lake, is about 270 miles long from north to south. Its breadth in the widest part is 180 miles. The area of the district which it occupies is approximately 23,000 square geographical miles. Its surface-level is 48 feet above the ocean, or 132 feet higher than the level of the Caspian Sea.

The Aral lies 170 miles east of the Caspian Sea, on the western border of the broad lowland of Turan. The colour of its water is blue, agreeable enough to the eye, but to the taste it is bitter salt, although not to the same extent as the water of an open sea. This proceeds probably from the considerable influx during the year of fresh water from the two very large rivers of Central Asia, the Yaxartes and Oxus. The sea itself is included between the mouths of these two rivers, and hence, as is supposed, it received its name *Aralu-dengiz* or *Aralu-kul*, i.e., the central sea or lake.* The Arab and Persian geographers called the Aral, *Buhairish-Harezmi*, or *Buhairish-Urgenduz*, i.e., Harezmi or Urgendj Lake. The Russians called it in old times *Sinoye More* (Blue Sea).

The west shore of the Aral is formed by the declivity of the plateau of the Ust-Urt; it is rocky, rises to a height of 500 feet above the sea level, is steep and inaccessible, whilst the opposite slope of the Ust-Urt merges imperceptibly into the steppe. There are no transverse ravines here. The slopes are green in places with saksaul, and the low ground near the sea, with reeds. Occasionally springs are found, which attract the passing caravans. On the west shore of the sea are met with here and there the remains of ancient fortifications.

The north shore of the Aral in places is rocky and steep, but elsewhere it is a flat low lying plain, covered with hillocks of drifted sand, mingled with shells. Not far from the north shore of the Aral extends the desert of the Great and Little Barsuks, where the Kirghiz nomadise in winter.

The east shore of the Aral is low, sandy, and covered with reeds. Sandbanks occupy a considerable area, extend far into the sea, and fill up nearly all the space between the banks and the nearest islands, leaving only a very shallow channel. In order to give an idea of the shallowness of the east part of the Aral Sea, it is sufficient to say that the Kirghiz with their flocks can wade to the island of Kut-Jitmess, situated 8 miles from the shore; in other places at a distance of 3 or 4 miles from the shore the depth of the sea does not exceed 5 feet.

The mouth of the Yaxartes, like the majority of steppe rivers, is encumbered with sandbanks, between which the channel does not remain constant, as the river brings down much mud and sand, which causes the mouth to silt up more and more. In spring, when the Yaxartes is getting rid of its ice, the latter accumulates at the mouth and over-spreads the sand-banks. The water rushing under the ice scoops out the sand from underneath and forms a new bed, which again silts up in the summer and undergoes fresh changes. Sometimes the channel is very narrow and tortuous, but in other years it keeps straight with the course of the river.

The bay in the Aral Sea, Sari Cheganak, which stretches far to the north-east, is probably the remains of a strait into Lake Aksakal Bardy.

The south shore of the Aral Sea is altogether low; its east half is sandy and infertile, and from here the land falls from the high plateau of the Urt-urt to the low plain of Khiva. In the west part of the south shore, the Oxus enters the lake with numerous arms.

The south part of the Aral is not frozen every winter, and immense numbers of birds winter here. But in other places the Aral freezes every winter near the shores, and the ice is strong enough for camels to move over it without danger. This circumstance is due, besides to the rigorous climate, to the fact that the water contains very little salt near the mouths of the Yaxartes and Oxus. There are many fish in it, the sturgeon, shad, and there are also seals. The reeds of the eastern shore are full of tigers. There are quantities of pheasants on the banks of the Aral, as also on the banks of the Yaxartes.

The middle and all the western part of the Aral is very deep.

The prevailing wind on the Aral is the north-east; it blows with varying force at different times of the day; on this account the sea is subject to squalls, which are very unfavourable for the navigation of flat bottom boats and those of light draught. There are scarcely any harbours sheltered from the wind.

* *Dengiz*, sea; *kul*, lake.

The local Kirghiz divide the Aral into two parts, the little sea (*Kichkine-dengiz*) contained between the island of *Kug-aral* and the north shore, and the large sea (*Ulu-dengiz*), *i.e.*, the remaining part on the south.

Besides *Sari Cheganak Bay* there are others of importance:—*Perovsky*, between the peninsulas of *Kuk-ternak* and *Chubar*, and *Chubar-tarauz Bay*, between the peninsula of *Chubar* and the western shore. The latter bay is the best anchorage ground in the whole sea. Besides, on the west shore, there is the large bay of *Chernisheff*, and on the south *Taldyk Bay*.

Near the eastern, and partly near the southern shore of the Aral are several islands. Thus in the north part the islands of *Biyurgundy* and *Kug-aral* form *Nesselrode Bay*. At the mouths of the *Yaxartes* lies *Kos-aral*, partly connected with the shore; and southward of it on the eastern shore, lie the islands of *Kaska-gulan*, *Kut-Jitmess*, *Lebyajy*, *Atalyk*, *Menshikoff*, *Ermoloff*, and many other smaller ones, which are specially numerous between the mouths of the *Yaxartes* and *Yani Darya*, which fall into *Tshebass Bay*. This bay, however, is more correctly a reach of the river, as it is formed by the small islands, which, filling up a considerable part of the bay, form numerous shallow straits. The islands on the east shore are nearly uninhabited, and only very few of them are frequented by the Kirghiz in summer with their camels and sheep.

Along the steep western shore of the Aral there are no islands, but in the middle of the sea there are the important islands of *Barso-kilmass*, *Naslednik* (*Crown Prince*), *Nikolas*, and *Constantine*, *Bellinshausen*, and *Lazareff*, and in the south bay of the Aral, the so-called *Lake Aibugir*, lies the island of *Tokmak-ata*, which closes the entrance into this bay.

The island of *Barso-kilmass* is comparatively more fertile than the rest. Here the Kirghiz frequently winter, and some pass all the summer here, cultivating millet, corn, and maize.

The *Kara-kalpaks* and Kirghiz frequently drive their flocks across the ice to the island of *Barso-kilmass* and other islands, in order to take advantage of the pasture.

According to the natives, there is a terrible whirlpool in the middle of the Aral, and the waters of the Aral pass into the Caspian by an underground channel. By this they endeavour to explain the fact that the level of the Aral remains constant, although the *Yaxartes* and *Oxus* bring down a large body of water. The real cause is of course due to the physical law, that if rivers flow into any water, the latter continues to fill up, and increases in area until its surface is of such an extent that the quantity of water yearly evaporated equals the quantity brought down by the rivers which fall into it.

The other lakes in the Kirghiz steppe may be divided into fresh lakes, called by the Kirghiz *kaks*, and bitter salt lakes, the remains of a sea which at one time covered the whole surface of the steppe.

The fresh-water lakes are chiefly confined to the north part of the Kirghiz steppe; one of the most important is the *Chilkar*, opposite the Cossack village of *Budarin*; its area is about 80 square miles.

Of the salt lakes the most important is the *Inder*, about 8 miles from *Ural*, opposite the *Gorsk* advanced post. This lake is about 40 miles in circumference, and affords at all times of the year crystallised salt, of very good quality.

Another salt lake is the *Arys*, situated in the waterless steppe to the north-east of *Perovsk*. Although the lake is very large, and is not far from the *Yaxartes*, along which are Russian settlements, still on account of the infertility of the surrounding locality it is only worked by the Kirghiz.

Besides these lakes, there are in the Kirghiz steppe the following salt-lakes:—*Makhtyr* and *Korsak-bash*, near *Fort Orenburg*.

Not less numerous are the lakes in the east part of the Kirghiz steppe, the former district of the *Siberian Kirghiz*. They may also be divided into fresh-water, bitter, and salt. The principal are the *Balkhash* and *Ala-kul*, which have been previously described.

Zerafshan Circle.

Administrative Divisions—Approximate Boundaries and Area. **OROGRAPHY**—Turkestan Range—Passes through Turkestan Range—Roma—Vadif—Tro—Yani—Sabak—Yarkut—Kuhdf—Pastigau—Metke—Ugut—Obyrdan—Auchli—Ustanaki—Shuntish—Vishab—Shavit—Palut—Rarz—Jspan—Puthin—Mishkat—Tannin—Liungar. Zerafshan Range—Passes through Zerafshan Range—Tavastpbin—Revut—Huzun—Surkhatt—Darkh—Minora—Marda—Kishitbe—Fan—Kshitut—Magian—Sangi—Juman—Kara—Tiube. Hissar Range—Passes through Hissar Range—Yarkitch—Piobrut—Vadif—Pakshif—Novobot—Jebe—Balan—Chukat—Anzob—Kishir—Jijik—rut—Mura. **HYDROGRAPHY**—Zerafshan—Upper Zerafshan—Fan—Yagnob—Iskander—Su—Middle and Lower Zerafshan—Miankal Valley—Ak—Darya—Kara—Darya—Kashka—Darya. **POPULATION**—Early Central Asian History—Greek Conquest—Chinese Conquest—Turk Sovereignty—Arab Conquest—Persian Rule—Yugor Conquest—Chingiz Khan—Timur Leng—Uzbeks—Tadjiks—Sarts—Persians—Arabs—Hindoos—Jews—Liuli—Mazan—Jugi—Hodjas.

In May and June, 1868, the Russian troops occupied the eastern part of Bokhara, viz. the towns of Samarkand, Urgut, and Katta-kurgan, with their environs. At the end of June these districts were formed into the *Zerafshan Circle*. Towards the close of the same year the town of Pianjkend was added, and in the course of 1870–71 the bekates of Falgar, Machin, Fan, Yagnob, Kishitut, Magian, and Farab were also consolidated into the same circle.

Administra-
tive Divi-
sions.

At the present time the circle consists of three districts. That nearest to Bokhara is called the Katta-kurgan district, the Samarkand district occupies the central part, while that to the east, organized only in 1872, is called the Pianjkend district.

The circle is situated on the river Zerafshan, commencing from the sources of that river, and runs nearly due east and west. The eastern point of the circle lies on a meridian somewhat to the east of the meridian of Kokand; the western is not far from the town of Katta-kurgan.

The north frontier is coterminous with the boundaries of the Kizil-kum, then with those of the Hodjent uyezd (with which the Jisakh was joined in 1871), and with the south part of the province of Ferghana. The east frontier lies on the mountains of Kok-su, which are covered with eternal snow, and devoid of inhabitants.

The southern frontier touches the bekates of Karategin, Hissar, Shahr-i-sabz, and Karshi.

On the western frontier lies Bokharian territory, *i. e.*, the Zindzin circle, and the Hatyrehli bekate. On the west and north it partly touches the Nurata bekate.

The area of the circle is about 10,000 square miles, of which about one-half is mountainous.

Approxi-
mate area.

In the Upper Zerafshan the inhabitants mostly occupy themselves with cattle breeding; agriculture is a secondary occupation. This is partly due to the climate and partly to the want of suitable ground. In the summer nearly all the population migrate to the mountains, where, in the defiles, at a height of 8,000 to 10,000 feet they pitch their camps, and their flocks and herds find abundant grass.

The agricultural products include wheat, barley, millet, peas, vetches, and beans; in the gardens, apricots, peaches, apples, grapes, mulberries, in abundance.

The river Zerafshan, for the greater part of its course is surrounded by mountains; only in the west, when in Bokharian territory, does it escape from their trammels. **OROGRAPHY.**

The mountains surrounding the sources of the Zerafshan are the western continuation of the Tian Shan.

Passing to the south of Issyk-kul, the Tian Shan, after giving off a range which fills the south part of Semirechia, the east and south-east of Syr Darya, and the north part of Ferghana, runs in a south-west direction, and separates the last-named province from Kashgar. After reaching the south-east confines of Ferghana, the Tian Shan takes a westerly direction, branches into several ridges of considerable size, and forms the water-partings of the rivers flowing into the Yaxartes: the Zerafshan and the Oxus.

The ridge which separates the waters of the Yaxartes from those of the Zerafshan* lies as follows:—

Turkestan
Range.

* The Zerafshan belongs to the basin of the Oxus, although it never reaches that river, being exhausted by irrigating canals.

Passing to the south of Kokand, Hodjent, and Ura-tiube, this ridge of mountains diminishes in size and height as it approaches the west. Bordering on the north the Zerafshan circle, and known in that part as the Nurata Mountains, it ramifies in several low mountain chains. These give place to others smaller. One of these chains passes to the north of the Katta-kurgan district, and of the Hatyreh and Kerminch bekates. Decreasing in height more and more, this ridge never reaches the meridian of Bokhara, as it merges into the steppe. Another low ridge, not far from the village of Temir Kabak, extends in a north-west direction until it touches the Bukan Mountains. These latter stretch westward and lose themselves in the Kizil-kum. Such in general features is the direction of the ridge which forms the water-parting between the rivers Yaxartes and Zerafshan, and which is generally called the *Turkestan range*.

To the south and south-east of the town of Kokand, in the upper basin of the Oxus, lies a locality of the highest interest in a geographical respect. Here must be solved the question as to the connection existing between the mountain masses which divide the waters of the Oxus, Yaxartes, Tarim, and Indus.

In the south part of the Province of Ferghana the Tian Shan is called the Alai or South Kokand Range. The height of the mountains in this region exceeds the limits of eternal snow.

We have seen above that the east frontier of the Zerafshan circle commences at the mountains of Kok-su. Kok-su is a mountain knot. At this knot ends one of the most elevated ridges of the Alai, and here also commence the mountains which accompany the course of the Zerafshan and its upper affluents, and the rivers which give their waters to the middle Surkhab.

We shall speak only of the mountains of the Upper Zerafshan.

To the north of this river passes a chain of mountains which has been called the *Turkestan range*. To the south of the river Zerafshan, commencing from the Mountains of Huibas, stretches a ridge which usually bears the name of the *Zerafshan range*. This ridge in some places is intersected by mountain rivers (Fan, Kishtut, and Magian), forming superb defiles. In its west part it separates the middle course of the Zerafshan from the upper part of the Kashka-darya. As has been previously seen, it extends as far as Jam, after which it loses itself in a succession of low hills.

Near the Kok-su Mountains commences the *Hissar range*. It separates the basins of the rivers Dehemiliaudil (Deheli-alaudin) and Surkhab from the sources of the Zerafshan proper.

Commencing at the mountains of Huibas, up to the town of Huzar, the Hissar range separates the waters of the Yagnob, Iskander, Kishtut, and Magian rivers, and the upper part of the Kashka from the rivers which flow south to the Oxus.

All these ranges in their east part are exceedingly high, and above the limit of eternal snow. Towards the west they decrease in height, the Hissar range remaining the more lofty and finer range.

THE TUR
KESTAN
RANGE.

The Turkestan range commences as a broad belt somewhat to the east of the meridian of Kokand. From its commencement in the east to the meridian of the Ura-tiube mountains it has a very considerable elevation above the level of the sea. On the meridian of Hodjent isolated peaks rise to upwards of 20,000 feet. In its east part it has some large glaciers, of which the Zerafshan glacier is the most important. The west margin of the glacier is only 3,675 feet above the level of the sea; the east margin, according to native statements, lies near the Kok-su mountains. The extent of the glacier is estimated at 25 to 40 miles; its breadth at the commencement is upwards of 800 yards. It entirely closes the valley.

Into it lead several lateral glaciers of smaller size. The surface is studded with cones of various sizes; there are several moraines, containing boulders of rock which are foreign to the neighbouring mountains.

The Turkestan ridge, within the limits described, does not consist of a compact mountain mass, but of mountains placed in terraces, and intersected sometimes by rather deep valleys which run parallel to the ridge. On the meridian of Ura-tiube lies a very important valley, connecting the village of Mitke with that of Auchi, and passing beyond to the road leading from Ura-tiube to Varziminor. It separates one of the advanced spurs of the mountains from the main chain of the Turkestan range.

The passes over this latter range are as follows:—

(1). Not far from the Zerafshan glacier is a pass leading to Kokand, called *Alhba*^{*}-*Roma*.—Very difficult. Glaciers. Connected with No. 3.

Passes.
Roma.

* *Alhba*, pass.

(2). *Vadif Pass*.—Road to pass commences from the Zerafshan at the village of Vadif. Vadif. Difficult even on foot; above eternal snow. Connected with No. 3, beyond the snow-range.

(3). *Tro Pass*.—Road leaves the river Zerafshan near the village of Lianlif, thence Tro. along the river Tro, ascending to the pass, which is only accessible in summer. From Lianlif to the highest point of the pass is 20 miles. From Zerafshan to the town of Kokand by this road is a little under 100 miles.

Village of Lianlif to pass	..	..	..	..	21 miles.
„ Voruk ..	..	..	..	..	21 „
„ Char-ku ..	..	..	..	..	16 „
„ Isfara ..	..	..	..	..	16 „
Town of Kokand	..	..	..	..	24 „
				—	98 miles.

(4). *Yani-Sabak Pass*.—This pass was traversed twice by a Russian detachment in 1870. Its highest point is 13,278 feet above the level of the sea. Glacier on the pass. Descent from the pass to the valley of the Yaxartes exceedingly steep. The troops proceeding by it to the Zerafshan had to use ropes to help the men, horses, and mules in the ascent; otherwise it would have been impossible to move. The road leading to the pass commences about 2 miles to the east of the village of Tavshin, on the banks of the Zerafshan. The defile is about 7 miles long, and is traversed by a mountain stream. Then commences the pass. Beyond the pass the defile broadens, subsequently becomes a narrow gorge, along which flows the Hodja-Bakirgan, called in its upper part Djete-kupruk (“seven bridges”), as it is crossed by seven bridges. This gorge, with exceedingly steep sides, extends for about 5 miles. On leaving it the road bifurcates; the east branch leads to Liailiak. Between the pass and the mountain gorge there is plenty of underfoot grass and wood in tolerable abundance: archa (juniper), birch, mountain-ash, &c. Water everywhere abundant. This road, as already mentioned, is very difficult, and only suitable for horses and mules, not for camels. The inhabitants of the villages of Tavshin and Sabak (4 miles east of Tavshin on the Zerafshan) have relatives in Liailiak, and with them nomadise in the mountains. This gloomy and desolate mountain region would appear to have no attraction for man, yet in summer time the place is a great resort for the nomads. This is explained by the circumstance that grass in this part is abundant at a height of 7,000 to 10,000 feet, whilst in the Zerafshan valley there is hardly any pasturage for cattle.

(5). *Yarkut Pass*.—This pass lies about 11 miles from the river Zerafshan. The road leading to the pass leaves the Zerafshan, about 2 miles from the village of Liangaryuz; passing along the river Yarkut, the road enters the pass, which is practicable for horses with difficulty, and only for a short summer month; then along the Sarkat defile to the village of Dinau, and onward by the Ak-su to Nau. From this road a path branches in the Sarkat defile, leading through a side pass, Mareng-bel, to the village of Andarak.

(6). *Kuhdif Pass*.—Road and pass (on foot only) exceedingly difficult and dangerous, even in summer. In winter no communication. Road commences at the village of Kuhdif, and ends at Dinau.

(7). *Pastigau Metke Pass*.—The road connecting the valley of the Zerafshan with Ura-tiube by this pass, commences at the village of Pastigau. From Pastigau to the pass is about 6 miles. The pass is exceedingly difficult, and only practicable in summer. About 16 to 20 miles from Pastigau are the villages of Metke and Hodja Metke, belonging to the Hodjent uyezd. The descent from the pass is very difficult. Commencing over compact ice and snow, it leads by a steep path serpentine amid bushes of the juniper, &c. The first village on the north side of the pass is Hodja-Metke, near which lies Metke. The mountains which accompany the north descent of the pass, consist of strata of silicious schist; quartz, sandstone, and limestone being met with in places; further on masses of conglomerate are found. From Metke the road passes along the bank of a small stream which flows into the Ak-su; afterwards along the bed of the latter river. Near the village of Dolket the road bifurcates, the eastern branch leads to Nau, the western to Ura-tiube. Commencing from this village, the western leads by a steep ascent, and after rising to a considerable height, descends to the north. The rest of the road to Ura-tiube presents no difficulty. This town is reached by way of Mudgin (village). From Pastigau to Ura-tiube it is 50 miles. It has been already mentioned

that the Turkestan range consists of mountains rising in terraces. This formation is well seen in that part of the range over which this road, and others to the west of it, pass. The town of Ura-tiube lies in the mountains, to the north of which extends a mountainous plateau. The town is at an elevation of 2,700 feet above the sea level. On the south side of it, at a distance of 3 miles, is a high mountain chain. This chain branches from the mountains which divide the valley of the Sanzar from the Ura-tiube rayon. It runs in an east-west direction, and forms the southern boundary of the terrace-like heights which rise to the north. On this plateau lie the majority of the villages of the town of Ura-tiube. The breadth of this plateau is about 16 miles. A mountain chain commences at the village of Yangi-aryk, rising to a height of 9,000 to 10,000 feet. This chain is separated from the main ridge bordering the Zerafshan, by a longitudinal valley. This valley commences about half a mile to the west of Metke, and runs westward past the villages of Ugut and Auchi, cutting the Auchi-Obyrdan road, and eventually reaching the Ura-tiube-Varziminor road. The length of the valley is from 20 to 25 miles.

Ugut. (8). *Ugut Pass*.—The road upon which this pass is situated commences at the village of Komodon, on the right bank of the Zerafshan. Through the Komodon defile it leads to the pass, and then descends into the defile of Tengri-Ugut to the village of Ugut. From here it bends westward to the village of Auchi along the longitudinal valley previously described, and from Auchi through the Bismandi defile to the town of Ura-tiube. This road is comparatively good.

Obyrdan-Auchi. (9). *Obyrdan-Auchi Pass*.—The road traversing this pass connects the village of Obyrdan, on the Zerafshan, with the town of Ura-tiube. From Ura-tiube to the village of Yangi-aryk the road is level; it gradually rises to the north. The distance is 18 miles. At the village of Yangi-aryk commences the Bismandi defile, along which flows the river of the same name. This stream issues from the valley which connects Metke with Auchi. It thus breaks through the advanced chain of the Turkestan range. The length of the defile is 8 miles; the rocks at the sides of the defile rise high and abrupt. They consist of schist, the beds of which are in some places horizontal, but for the most part tilted at various angles. Above this silicious schist are met with divers other rocks. Along the western margin of the defile for about 4 miles has been cut an aryk, skilfully made with wooden supports and other means.* The defile leading to the pass commences at Auchi, and strikes in a south direction. As far as Obyrdan there are no villages. The road ascending to the pass is narrow and bad. The height of the pass is 11,200 feet. The descent on the other side, into the valley of the Zerafshan, is steep at first, but is easier afterwards. Near the south end of the pass issues a stream which gives its waters to the Zerafshan. From the top of the pass to the river is not more than 5 miles. Road good.

Ustanaki-Shamtich. (10). *Ustanaki-Shamtich Pass*.—The road leading to this pass commences about $1\frac{1}{2}$ miles west of Shamtich, on the banks of the Zerafshan. In the summer horses can proceed to Auchi, about 12 miles. The pass itself is 5 miles from the river. The road is difficult and dangerous; from Auchi the road is good to Ura-tiube and Shahrستان.

Vishab. (11). *Vishab Pass*.—Road starts from a point not far from the village of Vishab, and passes along the east bank of the river Obi-Vishab. The ascent to the pass is sloping and not difficult. From Vishab to the pass 6 miles. From the pass to Auchi, 18 miles; road good, descent easy. This road may be used in winter.

Shavit. (12). *Shavit Pass*.—From the Zerafshan village of Shavit-bal, a path leads through a pass to the north into a longitudinal valley, connecting Metke and Shahrستان by way of Auchi; 16 miles to Auchi.

Pahut. (13). *Pahut Pass*.—Bridle-path commencing from the village of Pahut, on the Zerafshan. Passing along the Pahut defile, the road leads to Auchi. Difficult and possible only in summer; pass snowy, and not easy of access.

Rarz. (14). *Rarz Pass*.—The road leading through this pass commences near the village of Rarz, near the Zerafshan. Skirting the left bank of the Obi-Rarz, the road rises to a snowy ridge, and along the Khanjei-tau ravine, it descends into the Shahrستان defile. A bridle-path, possible only in summer, and very difficult of access. Twenty-one miles to Shahrستان.

Ispan. (15). *Ispan Pass*.—Commencing from the village of Fatma, on the Zerafshan, the road leads to a pass through the Nan-Forgan mountains, and the village of Ispan. Crossing the snowy mountains, it descends into the valley, to the Shahrستان defile. Pass exceedingly steep and stony descent. To Shahrستان, 16 miles. Road is only visited in the summer.

Puthin. (16). *Puthin Pass*.—Road leading to pass commences at the Zerafshan, near the

* The Ura-tiube district is ill provided with water.

village of Taumin. Trending through the Puthin ravine, the road for 10 miles traverses a pass by a steep and dangerous ascent and descent. To Shahristan, 24 miles.

(17). From Senkistan, a village near the right bank of the Zerafshan, there is a foot path to the Shahristan defile across a snowy range. Shahristan.

(18). *Hishkat Pass*.—The road leading to this pass connects Varziminor with Ura-tiube by way of Shahristan. It is the most beaten track between Ura-tiube and Falgar. Two roads lead to the pass. The first commences at Hishkat, and leads to the mountains along the Hishkat defile, alongside a stream. It is a very good road. The second starts from Varziminor, rises to the mountains of Tobiss-tag, crosses the defile of the Obi-Bar river, and after traversing the mountains by steep and long ascents, enters the Hishkat defile. The junction of the roads lies about 3 miles above the village of Hishkat. The second road is far more difficult than the first. To the pass from the Zerafshan is 11 miles. Ascent to the pass easy, descent very steep. Pass lies 17,700 feet above sea level.* Hishkat.

(19). *Taumin Pass*.—The road traversing this pass commences from the Zerafshan near the village of Dardar. Ascending along the Taumat-sai defile, and over the mountain ridge it enters the Kizil-Mazar district, and joins the preceding road. Used only in summer. To Shahristan, 33 miles. Taumin.

(20). *Liangar Pass*.—This pass leads from Urmitan to Zamin, and Ura-tiube. The road starts from Urmitan on the Zerafshan, and by a low, easy pass, leads to the Liangar defile. On the other side of the pass it descends into the Obi-kul defile; for 7 versts the road leads eastward, crosses low mountains and descends to the river Kizil-Mazar. After traversing in the same direction a low spur, the road strikes the Machit river. Passing Katta-Shibar the road rises to the Kum-bol pass, and thence along the course of a small mountain stream, issues into the Shahristan defile. Near the river Obi-kul, a road separates, which leads to Zamin. The pass is practicable in summer. To Shahristan 40 miles. The branch of the Zamin road from Obi-kul is 16 miles long. Liangar.

From the description of these passes, it is plain that all, with two exceptions, are difficult and lie at great heights, so that in the east part of the ridge they are fewer in number than in that part which lies between Obyrdan and Urmitan. The eastern passes are far less accessible than the western, as the range diminishes in height from east to west. The Yani-Sabak pass lies at a height of 13,600 feet, and the Shahristan 10,700 feet. In the mountains, water is abundant, in places there is wood, and at a height of 7,000 to 10,000 feet excellent pasturage.

Commencing from the meridian of Urmitan, the Turkestan range strikes to the north-west in a broad belt, filling the east and north parts of the middle Zerafshan. Falling considerably near Jizakh, the range divides into several chains, which extend along the southern border of the Kizil-kum. From the meridian of Urmitan, the range divides into two branches, encasing the Sanzar valley. Its south branch, the more elevated, passes to the town of Pianjkend. Here there are several passes, connecting the valleys of the Zerafshan and Sanzar. The north branch bends towards Jizakh. Along the road from Samarkand to Jizakh, lies the lowest part of this range. Here passes the so called *Jilan-Uti* defile, called by the natives the gates of Tamerlane.

Along the right side of the Zerafshan, and the left of the Sanzar, stretches the mountain ridge of *Usmat-katartal*. These mountains are less than 6,000 feet above the sea level, and dip considerably near the fort Kamenni Most "Stone bridge." To the north-east of them, stretches the low *Sanzar range*, easily passable. To the north-west of the above-mentioned road is a belt of mountains, called by the general name of *Nurata* mountains. They, as we have already seen, branch into several low chains, Godun-tau, Karak-tau, Ak-tau, and Kara-tau.

The Nurata mountains are not high, seldom attaining 7,000 feet. The Ak-tau are the highest. Through them the passes are numerous, and suited for carts, which mode of communication is quite impossible in parts of the Turkestan range east of Pianjkend. The mountains, both on the north and south, descend in terraces, forming high plateaux; they are barren and there is no wood. Grass is not abundant.

From the mountain-knot of Hui-bass, nearly due west, stretches the Zerafshan range. Separating the valleys of the Upper Zerafshan from the Yagnob-darya, this ridge on the meridian of Varziminor is pierced due north and south by a very deep valley, with narrow and perpendicular sides, through which dashes the mountain stream Fan. In this part the range is very regular, and has considerable elevation above the level of the sea. THE ZERAFSHAN RANGE.

* Besides these, there is another pass between Ura-tiube and Falgar, the Mirza Ulian. A very difficult mountain track. Good water and grass.

The chief passes are as follows:—

- Passes.*
Tavastphiu. (1). *Tavastphiu Pass.*—The road leading to this pass commences at the Zerafshan at the village of Hairabat on the left bank. Following the Tavastphiu defile, it passes the nomad summer haunts of Ustau, Hukimi, Hishkat; after traversing the pass, 12 miles distance from the Zerafshan, the road descends to the valley of the Yagnob-Darya, to the district of Sengi-mailek. Length of road 16 miles. It is tortuous, not difficult for riding, but practicable only in summer. Pass relatively easy.
- Revut. (2). *Revut Pass.* A footpath traversing this pass commences at the Zerafshan village of Isiz. Passing along the bed of the river Revut, it crosses the ridge after 12 miles, and after 2½ miles more enters the Yagnob district of Sengi-Mailek.
- Huzun. (3). *Huzun Pass.*—The road leading through this pass commences at the Zerafshan village of Hodjishahr; it passes through the villages lying on the stream which flows in the Huzun-sai defile: Pud, Haz, Ravass, Huzun; then it leads into the valley of the Yagnob to the village of Novobott.
- Surkhatt. (4). *Surkhatt Pass.*—Commencing at the Pastigau gardens, near the Zerafshan, the road leads to Tamshin along the defile of Surkhatt, and through the villages of Surkhatt and Arnagun rises to the pass. To the pass it is 12 miles. Road difficult and only practicable in summer. From it to Tagichenar 5 miles.
- Darkh. (5). *Darkh Pass.*—About ½ mile west of Shantich a road leaves the Zerafshan in a nearly south direction, which forms the chief means of communication between the Machin villages and the villages in the Yagnob valley. Entering the Darkh defile, the road passes along a narrow ledge, about 300 feet above the bottom of the river defile. After 5 miles it enters a broad valley, and eventually reaches the village of Darkh at the junction of two mountain streams. Here the road branches in three directions. The easternmost leads across a snowy pass to the village of Bidin; the centre one also over a snowy pass to Varsaut, while the western road passes along a narrow defile, through which rushes a mountain stream, and rises to the pass (13,000 feet). To the pass, from Darkh, for a distance of 7 miles, the road is bordered by excellent pastures. In places there are woods. After a mile there is a second snowy ascent, one mile in length. Thus the entire ascent is 2 miles. From the snowy pass the road descends steeply into the Yagnob valley to the village of Kishartab. The entire road is 16 miles. From Shantich to the pass is 14 miles.
- Minora. (6). *Minora Pass.*—The road on which this pass is situated separates from the Zerafshan valley road at the village of Falmaut, and rises to the pass along a defile, through which dashes a mountain stream. The pass lies at a distance of 12 miles. It is covered with snow and is difficult of access. After crossing the ridge, the road bends to the eastward and passes along the defile of the river Liulian to the village of Kishartab. The whole road is 16 miles in length.
- Marda
Kishtihé. (7). *Marda Kishtihé Pass.*—Leaving the Zerafshan valley road at the village of Rarz, the road passes over a bridge thrown across a river and leads to the pass along the Margelak defile. At 12 miles it reaches the summit of the pass, descends to the valley of the Pshans, and after 5 miles reaches the village of Tak-fan. It is a bridle path of some difficulty.

From the foregoing description of the passes, we see that the Darkh pass is the most convenient of access, although it presents considerable difficulty. From this we may conclude that this part of the Zerafshan range is wild and little accessible. But here also, as in the east part of the Turkestan range, there are excellent pastures and all the convenience for summer nomadising.

The Darkh pass shows that the southern descents are shorter and steeper than the northern. The same thing may be said of the Turkestan ridge. In both ranges the streams flowing to the north are far larger than those flowing to the south.

In those parts of the mountains which enclose the sources of the Zerafshan, are found coal, iron ore, gold, alum, and sulphur. Gold is found along the entire course of the river in the form of small grains and thin leaf. Sulphur is found in the *Kan-tagh* mountains, north-east of Sarbad. Iron ore and coal are found in beds about 4 miles from Sarbad up the Yagnob.

On the meridian of Varziminor the Zerafshan range is furrowed by the Fan, and more to the west by two affluents of the Zerafshan: the Kishtut and Magian rivers.

Fan. The *Fan pass*, in its northern part, commences near Varziminor, about 1½ miles to the east of the point where the Fan throws its rapidly flowing waters into the Zerafshan. This wild and narrow defile presents great impediments to passage. The commencement of the defile is at a height of 4,500 feet, its end, at Sarbad, 6,300 feet. Its length to this point is 16 miles. Passing along the east side of the Fan, it crosses to the west

side by a bridge, called Pul-i-Mullah, the Mullah's bridge. A path* serpentine above the river over rocks and along a dangerous cornice. The sides of the defile present the highest interest to the geologist: beds of various sandstones, white layers of gypsum and marble, schist and granite, with seams of coal in places.

This pass connects Ura-tiube, Falgar, Fan, and leads past lake Iskander, and through the Mura pass (in the *Hissar range*) to Karatag, in a valley which belongs to the basin of the Oxus.

The old fort of Sarbad is at the junction of many mountain roads, by which the neighbouring countries are connected.

The *Kishtut pass* commences at the point where the river Kishtut falls into the Kishtut. Zerafshan, near the village of Dasht-i-kazi, and leads due south past the old fort of the same name. Traversing the Hissar range a little to the east of the Sibirurkh pass, it leads to the mountains of Karatagh.

Stretching to the west from the Fan defile, and enclosing on the north the Shahr-i-sabz valley, the Zerafshan range gives off several chains to the south-west and south. The range here does not have that regularity of form which distinguished its eastern part. The range has a very considerable elevation. The Kishtut pass, leading from the valley of the *Pasrut* to the valley of the *Kishtut*, lies at a height of 11,340 feet. Some of the peaks are as much as 18,300 feet (Chabdar).

The *Magian Pass*.—Commencing at the Zerafshan village of Sujin, the road past Magian. the village of Suphian leads through a steppe country to the village of Charbak. After crossing to the right bank of the Magian river, the road enters low mountains, and near the village of Kostarash winds through a narrow defile to the junction of the river *Shin*. Following the right bank, it rises to the Vachena mountains. Before reaching the village of Heizan, the road passes to the left bank and through the village of Hurmi to the village of Magian. From this point it follows the upper waters of the Magian, traverses a very difficult pass in the Hissar range, and reaches the Bokharian village of Sari-jui.

From the point where the *Shin* joins the Magian there leads a road in a south-east direction to the Karatagh mountains. It passes along the course of the Shin and traverses the Sibirurkh pass.

To the west of the Magian pass the Zerafshan range is separated from the Hissar range by the Shahr-i-sabz valley.

The highest part of this section of the Zerafshan range is on the meridian of Pianjkend, 10 miles south of Magian.

South of Magian the mountains form three high peaks, beyond which lies Mount *Hazrat Sultan*, 15,000 feet.

At the Magian defile the range gives off long spurs, from which flow the sources of the Kashka-Darya.

The chief mass of the range trends westward, preserving its general direction. On the meridian of Urgut the mountains are still high, but to the west they gradually decline, and can be traversed with ease.

The *Saugi Juman Pass*.—The road through this pass commences at the town of Saugi-Juman. Urgut. It is the principal channel of communication between Farab and this town. Passing near the village of Hish-duvan, it leads towards the village of Hus (3,560 feet), beyond which it rises and falls with difficult ascents and descents, and thence by zig-zags over naked rocks. Before reaching the pass the road descends somewhat to a mountain stream. The pass itself is at an altitude of 7,110 feet, so that in winter there is no communication. Descent difficult. Road passes through village of Musa-bazar to Farab.

At the foot of the ascent to the pass a road separates to the eastward, leading to Magian.

Somewhat to the east of this road there is another from Pianjkend to Farab, very difficult for horses.

The *Kara-tiube Pass*.—Means of communication between Samarkand and the principal Kara-tiube towns of the Shahr-i-sabz Valley, Kitab and Shaar.

From Samarkand the road passes over a level country to the village of Kara-tiube (20 miles). The pass lies 7 miles to the south. It is not difficult, and is practicable throughout the year. Beyond the pass the road leads to Kitab (13 miles). The town of Shaar, the most populous and important in Shahr-i-sabz, lies a few versts to the south of Kitab.

The mountains between the Kara-tiube defile and the *Jum* pass are covered with Jum. snow in winter. Their height is 7,000 feet. It is a compact mass of mountains falling considerably towards Jam. Many defiles to the north and south.

* This was the route taken by the Iskander-kul expedition in 1870.

Jam Pass, at the end of the Zerafshan range.—Beyond it the mountains pass into hills and merge in the steppe. The roads through the Jam district are very important. The chief trade route, and the only one for carriages from Samarkand to Karshi, and thence to the Oxus, passes through this defile. Through Jam lies the chief channel of communication between the city of Bokhara and the Shahr-i-sabz valley. From Samarkand to Jam is 43 miles. From the latter to Karshi, 53 miles.

- THE HISSAR RANGE. The valleys of the rivers Zerafshan and Kashka-Darya are bounded on the south by a high chain of mountains called the Hissar range. This range commences at the mountain knot of Kok-su. Trending nearly due west it leaves the east border of the Zerafshan range at the mountain of Huibass; further on it takes a south-west course, and at the *Haki* mountains again resumes its west direction. From the mountains of Kshir it runs south-west, stretching as far as the Bokharian town of *Huzar*. In its east part it separates the waters of the upper Zerafshan from the rivers flowing into the middle *Surkhab*. Further on it serves as a water-parting of the rivers Yagnob and Iskander, and of the rivers of the Hissar bekate. At its west end it separates the basin of the Kashka from the basin of the Shirabat and the river Baisun.
- Passes. The following are the roads and passes leading through these mountains to the valley of the upper Oxus, commencing from the east:—
- Yarkhitch. (1). *Yarkhitch Pass*.—The road upon which the pass is situated connects the upper Zerafshan with the valley of the Dehemiliaudin. It commences a few miles west of the glacier, on the valley road; passing along the Obi-kadjra defile, filled with glaciers, it enters the snow pass, accessible only for a short time in summer. The road and pass are exceedingly difficult for pack animals. Descending from the pass, it divides into two parts—the east leads to the village of Nazar-eilak, the west along the valley of the above-named river to the *Surkhab*, a little to the south-west of the village of Sakau, through which it passes. To the *Surkhab* is about 55 miles.
- Piobrut. (2). *Piobrut Pass*.—For foot-passengers. The road commences at the Zerafshan, near the village of Dihisar. As far as the pass (5 miles), it traverses the Piobrut defile. The pass is filled with snow, difficult of access, and only practicable in summer. After traversing this range, the road trends along the bank of the river Obi-Dubursab to the village of the same name. From the pass to the village is 13 miles.
- Vadif. (3). *Vadif Pass*.—For foot-passengers. The road commences at the Zerafshan village of Vadif. Passing along the Vadif defile it crosses the Hissar range, and descends to the village of Dubursa. To the pass is 6 miles; thence to the village 8 miles. Through the village of Didehi, Zia-jangil, one may reach Hodja-chauka; in all 28 miles.
- Pakshif. (4). *Pakshif Pass*.—For pack-animals. Through this pass leads the main road connecting the Macha with Karategin. It is the road from Karategin to Ura-tiube. Commencing at the Zerafshan village of Pakshif, the road, along the border of a small stream, rises to the pass. The pass is double. Descent good. To the pass 7 miles. The road leads to the principal Karategin town of Kala-i-Gharm. This pass is considered the best from the valley of the Zerafshan to the valley of the *Surkhab*.
- Novobot. (5). *Novobot Pass*.—A bridle-path, connecting the valley of the Yagnob with Karategin. The road commences at the village of Novobot, on the bank of the river. It is a continuation of the road leading through the Huzun Pass of the Zerafshan range.
- Dehe-Balan. (6). *Dehe-Balan Pass*.—The road along this pass leads from the valley of the Yagnob to the valley of the river Kafarnihan. It commences at the village of Dehe-Balan, passes along the river Viskhan, and leads through the pass to the village of Romit. To the pass is 8 miles; thence to the village, 20 miles.
- Chukat. (7). *Chukat Pass*.—The road commences at the river Yagnob, not far from the village of Chukat. Ascending by the Tahobi-kul defile, it rises to the pass at 10 miles, takes a south-west direction to the village of Ibol. This village is situated on the upper part of the river Zigdy. From the pass to the village is $11\frac{1}{2}$ miles. Pass snowy and difficult.
- Anzob. (8). *Anzob Pass*.—The road leading through this pass is considered the most convenient for communication between the Hissar villages and the valley of the upper Zerafshan. Commencing somewhat above the Yagnob village of Anzob, situated on the left side of the river, it leads to the pass along the Anzob defile. The pass has long ascents and descents. Its height is 12,000 feet above the level of the sea. It is 7 miles from Anzob. After traversing the pass, the road, after 3 miles, enters the village of Ibol, thus joining the Chukat road. By this latter the chief town of the Hissar bekate can be reached. From Anzob to Hissar is 55 miles (Aminoff).

(9). *Kshir Pass*.—The road commences from the river Obi-Kshir, which intersects Kshir. the road joining the Yagnob villages of Tak-fan and Anzob, and continues, not along the course of the Yagnob, but to the south of the river along the Jijik-rut stream. After crossing the Kshir, the road leads to the village of Zigdy. From Anzob to the pass is 6 miles; from the latter to Zigdy, 5 miles.

(10). *Jijik-rut Pass*.—From that same road, which connects the two above-mentioned Jijik-rut. Yagnob villages, at the stream Jijik-rut, a path separates which leads through the pass to the river Zigdy. Next to the Anzob this is the best pass leading to the valley of the Zigdy. From Tak-fan to the pass is 10 miles; and from the latter to the Zigdy, 7 miles.

(11). *Mura Pass*.—By this pass there is direct communication between the towns Mura. of Ura-tube and Karatagh. It is on that road which leads through the Hishkat pass, the village of Varziminor, along the river Fan to lake Iskander-kul. We have already described the Hishkat pass and the road from Varziminor to the fort of Sarbad. Let us follow it up. From this fort the road, convenient for pack animals, passes south-east along the left bank of the river. Two miles and a half beyond the fort, near the junction of the rivers Yagnob and Iskander, it bends to the south-west, following the course of the latter river. After passing through some Fan villages, the road at the 16th mile commences a long and steep ascent to lake Iskander. This lake lies 2 miles to the south of the ascent. Further on the road is continued to the west shore of the lake, $2\frac{1}{2}$ miles. The path, leading near the lake, is very dangerous, but far easier than that along the bank of the Fan-Darya. Leaving the lake, the road follows the Sari-tag stream. For a distance of 6 miles from the lake pack animals can move with ease. Afterwards it becomes more difficult. Before entering the pass there is a mass of rock. The ascent to the pass is very steep and snowy. After rising to an elevation of 12,000 feet, the road descends to a glacier, presenting great difficulties even for men on foot. Across the glacier leads a path to a second pass (12,200 feet). Descent steep. Road enters the valley of the river Karatagh, and past the village of Hakim reaches the town of Karatagh. From the north shore of the Iskander-kul to the summit of the pass is 11 miles. From the pass to Karatagh, 25 miles. From the south-east side of the lake runs a path leading to the Hanak pass by way of the Sengi-dival defile.

Through the Mura pass leads the road connecting the valleys of the Kishtut and Magian with the Hissar villages. This road traverses the village of Boru, situated on the river of the same name; this river is the chief affluent of the Kishtut.

In describing the passes through the Zerafshan range, we have mentioned the roads which, following the Kishtut and Magian valleys, are continued southward, and traverse the Hissar range. To the west of them there are passes through this latter range, along which lead the roads connecting Fort Yakobak with Sari-jui and Baisun.

From the descriptions of the mountains which surround the valleys of the rivers Zerafshan and Kashka, it has been seen that all the ranges are very difficult in their eastern parts, and that this difficulty diminishes as we proceed westward. The more massive range is the Hissar. It gives off to the south and south-west a mass of high chains covered with eternal snows.

Vegetation and trees are seldom met with; the juniper alone is found. The glaciers are very large, and are the chief cause of the luxuriant growths of the Zerafshan valley.

The river Zerafshan belongs to the system of one of the largest rivers in Central Asia, the Amu-Darya or Oxus. It is of itself an important river, upon which depends the fertility of a broad district, supporting large numbers of sedentary inhabitants. The word signifies "gold-bearing."

HYDRO-
GRAPHY.

The Upper
Zerafshan.

At one time the Zerafshan gave its waters to the Oxus, but in the present day it stops short of it by upwards of 60 miles, and passing south-west of the district of Karakul, the remnant of its waters fall into a lake, called locally Dengiz (Turkish for *sea*).

Thus in a geographical point of view the Zerafshan may be considered one of the important affluents of the Oxus.

The Zerafshan takes its source from an extensive glacier, the west end of which lies at an elevation of 8,675 feet above the level of the sea, or considerably lower than the line of eternal snow. The Zerafshan glacier, according to the natives, extends eastward for 30 to 40 miles; its summit lies near the mountains of Kok-su, which form a mountain-knot. Here meet the west part of the Alai, the east part of the mountain range dividing the Zerafshan from the upper part of the Surkhab, which falls into the Oxus, and the east extremity of the range which forms the water-parting of the Zerafshan and Yaxartes; this range is a prolongation of the Alai.

The Zerafshan is formed by the union of the rivers Fan, Kishtut, Magian, and numerous streamlets which take their rise in the mountains surrounding these rivers.

The river Fan, in its turn, is formed by the union of the Yagnob, Pasrut, and Iskander, which flows out of lake Iskander.

All the affluents, except the above-named six rivers, are insignificant in size; some are 8 or 9 miles in length, and are large only when the snow melts. The small quantity of forest bordering the Upper Zerafshan, called Kohistan by the natives, is the cause of the scarcity of water.

The longitude of the source of the Zerafshan is approximately $70^{\circ} 32'$ east of Greenwich.

The southernmost affluent of the Zerafshan lies $7' 8''$ to the south of an astronomical point fixed on the Iskander-kul.* It issues from a small glacier on the north side of the *Mura* pass, which leads to the valley of the Karatagh, one of the rivers of the Hissar bekate. Consequently the southern limit of the waters of the Zerafshan is $38^{\circ} 55' 36''$ north latitude, and its east limit $70^{\circ} 32'$ east longitude. The mountains of Kok-su are approximately on the meridian $71^{\circ} 13'$.

The river Yagnob takes its rise in the mountains of Huibass, which form a mountain-knot in about $69^{\circ} 47'$ east longitude. This river in its upper course has a south-west direction, subsequently changing to a due west. Its length is about 65 miles. The valley of this river in its upper part is somewhat broader than towards the west, where it flows in places through vertical rocks. Its mass of water is considerable. It is muddy in colour, and serves as the principal source of the Fan.

The Iskander river, Iskander-su, flows altogether for 12 miles from the lake of that name, in a north-east direction. For a distance of 6 miles to the village of Jijyk the river falls in cascades. In comparison with the last-named river it has but little water, and is clear. Its banks are not steep, and the mountains surrounding it are lower than those round the Yagnob.

Lake Iskander-kul, lying at an elevation of 7,000 feet above the sea level, is about 2 square miles in area, and is decreasing in level. From the south-east two streams flow into it, the Sengideval and Hazarmish. From the south-west the most important is the Saritag-darya. The mountains which surround the cavity of the lake bear different names:—Ush-turgardan, Dukdan, and Mahchavat; their lower spurs abutting on the lake are called Sagri-tag, after the village of that name. The higher parts of the mountains afford good building wood. The lake is held by the natives in superstitious reverence.

The junction of the Yagnob and this lake forms the river Fan, which flows due north.

Near Fort Sarbad the Pasrut flows into the Fan. This river takes its rise in the district of Ala-u-din-kul, near the pass which leads into the valley of the Kishtut. This river has an east direction, tending slightly to the south-east. The length of its course is 20 miles. Into it flows a stream which rises in the snows of Chabdar, a mountain-knot 18,300 feet above the sea level. The waters of the stream are of a reddish hue, from which it derives the name of Surkh-ab; the waters of the Pasrut are milky in colour.

From Sarbad the Fan flows between exceedingly steep banks, receives from the right five small streams, from the left three more, and forms a narrow but picturesque defile. Between Sarbad and Fort Varziminor, the river running for a distance of rather more than 13 miles cuts through a high range of mountains, exposing strata of the oldest formations. The course of the river is exceedingly rapid, the colour of the water is muddy, almost as much so as the Yagnob. The river joins the Zerafshan near Fort Varziminor.

The mass of water which the Fan transmits to the Zerafshan is almost as great as that brought by the latter from the eastern part of Kohistan.

On issuing from the glacier the Zerafshan at once becomes deep and broad. The colour of the water, like the colour of all rivers issuing from melting glaciers, is muddy. The course of the river lies at first along a valley, which opens out in places to a width of 900 to 1,000 yards; the valley afterwards becomes narrow, but here and there widens. On the right and left the river receives a considerable number of streams, of which some bring down a considerable body of water. The general direction of the river from its source to the town of Pianjkent is east and west. At first the river flows

* The latitude of the north shore of Iskander-kul is, according to Severtsoff, $39^{\circ} 34'$. The longitude $68^{\circ} 2' 4''$ E from Greenwich.

for the most part in a south-west direction. Thus the latitude of the source of the river is about $39^{\circ} 37' 5''$; the latitude of Mazarka, 12 miles from the source, is $39^{\circ} 32' 5''$. The latitude of Pianjkent is about the same as that of the source of the glacier.

The direction of the Zerafshan as given in Arrowsmith's map in 1830 is quite correct.

In its subsequent course the Zerafshan becomes larger and larger, bearing the appearance of a mountain torrent.

Near Fort Paldorak the valley broadens somewhat. The geographical position of Paldorak (7,961 feet) is $30^{\circ} 26'$ north latitude, and $69^{\circ} 56'$ east longitude.

About 4 miles west of Paldorak, the Pakshif and the Deminora flow into the Zerafshan from the right bank. Along the former passes the road to Karategin through the Pakshif Pass, lying at an elevation of 12,000 feet.

Near the villages of Sabak and Taushin, the valley opens out to a width of upwards of a mile, which continues for an extent along the course of the river of 4 miles. Between these villages, to the north, passes the road to the Kokand village of Lialiak. This road traverses a pass 13,278 feet above the sea-level.

Near the village of Madrushkat, distant 17 miles to the west of Paldorak, and at a height of 7,000 feet, the valley, for a distance of $2\frac{1}{2}$ miles, has a width of nearly 2 miles.

Thence to Fort Obyrdan the Zerafshan flows through a narrow valley, which forms in many places a rocky defile, and near the village of Mudjin divides into several branches.

Obyrdan, as we have previously seen, lies at the junction of the road leading along the valley of the Zerafshan with that running from fort Ura-tiube, through the village of Auchi to the same valley. The geographical latitude of Obyrdan is $39^{\circ} 23' 5''$, longitude $69^{\circ} 2' E$.

West of Obyrdan, at a distance of $5\frac{1}{2}$ miles, a road branches into the valley of the Yagnob, leading through the Darkh pass (13,100 feet).

Beyond Obyrdan, 33 miles to the west, lies Varziminor, 4,592 feet above the sea level.

Obyrdan lies at an elevation of 6,005 feet.

At a distance of $1\frac{1}{4}$ miles to the east of Varziminor, the Fan pours its muddy waters into the Zerafshan.

From Varziminor the river becomes larger and deeper, still, however, retaining the characteristics of a mountain stream.

Near the fort, the Varziminor river flows into the Zerafshan from the right bank. Along this stream passes a tolerable road to the north, leading to a pass (10,700 feet), from which one branch leads through the village of Shahrستان to Ura-tiube (the best road from this place to Kohistan), and the other branch to the valley of the Sanzar. From this latter a road separates to the village of Zamin.

From Varziminor to Urmitan (17 miles) the river flows along a narrow defile, receiving several unimportant streams:

Near the village of Dashti-kazi, 10 miles west of Urmitan, the Hishtut (Kishtut) Darya falls from the left side into the Zerafshan. This river is formed of two streams: the Boru, rising 33 miles from Hishtut, and the Artuch, near the Hishtut pass. At fort Hishtut the streams unite. The Hishtut has a due north course, and has plenty of water. The length of the Artuch is 13 miles. The Hishtut, from the fort to its junction with the Zerafshan, has a length of 6 miles.

West of the river Hishtut, near the village of Sudjin, but from the south side, the Magian falls into the Zerafshan. This river is formed by the junction of two streams, the proper Magian and the Jina. This latter flows along the Shin defile, and is large and rapid.

West of the confluence of the Magian the Zerafshan receives no large stream. On the other hand, it gives off a large body of water to feed the irrigating canals.

As far as the village of Dashti Kazi the waters of the Zerafshan are not drawn upon for irrigation purposes.

The Upper Zerafshan, the Fan, and their affluents, with the exception of the Pasrut, flow, as already mentioned, for the greater part of their course in a deep bed, above which rise the steep sides of the mountains.

The length of the Zerafshan, from its course to the town of Pianjkent, is 150 miles, inclusive of bends; the direct distance between those places is somewhat less than 130 miles. The average fall of the bed between the source and the village of Dashti-kazi is 23 feet in 3,500 feet, or $\frac{1}{152}$.

Such in general outline is the character of the east part of the Zerafshan, a moun-

tain stream. This part of the river, with its affluents and streams, is pent in by mountains which rise considerably above the limits of eternal snow.

The middle
and lower
Zerafshan.

On reaching the meridian of Pianjkent, the river Zerafshan commences to distribute its waters for the irrigation of the fields in the valley. At Pianjkent the river has a larger volume of water than at any other part of its course, but as it receives no further accessions from in-coming streams, it thenceforward commences to diminish in size.

In the central part of the Zerafshan, between Pianjkent and Kutta Kurgan, are situated the *tumens** of the Zerafshan circle, thirteen in number.

In the western part of the river lie the *tumens* of the Bokhara Khanate.

Commencing from Pianjkent, the Zerafshan, for a distance of 36 miles, to the heights of Chapan-ata, flows in one large bed, giving off on the right the *aryks* watering the *tumens* of Shiraz, Sugut, Chalek, and part of Diurt-kul, and on the left the *aryks* irrigating the *tumens* of Urgut, Shavdar, with the towns of Samarkand and Angar.

On reaching the Chupan-ata mountains, about 5 miles from Samarcand, the Zerafshan divides into two channels; the northern is called Ak-Darya (in Tadjik, Darya-safed) and the southern Kara-Darya (in Tadjik Darya-sio). These two branches separate to a distance of 10 or 12 miles, and unite near the town of Hatyrchi, on our frontier with Bokhara.

In this way the Zerafshan forms by its branches an island, constituting the Aparikent and Peishambe *tumens*. This is the most populous and rich part of the valley. The fertility of the soil and the abundance of water are the causes of the extraordinary crops on this island. Here there is not an inch of soil which is left uncultivated; all is worked in the most careful manner. Fields of cotton, wheat, rice, barley, millet, lucerne, planted around with trees, and occasional villages with their gardens; such is the general appearance of the island, which bears also the name of Miankal, or the Miankal Valley.

The Miankal, although it lies between two arms of the Zerafshan, receives only water from one, the Kara Darya. The Ak Darya waters the fields lying to the north of it. The principal *aryks* watering the north part of the valley take their rise much higher.

We have already stated that the irrigation of the Miankal Valley, *i.e.*, of the island part of the Zerafshan Valley, is effected from the Kara-Darya. In order to increase the volume of water therein, a dam is made at the Chupan-ata mountains each summer, which forces the bulk of the Zerafshan waters into the Kara-Darya.† This dam is of great importance for the khanate of Bokhara, as from the Kara Darya separates the great *aryk* Nurpai, which supplies the Zia-udin Bekate and part of the Katta-Kurgan sub-district with water. It is therefore clear that there will only be sufficient water in the Nurpai when there is abundance in the Kara Darya, *i.e.*, only when the dam at Chupan-ata is in order. Hence the Zia-udin and Katta-Kurgan inhabitants mainly look after the working of this dam.

The water of the Zerafshan not only irrigates the fields, but has also manuring properties. The rapid torrent, in its course of 130 miles, washes away much earth from the banks, from which its water becomes turbid. After overflowing the fields, the water deposits this detritus, which is apparently very fertilising. Besides this, the fields are manured also with earth and mud from the swamps.‡

The present main arm of the Zerafshan is the Ak-Darya. We have already said that the main *aryk* which issues from the Kara Darya is the Nurpai, which branches at Aflasi and ends at the fields within the borders of the Zia-udin Bekate. From the Nurpai there enter the Russian frontier the great *aryks* Alchin and Big-Andag, which is on the frontier itself, and the Aveskhor *aryk*.

From the Kara Darya issue the *aryks* Afarnikent, Min *aryk*, Hodja *aryk*, and Kalichevan. The country along the Min *aryk* and Hodja *aryk* is particularly fertile, and was considered by the Bokharian Government to be their most valuable plot. The numerous *aryks* flowing parallel to one another are planted with rows of trees, which give this locality an exceedingly original and picturesque character. Just the same is the thickly-populated locality between Chilek and the Ak-Darya. Here among the numerous villages are huddled the auls of the Kitai-Kipchaks. This locality is called Besh-*aryk*, from the five large *aryks* which separate from the Ak Darya and supply it with water.

Each *aryk*, separating at an angle from the principal *aryk*, *e.g.*, from the Kara Darya or Nurpai, takes afterwards a course parallel to it. Along each of these *aryks*

* An administrative subdivision of the land in Bokhara. Each *tumen* has its Kazi, Mirshab, and Amliakolar. The average size of these *tumens* is from 40,000 to 50,000 acres.

† The dam is carried away each year by the pressure of the spring waters, and is each year renewed by the inhabitants.

‡ A. Fedjenko, "Topographical Sketch of the Zerafshan Valley."

are distributed sometimes as many as ten villages, and to each village there is a special *aryk* from which through smaller *aryks* water is supplied to the fields of each individual. In this way each principal *aryk* has its system of villages; but these systems are not entirely independent of one another, because the water, after watering the fields of one system, flows into an *aryk* which goes further. Consequently by retaining the water in one system, the quantity of it in another is diminished.

Thus the Zerafshan, a rapid and large river at first on issuing from the mountains at Dashti Kazi, gradually shallows, in consequence of a large body being absorbed by the neighbouring fields. Beyond Bokhara it ends in a small steppe lake the Kara-kul.

We have not yet spoken of the rivers which water the fertile Shahr-i-sabz valley.

The principal river watering Shahr-i-sabz is unquestionably the Ak Darya,* which flows from a defile in the Magian mountains. The direction of its course is south-west. At 7 miles from Kitab, the principal town of Shahr-i-sabz, the Ak-Darya separates into two branches; the right flows to Kitab, and the left to Shaar, the second important town of the Shahr-i-sabz valley. About 2½ miles from the walls of the town both branches unite, and the Ak Darya flows westward in one bed.

The river Kashka-Darya flows from the Bashir defile and falls into the Ak-Darya, below the point where its branches unite. On joining the Ak, the Kashka gives to it its name, so that the stream formed by the two rivers pursues its course to the west under the name of Kashka-Darya. It afterwards loses itself in the sands west of the town of Karshi.

The river Jinan, after its issue from the defile at the village of Daob (above Kitab), falls into the Kashka.

The Ulach-Darya, flowing from the pass of the same name, forms a second affluent of the Ak; it enters below the Kashka.

The Shahr-i-sabz (ancient Kesh) plain, the birthplace of Tamerlane, watered by these rivers, is remarkable for its excellent climate and profuse vegetation; hence its name Shahr-i-sabz, or city of verdure.

Up to the year 1871 all estimates of the population were guesswork.

Population.

The following figures are approximately correct, calculating 5 persons to each house:—

	Number of Villages, Hamlets, &c.	Number of Habitations	Souls of both Sexes
Pianj-Kent district	354	14,152	70,760
Samarcand	620	22,945	114,725
Katta-Kurgan district.. .. .	373	19,093	95,465
Total	1,347	56,190	280,950

To these must be added the European population, the population (unknown) of those nine villages in which the number of inhabitants is not shown, and the Afghans, in the service of the former Afghan Emir Abdurahman-Khan, living in the town of Samarcand in 1870:—

Afghans	200
Europeans	7,000
	<u>7,200</u>

Making a total of upwards of 288,000 souls.

The whole circle, as we have already seen, embraces an area of 10,000 geographical square miles; consequently to each square mile there are 28·8 souls.† It therefore occupies the sixtieth place in the list of the 95 divisions into which Russia is divided administratively in point of density of population.

* The names Ak-Darya and Kara-Darya are very often met with in Central Asia. The Shahr-i-sabz Ak-Darya must not be confounded with the branch of the Zerafshan of the same name.

† The population of the Syr Darya province is 4·4 to the square mile, that of Semirechia 4·1 per square mile.

The following are the principal populated towns and villages of the circle:—

	Number of Europeans	Number of Natives	Total
Samarcaud (<i>t</i>)	5,380	32,700	38,080
Katta Kurgan (<i>t</i>).. .. .	1,400	6,450	7,850
Pianjkent (<i>t</i>)	40	2,150	2,190
Urgut (<i>t</i>)	10,200
Penshanbe (<i>t</i>)	4,380
Yuni-Kurgan (<i>t</i>)	850
Chalek (<i>t</i>)	545
Dardar (<i>v</i>)..	1,000
Rarz (<i>v</i>)	1,450
Pahut (<i>v</i>)	1,200
Obyrdan (<i>v</i>)	1,250
Paldorak (<i>v</i>)	1,050
Hishartab (<i>v</i>)	1,000
Arab Khaneh (<i>v</i>)	1,060
Dagbit (<i>v</i>)..	1,980

ETHNO-
GRAPHICAL
COMPOSITION.

Uzbeks.

The Zerafshan circle presents great variety in its ethnographical elements. The chief element is the *Uzbek*, then the *Tadjik*. The latter people belong to the Iran family.

Before enumerating the nationalities peopling the Zerafshan circle, it will be well to say a few words of the Uzbeks generally, as they were the immediate predecessors of the Russians.

The Uzbeks are divided into numerous tribes, and these again are broken up into divisions and subdivisions.

M. Khanikoff in his work on "Bokhara," following the book "Nasiad-Namiati-Uzbekkia," states that there are 97 tribes. Burnes gives 37, which is copied by Vambéry. No two accounts agree. Many of the names of tribes are called after the place in which they live. There are small families which change their name with their residence. Some of the larger tribes, as the Mangits, Mings, Kipchaks, Maimenes, Turcomans, Yuzes, Karakalpaks, Kenegezes, and others, distributed over considerable areas, preserve their names more strictly, although their divisions and subdivisions often take special names and become new tribes.

But the Uzbek, as the conqueror of Asia, seldom acknowledges himself as of another race. An Uzbek remains always an Uzbek, and only in the towns where the Tadjik population predominates does he sometimes transform himself into a Sart.

As has been already stated, Central Asia was conquered by the Uzbeks, previous to the Russians. The Uzbeks found in that part of Asia a most varied population. This variety depended chiefly on two political causes. Central Asia, from time immemorial, formed an attractive bait for various warlike peoples, and besides, lay across the path over which swept the different nations in their migration from East to West, from Asia to Europe. This was the chief cause. The second cause was the constant warfare, not only between the various independent Khanates, but in the Khanates themselves among the various races.

Many nations traversed Central Asia, devastating it, but leaving no visible monuments behind them. This part of Asia was not the goal of their projects; they traversed it because it lay in their way.

Early Central Asian History.

In ancient times, until the appearance of Alexander of Macedon, the districts on both sides of the Oxus belonged to the Persian sovereigns. The Persians left behind them many ethnographical monuments, but whether or no they formed the chief kernel of the population is not known.

Greek Conquest.

The Greeks came next. In the fourth century before Christ they made Central Asia one of the objects of their conquests.

After subjugating Asia Minor, Syria, Egypt, and Persia, the troops of Alexander the Great shortly seized Bactria and Sogdiana.*

Alexander and his generals founded towns everywhere, established Greek settlements, spreading civilization among the wild and uncultivated inhabitants of the occupied countries, and made the civilized world acquainted with the geography of Central Asia.

The exact points to which the troops of Macedon penetrated, and how far the Greek settlements extended, are not precisely known.

* This was the name by which the Zerafshan valley was known. The name is still preserved near Samarkand.

This much is known, however, that the town of Hodjent was under the sovereignty of the Greeks. It was called the Alexandria of the north. In the mountains separating the basins of the Oxus and Yaxartes, were preserved many traditions of the times of Alexander of Macedon, called there Iskander-sul Karnain. In the summer of 1870, during the Iskander-kul expedition, the Russians heard that these traditions were more current in the mountainous districts than in the plains of Turkestan. In these latter parts there exist many literary monuments of the conquests and power of the Greeks, but among the people the traditions of more recent times, *e.g.*, of Timurlane, &c., predominate. This is only natural. In mountainous localities, difficult of access, the population did not suffer so much from the later conquests, which often indeed did not touch them. Hence it would be possible to preserve the traditions of ancient times more completely and in greater detail. It is remarkable, and the fact is generally known, that many of the reigning Beks who live in the mountains at the source of the Oxus, consider themselves the direct descendants of Iskander-sul Karnain. But except these persons, whose descent from Alexander is questionable, there is nothing to show that Greek blood still exists in Central Asia. As regards the ethnography of this country, the power of the Greeks passed away without leaving any traces. This is absolutely true with regard to the Greeks; they do not exist in the population. The question as to when the Iran race commenced to establish itself firmly in Central Asia, which had such a decisive influence on the race-composition of the people, is of importance. Unfortunately, the necessary data for its solution do not exist, but it is held by some writers of repute that contemporarily with the troops of Alexander, masses of the Iran race poured into the valleys of the Oxus and Yaxartes. Settling at certain points they formed the nucleus of a population. They established themselves for the most part in the mountains and populated towns.

We shall not follow the fate of Central Asia from its conquest by Alexander to the conquest of the Arabs. We would observe that after the death of Alexander his monarchy became split up into numerous independent sovereignties, constantly at war with each other.

It is not known for certain when the valleys of the Oxus and Yaxartes were conquered by the Chinese, and how great was the influence of this nation in these parts of Asia. In the dynasty of T'khan in the seventh century after Christ, they were considered the western provinces of the Emperor.* Chinese Conquest.

In the year 571 A.D. we find on the banks of the Yaxartes a large force of Turks, and in the middle of the seventh century, the entire valley of this river was in their power. The Turks left behind them many visible traces. Among the Uzbeg tribes we find Turks. History has not cleared up the question as to who possessed the country south of the Oxus, the Irans or the Turans. Turk Sovereignty.

The conquests of the Arabs, who had adopted the religion of Mahommed and its fanaticisms, were rapid. The object of their conquests was the extension of the true religion throughout the world. Persia, their neighbour, was speedily occupied by them; thence the distance was not far to the Oxus. In A.D. 675 (676) Samarkand was conquered. At the commencement of the eighth century the Arabs were finally established in the valleys of the Zerafshan and Oxus. This people had a decisive influence in Central Asia. They forced the inhabitants to adopt the Mussulman creed. In this respect the activity of the Arabs was most marked; all the subsequent historical destinies which fell to the lot of Turkestan could not efface what the Arabs had given it. Fanaticism flourished, and made the valley of the Zerafshan the most Mohammedan country of the world. Arab Conquest.

Central Asia constituted several districts, which were administered by the lieutenants of the Caliph. The Arabs—at least the majority—led a nomad life, but steadfastly laboured to establish their faith in all parts of the country.

At the present time the Arabs nomadise near Bardanza, to the north-west of Bokhara.

In the Zerafshan circle they became sedentary, and grouped themselves at certain points of the south part of the circle, not far from Samarcand and Katta-Kurgan.

The undivided sovereignty of the Califate over Central Asia lasted until A.D. 888 (889). From that date commences the sovereignty of the Samanidk dynasty. Under the Samanides commenced the revival of the Persian tongue and literature; but concurrently with this the Mahommedan religion received immense impulse, owing to the appearance of a mass of propounders of the teachings of the Prophet, a whole bevy Persian Rule.

* Kabulistan and Kafiristan. All Central Asia as far as the Caspian and the east frontier of Persia was considered by the Chinese as subject to them.

of saints and pundits skilled in the tenets of the Koran. The Iran nationality revived.* The Samanides were far from enjoying tranquillity. Warfare was rife between the different members of the dynasty; they were at war with their neighbours and with their own refractory lieutenants.

Yugor Con-
quest.

In the 395th year of the Hejira (1004-1005 A.D.) the Samanide dynasty collapsed. Bokhara was conquered by Ilik Khan, sovereign of the Yugors, a people of Turkish extraction. The conquest of the Seljukides, who had founded a monarchy of greater extent than the Samanides, did not affect very much the valley of the Zerafshan; still the Turan nationality began to acquire more and more predominance. Under the Seljukides the Iran language held its own in literature and diplomacy; Turkish remained the language of intercourse. The Yugors held East Transoxiana. A threatening force of Mongols was already collected on the frontiers of China. Meanwhile, quite unexpectedly, the dynasty of the Khwarezm (Khiva) sovereigns raised its head. In a short time this dynasty, from insignificance, became powerful. The Khwarezm country, until its invasion by the Mongols, consisted almost entirely of Irans; consequently the aggrandisement of this dynasty was to the advantage of the Iran nationality. In its power it was superior to the Samanides, and almost equal to the dynasty of the Seljukides. Once more the Iran element would seem about to eclipse the Turan; but this time it collapsed utterly. The great Chingiz Khan, at the head of an army of 600,000 men, overran with extraordinary swiftness the valleys of the Yaxartes and Oxus. Everything yielded before him. Towns renowned for their prosperity and civilization were plundered and given up to the flames. The people were partly massacred and partly sent into captivity. The Irans yielded their place to natives of Turkish blood. The Khwarezm dynasty fell; the Mongols became the rulers of Central Asia.

Chingiz
Khan.

Timur Leng.

The Mongols continued to rule over Central Asia for upwards of 200 years. Annihilating the Iran spirit, they gained adherents among the nomad Turan tribes which were nearly allied to them. In the epoch of Timur Leng (1405 A.D.) the Turan peoples reached the zenith of their prosperity. Having conquered the whole of Central and Western Asia, Timur, flushed with the victories which followed his footsteps everywhere, traversed the whole of the south-east part of Europe and nearly all India. The glory of the Turan people rose to the highest pitch; the Irans of Central Asia, while preserving their tribal distinctions, nearly faded away under it. They secreted themselves in the inaccessible mountains of the Tian Shan, at the sources of the Yaxartes, Oxus, and Zerafshan, and established themselves in the towns which were most populous. Timur, holding to Samarcand, which was the capital of his empire, desired to unite there all the spiritual power of the Moslems, and to place it above all other towns, not only of Asia but of the world. The Turkish language became the prevailing one. On the death of Timur, under his successors, the Timurids, the Uzbeks commenced their daring raids on Transoxiana. The Uzbek-Kipchaks ascended the Yaxartes, and reached Hodjent and beyond. After the death of Shahruh Mirza (A.D. 1446), the son of Timur, who had been successful in taking the greater part of the possessions of his father, the lawful representative of the Timurids, was the well-known Uluh Bek, distinguished for his love of mathematics. During the war with his nephew, Alait-Daulat, who held Herat and the neighbouring country, the Uzbek cavalry, on reaching Samarcand, plundered the neighbourhood of the magnificent capital of Timur. In this way the Uzbeks became more and more daring in their raids on the Zerafshan, and, as we shall see, shortly became masters of Central Asia.

Uzbek
Sove-
reignty.

In A.D. 1451 the Uzbeks with their Khan Abul-khair at their head, after intervening in the disputes of the Timurides, took Samarcand and destroyed it completely. After being again established, it once more fell, and with it the whole valley of the Zerafshan, into the hands of the Uzbeks. Neither on this occasion did they establish themselves firmly in the capital of Timur. We will not trace the incessant raids of this Turan people in the valley of the Zerafshan. These incursions ultimately shook the dominion of the descendants of the great conqueror of Asia. In 1499 the Uzbeks, with the renowned Khan Sheibana at their head, ultimately took Samarcand, and deprived the descendants of Timur of their authority in Central Asia for ever. The conquests of this Uzbek hero led to the acquisition, in a brief space of time, of nearly all the Central Asian countries which had become part of the empire of the representative of the Timurides. Around the standards of Sheibana grouped the representatives of the

* Under the Samanides the Iran element acquired great influence. Under the great Samanide Ismael it succeeded in uniting under the rule of Bokhara the Irans of the east and west. In the towns of Merv, Nishapur, Reia, Amol, Kazvin, Istigan, Shiraz, Herat, and Balkh, the lieutenants of Ismael were supreme. This monarch defeated a large band of Turanians under the walls of Turkestan (town), and averted the great danger threatening Bokhara.

Turan people who had deprived the Irans of their predominance in Central Asia. But at length Sheibana was unsuccessful. Allured to Murab, he, with a small band of Uzbegs, was annihilated by the Persians. Nevertheless the success of the struggle of the Uzbegs and Irans for dominion in the valleys of the Oxus and Zerafshan inclined decisively to the arms of the former. With this we shall end our historical remarks. The Uzbegs, as the dominant race of Maveranahr, brought down that part of Central Asia to the lowest and most debased condition. The talents of the separate members of the Uzbeg dynasties were not able to raise these countries to that condition in which they had been under the Samanides and the great Timur. Samarcand and Bokhara, which had been capitals of great monarchies, declined to the condition of barbarous towns, and no longer attracted the neighbouring nations as of yore. The valley of the Zerafshan, along which roamed the nomad Uzbegs, became gradually covered with luxuriant gardens and rich with cornfields, but its population rude and ignorant, fell more and more to that state, of which it is difficult to conceive anything lower. Ever recurring insurrections, wars between the neighbouring districts, even between small bekates, ultimately weakened the political importance of the various Uzbek dynasties, and brought the country to its inevitable conquest by Russia.

We will now pass to the enumeration of the different peoples inhabiting the Zerafshan circle.

Uzbegs.—Of these we have already spoken; they predominate in the central and western part.

Tadjiks.—These people are of Aryan extraction. Of all nations now populating the Zerafshan circle, the Tadjiks are undoubtedly the most ancient. Who inhabited the valley of this river before the settlement therein of the Irans, is uncertain. From what has been already stated, it will have been seen that Central Asia constituted part of the Persian monarchy long before our Christian era. Its constant political relations with Persia were, it would appear, the reason of the valleys of the Oxus, Zerafshan, and the upper part of the Yaxartes being filled with Iran settlers, from whom the Tadjiks have descended.

The Tadjiks of the circle have three appellations: "Tadjik," the more usual; "Tad," applied to those from Merv, and "Sart;" the latter is a general name for all Tadjiks living in the valleys of the Yaxartes and Zerafshan.

The natives derive the name from Taj and Li, *i.e.*, crowned, pointing to the antiquity of the name.

"Sart" means old woman, coward, jobber; it is used by the Uzbegs when the latter express contempt for the Tadjiks; otherwise they call them by their proper name. The Tadjiks affirm that the name "Sart" was given them by the Russians and the Kirghiz subjects of the latter. It is probable that the old epithet "Sart" prevails only in those places where the Kirghiz nomadise. Turkestan, Chimkent, Tashkent, and other towns of Turkestan are surrounded by nomads, and in these towns the word Sart is a customary sound to the ear. But in the towns and villages in the mountains, where there are but few or no Kirghiz and Uzbegs, in the Kurama, Hodjent and Jizakh uyezds, and in the Samarkand sub-district, the name Sart is rarely heard. As we move south from the Yaxartes, the name Sart is heard less and less frequently, and in Shahr-i-sabz and Karshi it is never heard.

The Tadjiks are chiefly established in the east and south-east, and in the towns of Pianjkent, Urgut, Samarcand, Katta Kurgan and Penshambe.

In the former bekates of the Upper Zerafshan, lying to the east and south-east of the town of Samarcand, the greater part of the population consists of Tadjiks; and in the east parts of the valley they are more numerous than to the west. In the mountains the Tadjiks are called Galchas.

Persians.—These are Irans who, in consequence of relations with other nationalities, have not become Tadjiks. The majority of them come from different parts of northern Persia, whence they were brought by the Turcomans as slaves and sold in the bazaars of Bokhara. There are, however, several families of Persians who have voluntarily settled in the valley of the Zerafshan. To the Iranians belong also those who have emigrated from the town of Merv, most of whom came at the time of the Emir Nasr-Ullah. At the court of Bokhara Persians often rise to posts of the highest distinction.

Arabs.—We have already seen how this nationality made its appearance in the Zerafshan valley. The number is not large, but they preserve their type. In the Samarcand sub-district there are about 1,200 in the Angar tumen. In all there may be 3,000 or 4,000 souls.

- Hindoos.*—Chiefly met with in trading towns. Their number is insignificant. They came chiefly from Bombay, Peshawur, Lahore, and Shikarpore. Some are engaged in agriculture, but mostly in trade and as money changers.
- Jews.*—In the town of Samarcand there is a Jews' quarter, and they are also found in other towns. They came originally from Persia. They speak that language.
- Liuli.*—These are unquestionably gypsies. There are about 500 souls of this nationality in the circle. They are nomadic, and are engaged in petty trade, chiefly in horses.
- Mazan.*—Origin unknown. There are about 200 souls in the circle. They live a sedentary life, and are engaged in agriculture and petty trade. They do not intermix with other nationalities.
- Jugi.*—Number not great. They say that they came from Hissar, from the valleys of the Zigdy and Kafarnihan. They are engaged in agriculture, and chiefly as workers in wood : vessels, cart furniture, &c.

From this short outline of the ethnography of the circle, it will have been seen that the predominating nationality is unquestionably the *Uzbek*, and afterwards the *Tadjik*. The *Uzbeks* are engaged in agriculture and cattle breeding. The *Tadjiks* are settled in the Samarcand and Katta-Kurgan sub-districts in trade, but even they take willingly to agriculture. The *Tadjiks* of the Upper Zerafshan are not engaged in trade at all, but breed a large quantity of cattle and till the land.

The *Tadjik* cannot be characterized as a trader. If such were the case, there would exist bazaars in the former bekates of Mach, Fan, Yagnob, and Falgar, and there is not a single bazaar to be found there. The distinguishing trait of the *Tadjik* is his love of peace. Hence he lives in towns and in mountains difficult of access.

- Hodjas.* Besides the enumerated nationalities, there is a special class, the so-called *Hodja*, who considers themselves descendants of Mohammed in the female line. Whether they are Arab, *Tadjik*, or *Uzbek*, it is impossible to say.

The *Europeans* live at four points : Samarcand, Katta-Kurgan, Pijanjkent, and Fort "Kamenny Most" (stone bridge).

At the first place are quartered three frontier battalions, a field battery, a division of horse artillery (four guns), four sotnias of Cossacks, and a detachment of garrison artillery.

In Katta Kurgan there is a frontier battalion, a sotnia of Cossacks, and a small detachment of garrison artillery. At Pijanjkent a small Cossack detachment, and at the "Kamenny Most" fort, a company from Samarcand, and a detachment of Cossacks.

Kuldja District.

General description—Boundaries. OROGRAPHY—Borokhoro—Kucha-tau. HYDROGRAPHY—Ili and its sources—Kash. POPULATION—Taranchis—Dungans—Kirghiz—Torgouts—Kalmuks—Sibocs—Chinese—Solons—Daours—Tatars—Sarts. Natural Products. Roads and trade routes. Chief towns.

Kuldja occupies a naturally rich and fertile valley, lying on both sides of the river Ili, and enclosed between the different ranges of the Tian-shan. The district was at one time in a very flourishing condition, and the population large. When the Chinese Mahommedans of the provinces of Shen-si, Han-su, &c., broke out into open revolt in 1862, the rebellion speedily extended to Kuldja, where the Taranchis united with their co-religionists to throw off the Chinese yoke. After a struggle of two years the rebellion was successful. At first the Dungans assumed the chief power, but after some time the Taranchis, dissatisfied with the subordinate position which they occupied, rose against them and seized the government for themselves. A pretext for a quarrel was now sought by the Russians, who moved a force into the country in 1871, and have never left it. The Chinese shortly after commenced to return.

General description.
Boundaries.

Mr. Schuyler says that the occupation of Kuldja by the Russians, was probably brought about as much by apprehension that Yakub Beg of Kashgar intended to conquer it, as from any fear of the wave of disorder being communicated to the Russian provinces.

He further adds, "Kuldja is by far the richest, best and most beautiful part of Central Asia; besides a very fertile soil, the mountains abound in minerals, and excellent cannel coal is the only fuel."

The province, once well-cultivated, is now a waste.

The territory of the former Khanate of Kuldja may be divided into two parts, of which one was unconditionally subject to the Khan, while the allegiance of the other was somewhat undefined.

The first of these included the basin of the Ili; its frontiers were clearly marked by lines of water-parting: on the north, between the basins of Lake Sairam (Sairam-nor), and the lake or marsh of the Borotala, and the right affluents of the Ili; on the east and south-east, between the basins of the great and little Yulduz, and the basins of the Kungess and Tekess; on the south between the basins of the Uch-Turpan and Tekess; on the south-west between the basins of Lake Issyk-Kul and the Tekess; lastly on the west, the conditional frontier along the river Borohudzir.

The other part of the Khanate had defined frontiers on the south, west and north, but the east frontier was very indefinite; the south frontier is already known; the western ran along the lines of water-parting, between the basins of the river Borotala on the one side, and the rivers Kok-su and Kara-tal on the other; the northern passed along the Ala-tau range as far as Kaptagai, and then along the Barlik mountains;* the east frontier is little known, and there are no natural boundaries in this level, and in some places marshy, district.

The mountains forming the boundary of the south part of Kuldja, belong to the systems of the Ala-tau, and of the Tian-shan. Both of these have been very little explored. As elsewhere in Central Asia, they have no general name. To the north-west of the numerous ranges forming the Ala-tau system, separate the mountains of Borokhoro with the lake of Sairam-nor, lying at a height of 5,000 feet. The south slope of the mountains is furrowed by the deep defiles of the northern affluents of the Ili, the Borohudzir, Usek, Kurgash, and Ak-su. To the east of the Sairam lake the mountains broaden, although at the same time they diminish in height. There are three ridges nearly parallel to one another: the Sary-tau, Kugur and Min-maral, the Kuyuk-tau ridge with the passes of Bogdo and Kok-Kumyr, and the range of Kiz-imchik. Between this range and the mountains of Kanganyn and Kanjik to the north of it stretches a high plateau, over which trends the road to Urumchi. From the south shore of Sairam-nor this plateau is approached over a high saddle.

OROGRAPHY.

Borokhoro
Mountains.

Commencing from the Talki pass to the eastward, the waters of the south slope feed the two streams called Talki, the Sary-bulak (near Suidun), Boro-gobasun, and the Kash. Around the upper waters of the latter, the mountains bear the name of Urukti-tau.

* Some Taranchis call that part of the mountains through which lies the road from Chuguchak to Urumchi, the Tarbagatai.

From the south slope of the whole system project numerous branches, which between Mazar and Chin-cha-ho-dzi take the form of sand-dunes, while between Suidun and Bayandai there is a broad district filled with low chains which fall gradually to the river Ili. The middle of these is called Kumir-tau.* Further east the branches take the form of narrow chains, as for instance the Avral, which separates the basins of the Kash and Kungess.

The whole of the southern slope is rich in copper, iron and coal. The best known and richest beds are found about ten miles to the north-west of Kuldja, near the ruins of Bayandai; there are also others along the middle course of the Kash (100 miles from Kuldja), in the Kumir-tau mountains.

Kucha-tau.

At the sources of the Great Yulduz, there springs to the eastward, from the main ridge, the snow branch of the Kucha-tau. The chief range, however, falls gradually to Urumchi, where by means of low branches, it unites with the range stretching to Barkiul and Kumul (Hami). All the merchants passing by the great trade route from Urumchi through Karashaar to Kashgar are unanimous in their statement that high mountains are not met with at any point of the route.

The mountain system of the Kuldja district separates the valley of the Ili from that of the Tekess. With its south-west extremity it touches the main Tian-shan range (at the sources of the Tekess). In this district it forms a rather narrow, low, and not very inaccessible mountain chain, the east end of which forms with the branches of the Tian-shan the narrow and difficult defile at the lower part of the Tekess. Its north slope, like the Tian-shan, is covered with a dense but rather narrow zone of fir-trees.

The height of this chain is insignificant, and it gradually falls to the eastward. It gives off no branches towards the banks of the Ili. It is said that in former times the Chinese washed gold in the streams on its northern slopes. Not far from Kuldja, on the banks of the Urta-subun, sulphur is found.

Hydro-
GRAPHY.
The Ili and
its sources
(See also p.
21 *et seq.*)

The chief river of the Kuldja district, the Ili, is formed by two rivers, the Tekess and Kungess, the junction of which lies between 30 and 40 miles above Taranchi Kuldja. The Tekess is the larger stream of the two. It takes its rise in a longitudinal valley of the Tian-shan (Mus-tagh), flows westward, and then suddenly twisting to the east, enters a level valley which rapidly becomes broader. There it receives from both sides a large number of affluents, amongst which from the right are the rivers Uch-Kapkak, Musart, and Agiaz,† which are remarkable for their mountain passes in the Tian-shan. Of the numerous affluents of the left bank, it is said that all have convenient roads leading to the river Ili.

It has been already mentioned that the Tekess in the lower part of its course passes through a narrow defile. From this it appears that its broad valley becomes gradually contracted by spurs from the mountain ranges, and is ultimately hemmed in by them. The river here is very rapid and tortuous. The length of the Tekess is about 160 miles.

With regard to the Kungess, this river takes its rise 140 or 150 miles to the east of Kuldja, in the main range of the Tian-shan near to the Narat pass. Its broad valley has from time immemorial been a favourite haunt of the nomad Torgouts, Kalmuks, and Kirghiz. It is moreover important as a route of communication between Kuldja and Karashaar (along the valley of the basin of the river Karashaar). The entire length of the Kungess is about 100 miles.

The Kash.

The river Kash or Kass, strictly speaking, is an affluent of the Ili, but taking into consideration its long course and its mass of water (although of less volume than the two preceding rivers), and also the propinquity of its mouth to the point of junction of the Tekess and Kungess (15 or 20 miles), it may be called one of the sources of the Ili. The headwaters of the Kash lie in the eastern continuation of the Borokhoro range in the mountains of Urukta, about 150 miles to the east of Kuldja. The course of the Kash is almost parallel to that of the Kungess, from which it is separated by the Avral-tau mountains. About 100 miles to the east of Kuldja there is a road from the valley of the Kash to the valley of the Kungess, through the Utu pass in the Avral-tau, the length of which from river to river is 35 miles or even less. The valley of the Kash is of importance to the Taranchis, who are mostly concentrated there. The town of Kuldja is partly supplied with water from the Kash by means of a large aryk. From the right side the Kash receives many affluents.

The river Ili is a large but not a rapid stream; its bed in places is very sinuous and often separates into arms. The banks of the river (particularly the right) are very marshy and overgrown with reeds. Near Kuldja it is crossed by a ferry; when the water however is low, in autumn and winter, there are two fords in the whole district. The first is near Kuldja itself, where the depth is not less than 2½ feet; the second is near

* Tash Kumir means coal.

† Road in the Musart defile.

the ruins of Chinese Kuldja, and is not less than 2 feet in depth. When the water is full there are no fords, and the river is liable to submerge its banks. The Ili receives from both sides numerous affluents, of which, however, the majority dry up in the autumn. Below the Kash, from the right side, the following are the more important: the Boro-gobasun, Sary-bulak, Great and Little Talki, Aksu, Kurgash, Usek, and Borohudsir. The most important of these is the Great Talki, along the defile of which passes the well known carriage road from Kuldja to Urumchi. Of the affluents of the left bank none are of great importance; from west to east they are as follows: Charyn, Uzun-tash, Koss-agatch, Sary-bulak, Sary-chegen, and others. Near the banks of the Ili, particularly on the west side of the district, marshy lakes and ponds are met with, some of which are strongly impregnated with salt.

Of all the nationalities of the upper Ili valley, only the Dungans, and perhaps the Sebes, show a tendency to live in towns, *i.e.*, at points where the inhabitants besides tilling the soil are occupied in commerce, trade, and manufactures. Population.

The Taranchis at the time of the Chinese domination were agriculturists, and have remained so to the present day.

Among the inhabitants of the towns there are also a few Taranchis. There are also some Chinese. In the upper Ili country there are only five towns, *viz.*: Kuldja, Suidun, Tarja, Chin-cha-ho-dsi, and Lu-tsu-gun. All the other settlements in the Khanate are simply agricultural villages.

The population of the Kuldja district is very varied. There are six chief nationalities: Taranchis, Dungans, Kirghiz, Torgouts, Kalmuks, and Sebes (or Siboes), and some others, *e.g.*, Chinese, Solons, Daours, Tatars and Sarts. Of the six chief nationalities, the first three are Mahometans, and the rest are idolaters, following for the most part the teachings of Buddha and Lama.

Of all the peoples now found in the district, the first comers were the Hungarians the remains of whom are now seen in the Torgouts and Kalmuks. According to tradition, the Hungarians occupied this country not less than 500 years ago. But if we are to believe the statements of some Taranchis, the Sarts from Eastern Turkestan (Hodjas) were at this period already in occupation of the south valley of the basin of the Ili (valley of the Tekess, and left bank of the Ili). About half a century back the whole country was subject to the Chinese. The Dungans and Taranchis made an insurrection in common, and the Manchu power crumbled to the dust, never, perhaps to return. Immediately afterwards the Taranchis succeeded in subjugating the Dungans of the upper Ili, and they constituted until the advent of the Russians the dominant nationality of the country.

The Taranchis, by origin Sarts of Altishaar, were removed from thence to the fertile valley of the upper Ili by the Chinese, with the object of making them tillers of the soil, and to punish them for their revolt in the year 1766. Taranchis.

The Taranchis now live in two main groups. The first group is located on the right banks of the Ili and Kash, commencing from the present Kuldja inclusive. This locality is like a garden, in the midst of which are distributed the *kents* (villages), seldom consisting of more than one hundred houses. It is only near to Kuldja that the number of houses exceeds this. Thus in Bulak-bash or Arostan, 10 miles from Kuldja, there are as many as 800; in Baitogoi, 500; at Kash, near the mouth of the river of that name, there are 600 houses. On the left bank of the Kash there are few inhabitants. Altogether in this group there are some 80 kents.

The second group is located along the foot of the mountains bordering the Ili valley on the south. The entire locality is called Honohai. In all there are some 17 kents, the more important of which are called Great Bura and Little Bura, to the east of Honohai; Kainak and Yani-shaar to the north; to the west, Kaldjat, Acha-Nakha, Dulati-Ketmen, Yangistan, Mazar-hodja, and Sary-buguchin. There are also the two kents on the frontier, Dubun and Mazar; the first is opposite Chunja, and the other opposite Borohudsir.

The Taranchis call themselves Sarts, as the word Taranchi (labourer) reminds them of the Chinese yoke. And in point of fact they cannot be distinguished from Altishaar Sarts. The Taranchis are much superior to the Tashkent Sarts, although in character they have much in common: for instance, dissimulation, cunning, and cringing ways; but all these traits, with the exception of cunning, are exhibited by the latter in a less degree. Moreover, they are incomparably more clever, more energetic, braver, and more moral in their home life. They are of middle stature.

The Dungans are supposed to be remnants of the old Uigurs, who colonised the provinces of Han-su and Shen-si in very early times, and remained in the midst of the nation which they subjugated, but became afterwards gradually subject to it, in consequence of its superiority in civilisation and numbers. Dungans.

After settling among the Chinese, the Dungans gradually commenced to adopt their language, customs, manners, and clothing; they moreover took unto themselves Chinese wives. There remained only the one distinction, that of religion. The Dungans have never ceased to be fervent Moslems, although their fanaticism has been much modified by their close contact with idolaters.

Their faces are round, somewhat broader above; the complexion is very white, with rosy cheeks, especially among youths and children; eyes large and expressive. The hair is generally black, but blondes are met with. The women wear their hair in plaits, tied up with some ornament. The Dungans produce a very agreeable impression; they are clever, energetic, gay in manner, but are not without a certain amount of cunning; they are valiant in battle.

During the contests for supremacy with the Taranchis, the Dungans, being subdued by sheer force of numbers, suffered serious defeats, neither their women nor children being spared. During the ascendancy of the Taranchi power, the Dungans were free from all obligations, except that of military service. At the same time the Taranchis endeavoured to expunge the Chinese element from their religion and customs; for instance, they forced the Dungans to cut off their pig-tails, and endeavoured to curtail the liberty of the women.

The Dungans live in the towns and villages along the valley on the right bank of the Ili, between Kuldja and Mazar. The towns are surrounded with rather high mud walls, provided with strong flanking defence. Over the entrance gates are defensive stockades with roofs. In the walls on each side embrasures are cut. The cottages are also strongly built.

Sebes, Daours, and Solons.

The third sedentary nationality in the Khanate are the Sebes (Siboos), Daours and Solons. All of these are of Mongol extraction, and were located on the Ili by the Chinese as military settlers. During the massacre which accompanied the fall of the Manchu power, the Solons and Daours were nearly annihilated; only part succeeded in taking refuge in Russian territory, and now form the majority of the Russian immigrants, partly among their frontier detachments, and partly in the Kopal uyezd.

The Siboes abandoned the Chinese in the hour of danger, and now live at Koldjiher (or Kodjuher), on the left bank of the Ili, between Kuldja and the Chunja post (more accurately between the Taranchi villages of Yanishaar and Dubun). Like all Chinese villages, they are rectangular in form, and surrounded by a wall. This people are thoroughly subject to the Taranchis. Agriculture and gardening are their chief employments.

Kirghiz.

In the upper Ili valley lie the nomad haunts of many Kirghiz tribes, and besides these, there are in the south some Kara-kirghiz of the Bogoo tribe (200 tents). The steppe Kirghiz belong chiefly to the Kyzai and Suvani tribes.

The total number of tents is about 6,000 to 7,000. Nearly all the Kyzais nomadise in the basin of Lake Sairam, and on the river Baratola, in the mountains of Barlyk, and partly on the Tarbagatai; the Suvanis in the same place and on the right side of the Ili valley; while the remaining Kirghiz, Konurburk, Buzum, Aldjan, &c., frequent the mountains separating the valley of the Tekess from that of the Ili.

Besides the Siboes, there are some nomad pagans; these are the remains of the Jungarian race decimated and enslaved by the Chinese. Their representatives are the Torgouts and Kalmuks.

Torgouts and Kalmuks.

The former are little known. They chiefly congregate round Karashaar, and in the valleys of the two rivers Yulduz, which form the Karashaar. A second haunt of this people is the territory of the four Dzian-dzunates of Uliassutai, near Kobdo. Of Torgouts and Kalmuks, there are in all some 40,000 tents. The Torgouts possess immense flocks, and large herds of excellent horses. These horses are small, but very enduring, and well suited for military purposes. In contra-distinction to the Kalmuks, the Torgouts are a strong race, and warlike; they furnish the light cavalry of the Chinese. The Kalmuks now nomadise in the valleys of the Tekess, Kungess, and Kash (above the Taranchi villages). According to the testimony of one of the chief officials of the Khan, the Kalmuks are divided into three tribes, under the rule of the brothers of the last Khan, Abil-Ogla.

- (1). Chakar-sumul* (16 sumuns).
- (2). Arbyn-sumul (10 sumuns).
- (3). Durbun-sumul (4 sumuns).

Both the Kalmuks and Torgouts detest the Taranchis, Dungans and Kirghiz, who

* Sumul means squadron, or 100 to 200 tents.

plundered and massacred them during the war for freedom. They both profess the Lama faith and Buddhism.

Besides these nationalities, Chinese are met with in Kuldja and in other towns. ^{Chinese} Some are slaves, others are engaged in petty trade. There are also a few Champans,* besides Tatars, Sarts from Tashkent, Kokan, and other places.

As regards the number of the population in the upper Ili district, the average number may be taken at 100,000. The Taranchis were calculated by the Chinese at two fumens (fumen is 10,000 dwelling houses), *i.e.*, about 100,000 souls of both sexes; but this figure is evidently excessive. Constant wars have much reduced this number, and they now do not probably number more than from 30,000 to 40,000 souls.

Aristoff gives the number of the Dungans at 10,000, but this number is exaggerated. They inhabit the towns of Suidun, Chin-cha-ho-dzi, Tarja.

There are a few Dungans in Kuldja.

The Siboes live in seven villages, each of which contain 100 to 200 dwelling houses; consequently assuming 5 souls for every house, their average number may be taken at 5,000.

The Kirghiz may be taken at 30,000 to 35,000, the Kalmuks at 30,000, and the Torgouts from 5,000 to 10,000 souls.

Consequently the whole population, exclusive of Tatars and Sarts, may be tabulated as follows:—

Taranchis	30,000 to 40,000	} Total of sedentary population
Dungans	6,000 „ 10,000	
Siboes and Chinese ..	4,000 „ 5,000	
Kirghiz	30,000 to 35,000	} Total of nomad population
Kalmuks	30,000	
Torgouts	5,000 „ 10,000	
Total	105,000 to 130,000	

NATURAL PRODUCTS.

The basin of the upper Ili is one of the most fertile districts of Central Asia; the soil is rich, and with the aid of abundant irrigation and a warm climate produces every sort of growth, while in the mountains there is an abundant store of metals, coal and various minerals. The most fertile part is the valley of the Ili, and the lower portion of the river Kash. We would remark that the country to the north of the Ili is better than that to the south.

Of trees, the willow, poplar, karagash, fir, are plentiful, besides fruit trees of various kinds.

Grain is produced in considerable quantity in the upper Ili valley: wheat, barley, millet, djugari, rice, peas, yasmik, and Indian corn. Of fruits and vegetables, the following are plentiful: grapes, apples, pears, peaches, melons, pumpkins, cucumbers, carrots, turnips, radishes, beet, cabbage, garlic, but no potatoes.

ROADS.

In olden times when the valley of the Ili, Chuguchak, and present Altishahr acknowledged the sovereignty of the Chinese, the chief trade route passed from the interior of China through Kumul (Hami) to Turfan, and thence bifurcated: the northern branch after passing through Urumchi and Manass, struck over the Barlyk hills,† to Chuguchak, Sergiopol, and Semipalatinsk. Along this direction were conducted the trade relations of Russia with the interior of China. The other branch passed from Turfan, through Karashaar, Korla, Uch-turfan, to Kashgar. The Chinese brought their tea this way to present Altishahr, and even further westward to Kokand and Bokhara. At that time the trade routes of the Ili valley had very slight importance; now the state of affairs has changed; the Chinese power waned, and with it trade ceased. On the other hand, the importance of Russia in Central Asia increased considerably. Colonisation has developed, and should by any means Russian trade with the interior of China be renewed, the Chuguchak road will resume its former importance.

* Transported convicts from China.

† The Taranchees call them Tarbagu-tai.

On the other hand, the importance of the trade routes of the Ili valley, under the influence of free trade, would increase each year. The south road, Turfan-Karashaar-Kashgar, which passes through a country over which Chinese rule is not as yet re-established, presents, particularly for the Chinese, much less guarantee of safety, while the increasing population of Semirechia and the trade importance of Tashkent, would unquestionably attract a considerable number of the caravans to this side.

Thus, if these suppositions be true, the chief trade routes are those which unite Urumchi (1) with Chuguchak, and (2) with Tashkent through Verny.

The second route enters the Kuldja country proper at the pass of Talki, and subsequently divides, the main route to Verny passing to the left bank of the Ili, while the other proceeds direct to the Borohudsir settlement. The latter route would only be important for trade when the Ili is difficult to pass (at full water, or when the ice is coming down), as it is much more circuitous than the first, and traverses the Altyn-Imel pass, which although a carriageable road, is difficult in winter.

The town of Kuldja lies away from these main routes. Taking the town as a starting point, there are six main routes, intersecting the upper Ili district in all directions.

- (1). Route from Kuldja to the old Russian post on the Chunja, and thence to Verny.
- (2). The great trade route from Kuldja to Urumchi through the Talki pass.
- (3). From Kuldja to the Borohudsir settlement.
- (4). The great caravan route from Kuldja to Altishahr (the first town of the Ak-su) through the Muzart pass and its branches to the Issyk-kul uyezd.
- (5). The caravan road from Kuldja to Kashgar and to Ferghana, through the Issyk-kul uyezd.
- (6). The caravan road from Kuldja to Karashaar.

The first three are capital cart roads, the fourth is only a bridle path, while the fifth and sixth are suited for camel or horse caravans.

The first road after leaving Kuldja, strikes southward to the passage or ford over the Ili, and preserves this direction approximately to the village of Yani-shahr; thence it inclines to the west, passes near the seven Siboe villages (Koldjiher), and the Taranchi town of Dubun to Chunja, and afterwards by the Ili valley to the river Chilik. The most important obstacles on this road are the passages of the Ili and Chilik. Near Yani-shaar a caravan road branches from this road, and passes through the Issyk Kul Uyezd to Kashgar. From Yani-shahr it leads to the Taranchi villages of Hanohoi, and thence westward along the foot of the mountains, through a series of similar villages, of which the most important is Kaldjat, to the village of Ketmen. Thence to the mountains the road ascends by difficult steep paths, to Ketmen pass, and afterwards descends to the valley of the Chalkodi-su (the sources of the Charyn, or Koheni, or Ak-togai, &c.), and thence through the Kizil-kia pass, to the basin of Issyk-kul. Near Hanohoi, a caravan road bifurcates through the Muzart pass to Altishahr. Beyond Hanohoi this road traverses the fairly easy pass of Su-ashy* (or Sun-ashy), and afterwards issuing into the Tekess valley takes the direction of the Muzart defile. This, however, is not the only road from the valley of the upper Ili to the valley of the Tekess. In the high range dividing them there is a series of convenient passes; but the Su-ashy is considered the best. Besides this there is another way along the bed of the Tekess, but it is only practicable for pack animals, when the water is low, because in the lower part of the Tekess it winds through a narrow tortuous defile, crossing frequently from bank to bank.

A second trade route leads from Kuldja to Urumchi and thence through Kumul (Hami) to the interior of China. This road passes about 7 miles from Kuldja past the ruins of the Chinese fort of Bayandai, approaches the mountains, and enters the sinuous, but gentle defile of the Talki, where there are 26 bridges over this river. After crossing the Talki, the road approaches lake Sairam Nor, and at the same time bends to the east, taking a direction along the north foot of the Talki range. About 120 or 130 miles from Kuldja, it passes through the town of Jenho,† beyond which, about 160 miles, there is a tolerably large town, Manass, inhabited by Dungan; 100 miles or so beyond Manass, is Urumchi.‡ All these figures are approximate, but it will not be far wrong if we put the distance from Kuldja to Urumchi at 400 miles.

Between Manass and Urumchi there are two other Dungan towns. The whole of this route, as also its prolongation into the interior of China, is fit for carts.

* This road in its present state is not practicable for carts.

† To this place from Kuldja, there are two other shorter roads.

‡ Between these two towns lie the village of Kutub, and the town of Sanchu.

A glance at the map will show that this road is very circuitous. The reason of this is the inaccessibility of the Talki range to the east of the pass of that name. Nevertheless, there are, it is said, two passes to the east of Talki, called, Pendjin and Barabosun,* of which the first is the better, but neither of them are more than bridle-paths. On the north side of the Talki range the roads through both passes meet, and issue on the great road at the town of Jin-ho. There is reason for believing that there are more easterly passes still over the Talki range, for example along the defiles of the basin of the river Kash; but in any case their being little known, says much for their difficulty. From the Dungan towns of Suidun and Chin-cha-ho-dzi there are direct cart roads to the Talki defile. These roads, 4 to 5 miles north of the towns in question, unite in the fortified village of Lu-tsu-gun, whence there is a road to the defile, the entrance into which was guarded at one time by a small Taranchi advanced post.

The third carriage road from Kuldja to Borohudsir, and thence through the Altyn-Emil pass to the great Siberian post road, has in the present day an exclusively military and postal importance for the Russians, since the occupation of the Kuldja country. From Kuldja, this road inclines somewhat to the north, and traverses the town of Chen-nan-za, the village of Bayandai, the fort of Suidun, Chin-cha-ho-dzi, and Mazar village, the last of the Taranchi settlements in this direction. On the left bank of the Kurgash, along this road, and further away southward, as far as the banks of the Ili, are seen the ruins of former Chinese villages. The whole of this route is perfectly favourable for carts; difficulties are alone met with at the passages over the rivers, and in some marshy and sandy places, particularly on the river Ussek.

We have still to say a few words on the direct caravan route from Kuldja to Karashahr. There is little information about it. As this route is incomparably shorter than that by Talki, besides its commercial value, it is of strategical importance. From Kuldja it trends up the Ili and afterwards along the Kungess valley almost to its source. In the country about the sources of the Kungess there are three passes over the main chain of the Tian-shan, which here has a north-east direction towards Urumchi. The most easterly and most convenient is called *Narat*; about 13 or 14 miles west of this is the *Dayat* Pass, and 6 or 7 miles further in the same direction is the *Jambil* Pass. It is said that these passes are practicable also in winter. The mountains in this part have no glaciers, and eternal snow lies only on isolated peaks.

The three passes are practicable for camels.

The *Narat* road is said to pass along the sources of the Little Yulduz, but leaves this river soon, traverses a small ridge, and then descends along the valley of the *Balgantai-su*, which falls into the river *Karashahr* (formed of the two rivers *Yulduz*) about 20 miles before reaching the town of the same name. From *Narat* to *Karashahr* is 13 camel marches, *i.e.*, 220 to 270 miles.

Thus the whole distance from Kuldja to *Karashahr* is about 400 miles, whilst by the *Talki* route the distance between these two points is not less than 650 miles.

The river *Karashahr* is formed of the *Great* and *Little Yulduz*; the first takes its rise in the snows of the *Tian-shan*, some distance to the west of the sources of the *Kungess*; the sources of the latter lie in a low range in the vicinity of the *Narat* Pass. It flows at first southward, then curves to the east, and afterwards falls into the *Great Yulduz*, about 100 to 125 miles above *Karashahr*. On the west between the *Great* and *Little Yulduz* stretch the mountains of *Altyn-kazyk*, whilst the basin of the former is separated from the steppes of *Eastern Turkestan* by a snow ridge with glaciers, called *Kucha-tau*, running east and west along the well known *Imperial road* of *Altishahr*. This ridge, gradually decreasing in height, issues into the steppes, and apparently terminates before reaching the *Imperial road*. The branch of the *Tian-shan*, in which lie the *Narat*, *Dayat*, and *Jambil*, also ends in the vicinity of *Urumchi*, as the *Imperial road* nowhere crosses high mountains; only between *Urumchi* and *Turfan* it passes over heights of no great elevation, which connect the *Tian-shan* with the little known ranges of *Inner China*.

Urumchi is a very important town, with a large bazaar and a population of from 40,000 to 50,000 souls, of which 10,000 are Chinese.

The town is called also *Du-hua-chow* or *Hun-mia-stze*. Before the late insurrection there were two towns, the *Manchu* on the west, and the *Chinese* on the east, separated by a river. Sandy hills, covered with wood, border the town. Before the insurrection it was a brisk trading place.

To the west of *Urumchi*, along the great road lie the town of *Sanchu*, 3,000 inhabitants, of whom one-half are Chinese; the village of *Kutub*, with 600 inhabitants

* According to the Dungans, these passes are called *Pelichin* and *Tiapin*. The first is easy for camels; but the second is more difficult.

(Dungans), and the town of Manass, in which there are about 5,000 inhabitants, Dungans and Chinese.

To the north of Urumchi is the rather important town of Kumudi.

Kune-Turfan, a rather large town, has 20,000 inhabitants, Dungans and Taranchis. It is about 170 miles from Urumchi. The district of Turfan is fertile and rich. Karashaar, a small town with a large bazaar.

Kumul (Hami), about 400 miles east of Kune-Turfan, was at one time an independent Taranchi village, but is now part of Kashgar.

Barkul, 400 miles east of Urumchi, is a large commercial town.

Province of Ferghana.

Boundaries. Area. OROGRAPHY—South Kokand Range. Passes:—Terek—Archat—Koi-djoli—Taldyk—Jiptyk—Savyn-Mogol—Tendyk—Tuz-ashu—Kavouk—Istairan—Kara-kazik. Trans-Alai range. Alai plateau. HYDROGRAPHY—Yaxartes. Natural Productions. Chief Towns. Population. Climate Administration. History since 1830.

The province of Ferghana* lies between 70° and 74° 30' long. east of Greenwich, and 39° 40' and 42° 10' north lat., and has an area of about 28,000 square miles, of which about four-fifths consist of mountains. It occupies a wide valley in the Central Asian highland known under the name of Ferghana. A broad mountain mass on the north separates this valley from that of the Talass; another mass, still more difficult of access, divides it from the basin of the Oxus. The province includes the main valley watered by the Yaxartes, the valleys and defiles leading to this river, and the mountains forming the watersheds with the Angren, Chirchik (Chatkal), Talass, with the streams flowing into the Naryn, Tarim, and Oxus, and with the Zerafshan. Thus Ferghana has its territory bounded by natural frontiers; only on the south-east does it cross the water-parting into the basin of the Oxus, where it owns the upper waters of the Kizil-su (Surkhab)—a locality known under the name of the Alai plateau (Dasht-i-Alai).

Boundaries.
Area.

The old khanate of Kokand was at one time unquestionably the largest of the three Turkestan khanates; it extended as far as the northern foot of the Nura-tau. But of late years its lands have been curtailed by the encroachments of Russia. The steppes and mountains to the north and east, as also the steppes and oases to the west, including an area of about 170,000 square miles, have been gradually appropriated by that Power; the countries lying to the south, Karategin and Darwaz (an area of at least 2,200 square miles), at one time vassal principalities of Kokand, are now under the protection of Bokhara; lastly, the Kirghiz tribes on the further side of the Terek-Davan have become tributary to Kashgar.

The frontier with Kashgar runs along the water-parting almost to the parallel of 73° 30'. Thence it strikes south, embraces some territory in the basin of the Oxus, and then again projects over the watershed between the Oxus and Yaxartes. What lands in this basin belong to Khokand it is difficult to determine, but the frontier here appears to touch Shignan. The Alai belongs to the khanate, as also evidently the entire course of the Kok-su; at least on the Kizil-su the frontier point lies below the mouth of the Kok-su, between the Little and Great Karamuk.

From the upper waters of the Kok-su to the 70th parallel, the frontier passes along the watershed of the Yaxartes, at first with the Oxus and afterwards with the Zerafshan. The contiguous territory is Karategin.

In about longitude 70° the frontier takes a meridional direction, bordering the old Russian frontier.

The province of Ferghana, as already mentioned, occupies a broad valley basin, surrounded by mountains and mountain plateaux, which pass into low hills at the narrow end near Hodjent, where lies the only road into the province practicable for wheeled vehicles. This valley is a level steppe district, having, however, numerous elevated features, which in comparison with the mountains encircling the valley can only be called hills. The level part of the province lies chiefly to the south of the Yaxartes. The greatest breadth of this plain, on the meridian of Namangan, is rather more than 65 miles; its greatest length, from the tomb of Hodja Yunus on the east, to the Russian frontier on the west, is about 160 miles; its area is about 5,775 square miles, or about one-fifth of the whole province. On the north-east and south it is shut in by mountains. These mountains enclosing Ferghana are immediately connected with the broad Central Asian highland called the Tian-shan; from the broad highland, which spreads to the south of Issyk Kul, springs a mountain mass which runs along the northern

Orography

* Ferghana, which is the present designation of the old Khanate of Kokand, is no new name. It is found in its present form in the Arab manuscripts of the eighth and ninth centuries, but it was known since the fourth century under a different spelling (Feihan) to the Chinese. In the Iran dialects it probably used to mean "country of passage"—passage from Trans-Oxiana to Eastern Turkestan.

border of the province. Another mountain mass, lying along the south border, joins the Naryn highland not far from Lake Chatir Kul. The outer spurs of the mountains on the north and south borders of the plain are very low, but beyond these on the north and south we find the heights rise rapidly, so that the main watershed spurs have their highest peaks covered with perpetual snow. The south watershed (with the Oxus) has its ridge particularly well marked; along it are an entire series of heights far above the snow line; peaks of 18,000 and 19,000 feet are very common. Even many mountains lying to the north of the watershed reach the snow-line and the massive mountains of Alaudin, south of Sokh, and the Hezart and Akart Mountains may be mentioned as being above 16,000 to 17,000 feet.

South Ko-
kand Range

These mountains are more imposing than those bounding the province on its other sides. While describing them we shall also mention the passes.

The range of mountains bordering Ferghana on the south bore for a long time the unmeaning name of Kashgar-davan, *i.e.*, pass into Kashgar; Fedjenko christened them the South Kokand Range, which is, perhaps, the best designation for them; they are sometimes called the Alai or Alai-tau, but this may lead to confusion with the Alai plateau. These mountains form an immediate continuation of that chain of the Tian Shan system, which bears the name of Suok-tau, and forms the northern border of the Kashgar basin. The Kokand Mountains preserve in their general features an east and west direction, forming at first the water-parting between the basins of the Yaxartes and Lake Lob (Lob-nor), and afterwards between the systems of the Yaxartes and Oxus. In its eastern part a mass of ramifications shoot from the northern slope of the main ridge, and fill up the entire south-east angle of the Ferghana district. In this same part, but on the south side of the main ridge, the southern branches are less marked, which is explained by the great absolute elevation of the district lying to the south of the ridge, *i.e.*, the Alai plateau (*Dasht-i-Alai*). As we proceed further westward, the southern branches stand out in bolder relief, and on the meridian of the western extremity of the Alai, *i.e.*, Daraout-kurgan (about 72° 30' E. long.), attain very marked proportions; while the northern branches become more curtailed. The direction of these branches generally appears to follow that of the main ridge, *viz.*, east and west, although they are somewhat difficult to trace in consequence of the spurs, the parallel chains, and the frequent appearance of transverse valleys, which intersect all the branches right up to the main range.

A little to the west of the meridian of the town of Kokand, the South Kokand Range divides into three chains, which preserve an identical direction with it, and which are called by Russian geographers the Turkestan, Zerafshan and Hissar ranges. Which of these three is to be considered the true continuation of the Kokand range, and which the lateral branches, is at present undetermined.

The number of passes across the South Kokand Mountains is comparatively large. Commencing from the eastward we have the passes leading from Gulsha. This fort can be reached from Osh (3,041 feet) along the good carriage road made by General Skobeloff. From Gulsha (5,103 feet) the road passes along the Gulsha-su, and presents no difficulties, with the exception of the Yangi-aryk defile, where the path passes along a narrow ledge and over very broken ground for a distance of 5 miles. After this it runs through meadows and amid copses of tall poplars to Sofi-Kurgan. At this place (an old Kokand fort) the Terek-su falls into the Gulsha-su, and the road bifurcates. One road trends up the Terek-su to the Terek Pass (*Terek-davan*), by which caravans proceed to Kashgar, and the other leads to a group of three passes called Archat, (11,900 feet), Koi-djoli, and Taldyk. Of these the Archat is the most eastern, and the Taldyk the most western. They were all explored by the Alai Expedition in 1876, and according to Kozlofsky, the Koi-djoli and Taldyk are much lower and more gradual than the Archat. Hence it has been proposed to make a carriage road from Gulsha through the Koi-djoli to the Alai plateau.

Terek Pass (Terek Davan). The road to Kashgar by this pass is shorter than by the other more westerly pass (Archat) over the same range, but it is not such a good road, and forage is less abundant. The height of the pass is, according to Kuropatkin, under 13,000 feet. Between Osh and Kashgar there are 17 marches, as follows:—(1) Mady Post, 8 miles, along a level sandy road; water good at the halting place. (2) Kalavan-kul, 16 miles; road hilly and stony. (3) Kaplanbek, 16 miles; hilly road, water brackish at halting place. (4) Gulsha, 13½ miles; road hilly and stony, water good. (5) Kizil-Kurgan, 12 miles; road stony, zigzags along ledges. (6) Sophi-Kurgan, 14 miles; here Alai road branches to the right. A messenger must be sent on to Ak-kiä for grass, as there is none at the next three halting places. Road rises gradually to Ak-kiä. (7) Zurni, 10½ miles; road leads up the Terek-su; it is stony,

with many precipices (8) Katta-kunsh, $10\frac{2}{3}$ miles. This halting place is on the further side of the Terek-Davan Pass. (9) Kok-su, 14 miles; a stream crossed by three narrow bridges. (10) Ikizai, 16 miles, over a rocky country; water and fuel good. (11) Zigin, $21\frac{1}{3}$ miles; road sometimes sandy, at others stony and mountainous. (12) The first Kashgar Post. (13) Aksalur-kurgan, $21\frac{1}{3}$ miles. (14) Karangalyk, 14 miles, along a mountainous and stony road, which, in fact, is bad all the way from Osh to Kashgar. (15) Min-yol ("thousand roads"). From this place tracks branch in many directions. Distance to Kashgar 26 miles by a level road, many villages and pasture grounds being met with. Population poor and dwellings dilapidated.

Archat Pass. The road to this pass branches from the Osh-Terek road at Sofi-Kurgan. It leads up the Taldyk-su for 10 miles beyond the latter place, and then passes up the dry and comparatively broad (700 to 1,400 yards) valley of the Shart-sai; in two of the broadest valleys descending to the Shart-sai there are openings. The main road rises in gentle slopes for 6 miles to a height of 9,000 feet; up to this height both it and the lower parts of some of the lateral defiles are covered with barley fields. Interspersed among the fields are juniper trees. At the end of the ascent the road bifurcates; one path rises to 12,600 feet on the saddle of the pass, the other to 13,000 feet on an adjacent height. The last passes along the greatly sloping ridge of a mountain spur, and is better than the first, which runs along a steep declivity. The ascent mounts by very steep gradients. Suffice it to say that from the commencement to the highest point of the ascent, the difference in perpendicular height is 4,000 feet, upwards of three quarters of a mile, while the length of the road, with its windings, is rather less than 11,000 feet, *i.e.*, about 2 miles. On the 25th October, sheets of snow, covered here and there the road rising to the pass, while the summits of the pass, and its adjacent peaks, were snowless, dry and dusty. The lowest level of eternal snow in this range appears to vary between 14,000 and 15,000 feet. Equally steep is the descent from the pass, but it is much shorter, being less than two-thirds of a mile. The spring (11,500 feet) near the foot of this descent is the source of the river Kok-bulak, a tributary of the Kizil-su. The Kok-bulak falls 1,000 feet in the next 10 miles, so that the road along its valley slopes gently; the bottom and sides of the defile are carpeted with a succulent grass. The Kizil-su flows near the foot of the descent, winding in a broad bed, measuring upwards of 1,000 yards across, and divided into several arms. In the early part of August the depth of water is rather over 2 feet; the colour of the water is red, but it is sweet and potable. This is the best road to Kashgar over the South Kokand range.

Koi-djoli Pass and Taldyk Pass, lie to the west of the Archat Pass. They are both approached up the Taldyk-su, and roads branch to them from the road up that defile. They are, according to Kozlofsky, much lower than the Archat Pass, and it is probable that the carriage road will be continued from Osh, over the Koi-djoli Pass, to the Alai plateau.

The following group of passes lie at the sources of the different small streams which are tributary to the Ak-bura river on the one side, or to the Kichi-Alai-su (one of the sources of the Isfairam river), on the other. Both the Ak-bura and the Kichi-Alai-su belong to the Yaxartes system. These passes are named from east to west: Jiptyk, Saryn-mogol, Tendyk, Tuz-ashu, and Kavouk.

Jiptyk Pass.—This is not so good a passage of the Alai as some of the preceding, but it is practicable for pack animals. The road leads from Osh, up the Ak-bura, to Shot, and thence to the Altyn-kazuk mountains. Thence the road passes along the narrow valley of the Kichi-Alai, ascending and descending steep declivities of sienite, and crossing and re-crossing the stream repeatedly, until the confluence of the north Jiptyk river with the Turuk is reached. Here the road at first proceeds along cornices, and is difficult. After 5 miles, a steep ascent commences, zig-zagging up a mountain ledge, in a narrow gorge, the rise being 1,000 feet in a mile. Mounted men must dismount. After this the valley of the north Jiptyk bears locally the name of Hodja-Kiliata; this part of it is 5 miles long, and 2 miles broad, covered with rich pastures, and an abundance of wood. The road is here good, but, at the end of Hodja-Kiliata, the valley contracts, and the road rises along a ledge overhanging the river for a distance of $1\frac{1}{3}$ miles to Kurgan-tihtir, distant 11 miles from the summit of the Jiptyk Pass. The ascent now becomes easy, the river being crossed repeatedly. At 7,500 feet, we leave the zone of the willow, birch, &c., and at 8,000 to 9,000 feet, the last fields (barley and wheat) of the Kara-Kirghiz. The defile up which the road winds remains tolerably wide until within 4 miles of the summit of the pass, when the meadows and bushes cease. Here, at 11,000 feet, the North Jiptyk first appears as a stream. The ascent to the pass now commences; it is very difficult, the heaps of rock *débris* impeding progress. As the summit is approached, the snow which lies here makes movement still more difficult.

The crest of the pass (14,500 feet) is narrow and rocky. On the sides is seen eternal snow, while in the defiles close by there are snowfields, and a small glacier. The descent is very steep for the next 2,000 feet in altitude. The road passes down the valley of the South Jiptyk, and reaches the bottom of the range after about 7 miles.

Saryn-mogol Pass.—This pass is also approached from the Ak-bura valley, either by the road from Osh up the river, or by way of Naukat and Torpa. In the Alai expedition of 1876, it was traversed by the Osh column, under Colonel Garnofsky. It was so difficult that it became a very arduous task to drag artillery and baggage through it, and many pack animals were lost. Its absolute height is not less than 14,000 feet. The top of the pass was found to be covered with snow in August, which could not have fallen recently, and must have been eternal snow. The road lies up the Saryn-mogol rivulet, an affluent of the Ak-bura.

Tendyk Pass.—This pass lies 8 or 9 miles west of the Saryn-mogol, and is approached up the Tendyk rivulet. No information is forthcoming about it.

Tuz-ashu Pass is the next to the westward. This pass can also be approached up the Ak-bura river, and thence over the Kordun-bel Pass (13,400 feet), or it can be reached from Naukat, over the Akart mountains, a chain parallel to the Alai. Kordun-bel is on the saddle connecting the two ranges, and forms the water-parting between the Ak-bura already mentioned and the Kichu-Alai-su, which falls into the Isfairam. No information is forthcoming about the Tuz-ashu Pass.

Karouk Pass, 6 or 7 miles west of Tuz-ashu was traversed by Fedjenko. It has an elevation of 13,300 feet. The road through this pass leads to the Kizil-su (Surkhab) at Daraout-Kurgan,* whither also leads the direct road from Utch-Kurgan over the Isfairam Pass.

Isfairam Pass, sometimes called *Tengiz-bai Pass* (11,800 feet). This is the nearest route from Kokand to the Alai, and thence to Shignan. Fedjenko passed by this route in 1871, and the Alai expedition marched one of its columns (the Utch-Kurgan) through it in 1876. There are a group of three passes over the South-Kokand Mountains at this point: Koi-djoli, Isfairam, and Kizil-Shime. Of these the middle one, Isfairam, is the most important. The road to this pass leads from Utch-Kurgan up the Isfairam river. In spite of the low elevation of the pass and its gradual slope, the road is not good. The chief obstacles are found between Utch-Kurgan and Tengiz-bai, near the north foot of the pass, and consist of a succession of ascents and descents, and of a great number of places where the road lies along a narrow ledge. The rate of march of the troops was not more than 5 miles a-day, owing to the difficulty of the route.

Kara-Kazik Pass is the next pass to the westward. It lies on the road from Shahimardan to the Kok-su, a tributary of the Kizil-su (Surkhab), which in its turn is one of the chief sources of the Oxus. The considerable absolute height of this pass (14,450 feet) makes it difficult. To this must be added that it is very steep, and consists apparently of schistose rocks, which breaking up have formed a *débris*, offering difficulties particularly in the descent. On either side of the pass the road is not so impracticable. After reaching the bottom of the pass, the road leads along the Kok-su to its mouth, and thence on to the Alai, or there is a road branching from this, at about 20 miles from the pass, which trends up the Tekelek-su, and thence over the Gurundi Pass (10,533 feet) emerging at Karamouk on the Karategin great road.

All the more westerly passes over the south Kokand range lead to Karategin.

The mountains forming the eastern boundary of the province do not reach the snow-line. In one direction alone, due north of Osh, there is a great mountain mass with bold peaks, called Ketmen-tepe, covered with patches of snow. Besides these mountains there is the massive range which extends along the southern border of the Alai plateau; it, or at any rate its northern slope, also formed part of the Khanate of Kokand. This very lofty range, with its crest averaging 17,000 feet, has peaks which exceed 20,000 feet in height. This range, called generally the Trans-Alai Mountains, exceeds in majestic grandeur all other parts of the Central Asian highland.

The mountains to the south and north of the province, as already mentioned, consist of a series of ridges more or less pronounced. Between these ridges extend longitudinal valleys, some of which are of considerable length and breadth. Particularly striking in this way is the valley of the Upper Kizil-su, known under the name of the Alai. It is about 40 miles in length by 12 in breadth, and presents the appearance of a broad steppe surrounded by high mountains.

Besides these longitudinal valleys there are numerous transverse ravines, evidently formed when the mountain mass was upheaved. These ravines are nearly always at

* From Daraout-Kurgan the road bifurcates, one branch leads south to Shignan, while the other strikes south-westward down the Kizil-su to Karategin.

right angles to the ridges, and sear the mountain side up to the watershed. Down these ravines flow numerous streams, which fall into the Yaxartes.

The Yaxartes is the only large river flowing through the province. It intersects the latter in a N.E.E.-S.S.W. direction, entering it near Uch-Kurgan and leaving it somewhat to the east of Kara-Chihum. Its whole course through the province is about 170 miles, or one-seventh of its entire length.

The Yaxartes enters the province under the name of the Naryn, and is not called The Yaxartes. the Yaxartes until joined by the Little Yaxartes near Namangan. The Naryn issues in long. 79° E. from an extensive glacier, and receiving numerous mountain streams leaves the Naryn district, after piercing an impassable gorge. After entering the Khanate, the Naryn becomes a large river, having a width not much less than that at Hodjent. Except the Little Yaxartes, there is not one stream, at least above ground, which reaches the Yaxartes; all of them are exhausted by irrigation or by underground channels.

The number of these streams is rather large, particularly those issuing from the southern mountains. They are as follows:—The Isfara, Sokh, Shah-i-mardan, Isfairam, Naukat and Ak-bura; all of them, except the Naukat, take their rise in the range forming the watershed with the Oxus, and are formed of many streams; only a few take their source from glaciers. The Isfara and the Sokh are of the latter class.

The river Little Yaxartes, flowing from the southern mountains, has its source in the still unexplored south-east angle of the Khanate, from whence issue two rivers; the Tar and Kara-kuldja, which unite 10 miles above Uzgent; below Uzgent the river receives the Yassy and Kurshab. The Little Yaxartes leaves the mountains and flows in an east-west direction, *i.e.*, in the same direction as the Yaxartes. From this fact probably the natives consider the Little Yaxartes as the source of the Yaxartes. From the northern mountains flow some small streams which serve to irrigate the fields and gardens of a small number of settlements on the right band of the Yaxartes. The easternmost of these streams, the Ak-su, is the largest.

Now as regards the character of the soil. The plain proper of the Ferghana valley Natural Pro-
ductions. is for the most part steppe. Irrigation (by canals leading from the mountain streams and the rivers Naryn and Little Yaxartes) has permitted the conversion of this steppe into a rich oasis, which is however by no means continuous; thus along the left bank of the Yaxartes extends a steppe region hitherto untouched, the haunt of the Kirghiz in winter. The strip of oasis commences more to the south where the streamlets issue from the mountains; there along the margin of the mountains extends an almost continuous band of gardens and fields for a distance of about 160 or 170 miles, between Karatchshuma and Hanavat. The breadth of this zone varies from 10 miles or less to 25 miles (on the meridian of Andijan).

On the north, right bank of the Yaxartes, the oases appear at intervals without forming a connected band, as the rivers are very small, and the soil infertile. Cultivated patches are met with also in the mountains, in the longitudinal valleys nearest to the main one, and in the lower parts of the transverse valleys; the greatest height to which the settled populations attain is about 4,500 feet (Voruh village); barley is grown up to a height of 8,500 feet. The mountain slopes and heights are covered with fields only in a few places; for the most part they are very rocky and steep, covered with brushwood, and here and there with juniper. This nature of ground is very little favourable to cattle breeding. Still, the upper parts of the valleys afford rich pastures, the so called "yailan," whither the Kirghiz betake themselves in summer with their herds and flocks.

Thus we see that the Khanate consists of steppe, cultivated districts, mountains with brushwood and small trees, alpine pastures, and tracts covered with everlasting snow; that is to say, all the features which are common to such a latitude, and a broad continent like Asia.

The rich soil of Ferghana produces in abundance wheat, rice, millet, barley, cotton, tobacco, madder, and many other dye-plants, magnificent vines, mulberries, on which the most valuable silk-worms of Central Asia are raised, and a great variety of fruit, and vegetables.

Its manufacturing industries are confined to the production of silk, cotton, and coarse carpets.

The mountains abound in minerals; coal crops out near Isfara, and in some of the northern ranges, while naphtha and petroleum wells have been found in many places. Copper, lead, and iron are also stated to have been found.

The capital of the province is Kokand, or Kokand-i-latif (enchanted Kokand), Chief town. so called from its position in a beautiful valley. Unfortunately the city since the annexation

of the province by the Russians, has been found to be so unhealthy, as to necessitate the removal of the seat of administration to Margilan.

The town of Kokand numbers from 40,000 to 50,000 inhabitants.* After it the principal towns are Margilan, Andijan (the ancient capital), and Namangan, each of which contain more than 20,000 inhabitants.

Andijan is a town of 25,000 inhabitants.

The town of Namangan is 20 miles from the Yaxartes, and on the Jinga Aryk. It has a population of over 25,000 souls. About 25 miles west of Namangan lies the town of Tuz, with a population somewhat less in number. East of Namangan is the town of Auruzek (25 miles) nearer the mountains, Kasan 6 miles, and Chartak, 8 miles from Namangan.

Population.

Like that of all the provinces of Central Asia, the population is partly sedentary and partly nomad. To the former class belong (1) The Uzbeks; (2) The Tadjiks, the original inhabitants of the country. These latter are of Aryan descent, but are losing by degrees their purity of type by intermarriage with the Uzbeks, a Turkish race which overran Central Asia in the sixteenth century; (3) the Sarts. This is not a genuine name, but is applied to the sedentary inhabitants of towns and villages indiscriminately, whether they be Tadjiks or Uzbeks. There are also a few Hindoos, Jews, and Afghans.

The nomad population is composed of (1) Kara-Kirghiz; and (2) Kipchaks. The Kara-Kirghiz, or as they are called by the Chinese, Buruts, are supposed to have been originally of the same extraction as the Finns, and many persons consider them a mixed race of Turks and Mongols; but at all events they must have become Turkicised at a very early period.

The Kipchaks are an original Turkish race. Notwithstanding their small numbers, they exercised a considerable influence over the Khanate prior to its annexation by Russia. They are superior to all other inhabitants of Turkestan in bravery. They resemble Mongols in appearance, are of small stature, but extremely agile.

The Kipchaks, partly sedentary, partly nomad, populate the whole of the east part of Ferghana, from Namangan and Margilan to the mountains and frontier of Kashgar.

The sedentary population is chiefly grouped on the left bank of the Yaxartes, where the most important towns are situated; the south side of the valley of this river is perhaps the most thickly populated region; the country north of the Yaxartes, and the Kara Darya, is inhabited principally by the nomads, who pass the winter at the foot of the mountain.

The number of the population can only be determined approximately. According to the information furnished by the Khan's administration, it may be reckoned at 192,000 families, say, allowing five persons on an average to each family, 960,000 souls; this number is probably in excess of the reality, but the population may be taken at not less than 80,000 souls. Thus the new province is as populous as the Zerafshan Circle.

Climate.

The climate is more equable than in the other districts of Russian Turkestan, being warm in winter, when but little snow falls, and that late.

Administration.

For administrative purposes the new district is divided into seven circles: Kokan, Margilan, Andijan, Osh, Chimion, Namangan, and Chust (the last two on the right bank of the Yaxartes). The town of Kokand received a separate administration.

The Kokand circle consists of the bekates of Kokand and part of Mahram, lying on the left bank of the Yaxartes.

The Margilan circle includes the bekates of Margilan and Aravan, and the Serkarates of Assake and Margilan.

The Andijan circle comprises the bekates of Andijan and Uzgent, and the Serkarate of Balykchi.

The Osh circle consists of the bekates of Bulak-bashi, and the Osh Serkarate.

The Chimion circle is formed of the bekate of Chimion, and the Serkarate of Sokh.

The Namangan circle includes the bekates of Namangan, Chartag, and Kassin, and the Chust circle comprises the bekates of Chust, Balykchi, and that part of the bekate of Mahram which lies on the right bank of the Yaxartes.

The capital of the Ferghana district was originally fixed at Kokand, as being the former capital of the Khanate, and the residence of the Khan, but the sanitary condition of the town was such as to necessitate the transfer of the seat of administration to Margilan. In Kokand, goitre is very prevalent, but is not met with in other towns of Ferghana.

The revenue under the Khan amounted to upwards of £300,000 per annum.

* Schuyler gives the population at 75,000.

The advances of Russia in Central Asia, and her successive spoliation of the Khanate of Kokand have been described in the papers, "Russian advances in Central Asia," but it is appears desirable for the purposes of this present paper to give a short history of the Khanate, and of the successive Khans, prior to its final occupation by the Russians in 1876.

The last dynasty dates from the end of the eighteenth century. Its founder was one Narbuta-Biy, of the Uzbek tribe of Ming, who traced back his origin to the Emperor Baber. Nothing of a trustworthy nature is however known of his reign, or of that of his son, until after the year 1830, when the Khanate erected on the ruins of the Kingdom of Timour, was ruled by a grandson of Narbuta-Biy, Muhammed Ali, who secured his power by a victory over his son, Sultan Mahmoud. The latter after his defeat, took refuge at Bokhara, where he employed every sort of intrigue to induce the Emir Nassr-Ullah to take up arms against Kokand.

The intrigues of Sultan Mahmoud and the mal-administration of the Khan, shortly led to a plot being formed by the chief notables to depose Muhammed Ali, and replace him by another grandson of Narbuta-Biy, Shir Ali, son of Alim Khan, the eldest of his children. The conspirators requested the assistance of the Emir of Bokhara. The latter appeared with his troops before Kokand in 1841, and annexed the Khanate to Bokhara. Muhammed Ali and his nearest relatives were put to death. The new order of things did not last long. The Kipchak nomads and the sedentary populations made common cause, proclaimed Shir Ali* Khan of Kokand, and took the field with him to free the Khanate from the Bokhara yoke.

In 1842 the Bokhara people were driven from Kokand, and Shir Ali was proclaimed Khan.

As soon as he heard of these events, Nassr-Ullah took measures to establish his authority in Ferghana, and in the spring of the same year, invested Kokand on three sides. The besieged, with the help of a Kipchak, one Mussulman Kul, surnamed "the Lame," held out with great stubbornness. After laying siege in vain to the place for forty days, and being at the same time alarmed by a false report of a revolution in Bokhara, Nassr-Ullah abandoned the siege, and returned to his own country.

Shir Ali proved a weak sovereign. He was only a puppet in the hands of the Kipchaks, who, regarding themselves as those who had been most active in placing him on the throne, absorbed all the chief offices of State. Mussulman Kul played a leading part; a state of constant strife existed between the Kipchaks led by him, and the Sarts. At length in 1845, Murad Bek of Shahr-i-sabz, a descendant of the old Khans of Kokand, at the instance of the Sarts, formed the project of dethroning Shir Ali. At the head of the troops from Shahr-i-sabz, he appeared before Kokand, occupied it without a blow, proclaimed himself Khan, and put Shir Ali to death (1845).

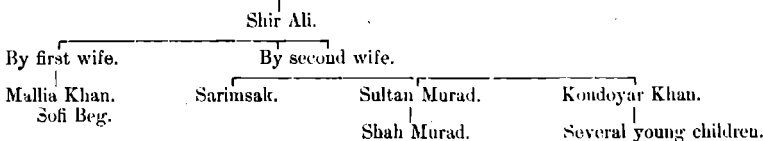
Mussulman Kul was at this time among the Kirghiz nomads; as soon as he heard of the revolution at Kokand, he went to Margilan to find the son of Shir Ali, Koudoyar, then 16 years old, and marched with him upon the capital, where he no longer found Murad Bek, who had fled at his approach to Shahr-i-sabz.

Mussulman Kul entered Kokand without resistance, and re-established the power of the Kipchaks. His first act was to put to death the eldest son of Shir Ali, Sarimsak, who came to Kokand with the view of succeeding his father, and to proclaim Koudoyar as Khan; but Mussulman Kul was himself shortly after betrayed and put to death.

The State continued to be torn by internal dissensions between Kipchaks and Sarts, until the beginning of the year 1857, when a third race, the Kirghiz, interfered in the destinies of the Khanate. Disturbances arose between these and the Kipchaks, headed by Mallia Khan, a brother of Koudoyar. Mallia Khan marched against his brother, defeated him at Simantchi, entered Kokand, and was then proclaimed Khan (1858). Koudoyar, who had taken refuge at Bokhara, strove in vain to recover his power by the help of the Bokhara troops; the latter were defeated in the battle of Ura-tepe.

Mallia Khan only reigned for two years, when he was strangled by the Kipchaks. Shah Mourad, nephew of Sarimsak, a boy of 15 years of age, was next proclaimed Khan. The son of Mallia Khan, a youth 14 years of age, would also have been put to death, but for the devotion of the Divan-beghi, Alim Kul, who had him conducted to a place of

* Muhammed Ali (1841).



safety. A short time afterwards Alim Kul repaired to Kokand, and joined his forces to those of the Khanate, to march upon Tashkent, where Koudoyar was. The allies were unsuccessful, and had to beat a retreat. Koudoyar followed them up, occupied Hodjent, and moved on Kokand, which he entered without resistance.

A series of sanguinary struggles now occurred, in which Koudoyar received aid from the troops of the Emir of Bokhara. The opportunity afforded by the troubles in Kokand were not lost upon Russia, who sent a force of troops, and in an engagement near Tashkent, defeated the Kipchaks under Alim Kul. Alim Kul was killed, and Koudoyar Khan occupied Kokand, and ascended the throne for the third time (1864).

In such circumstances, Koudoyar Khan was allowed to remain until the Russians found it convenient to depose him (1876).

APPENDIX.

HISSAR.

BY LIEUT.-COLONEL MAEFF,

OF THE RUSSIAN ARMY.

1. KARSHI TO DERBENT—Russian Exploring Expedition, 1875—Karshi—Hazar—Tenga-khoran—Ak-davan pass—Yak-archa pass—Ak-rabat—Buzgolkhan. 2. DERBENT TO CHUSKA-HAZAR—Derbent—Bash-khurud range—Khatantai-kurgan pass—Nan-davan pass—Shirabad—Relations between Shir Ali and Abdurrahman Khan—Passages of the Oxus. 3. CHUSKA-HAZAR TO HISSAR AND KULAB—Buri-fakht range—Baisun—River Surkhan—Granary of Bokhara—History of Hissar—Denau—Yurebi—River Tupalan—Sar-i-jui—Regar—Baba-tagh—Kara-tagh range—Kara-tagh town—Hissar—Pavi-duldul—Kafirnihan river—Dushambe—Zigdy river—Kafirnihan—Yajid, Yavan and Roumit ranges—Pyzabad—Vaksh, Vakhb and Oxus—Deurt-kaul—River Valesh—Gul-i-zindan—Djavi-paran—Kichi Surkhab—Baljuan town—Baljuan mountains—Usun-akur pass—Kulabriver—Punja. 4. KULAB TO KOBADIAN—Kulab—Bokhara, Darwazand Karategin—Shiburgan and Shignan—Hul-baz—Alim-tau—Silbir defile—Tash-rabat pass—Kurgan-tepe Lehnan fort—River Vaksh—Kobadian. 5. KOBADIAN TO BAISUN—Baba-tagh—Darwaza-kam—Ak-tepa plateau—Bendi-khan. 6.—BAISUN TO SHAAR—Baisun—Yalgizbagh pass—Derbent—Aziz pass—Hazrat-Liangan—Khan-takht—Changarak defile—Yar-tepe. ROAD REPORTS.—Shaar to Derbent—Hazar to Derbent—Derbent to Shirabad and the Oxus—Derbent to Denau.

The Hissar country, bordering on the Oxus, is separated from the Zerafshan circle by the valley of Shahr-i-sabz. The strategical importance of this district is well understood even by the Emir of Bokhara, who here maintains a permanent garrison (one sotnia each in Kitab and Shaar), and twice a-year repairs to Shahr-i-sabz, accompanied by two battalions of Nizam and one sotnia of kulbashes (guards).

The roads from Samarkand to Shahr-i-sabz are well known; Russian troops passed along them in 1870. They are as follows: (1) along the Jam defile (carriage road), and (2) the nearest road, through Kara-tiube by the pass of Takhta-karach. The last is a bridle path; but it is only difficult on the southern short slope of the range and near the pass. The track here might be converted with little labour into a carriage road. From Samarkand to Kitab are two marches of 4 tashes (20 miles) each.

Shahr-i-sabz is divided from Hissar by snow-clad mountains, which are called the Hissar range. Over this range there are three roads leading from Shahr-i-sabz to Hissar. The three roads are closed on the side of Shahr-i-sabz by three forts, as follows:—Yakobak shuts the entrance to the Tash-kurgan defile, through which passes the most eastern road; Yar-tiube, with a citadel, now in complete decay, bars the entrance into the Jaman-chagan defile, through which leads the Kalta-minar road, and Huzar closes the road passing through the Huzar defile.

I.

FROM KARSHI TO DERBENT.

The Bokharian bekates situated beyond the Hissar range, in the basin of the Oxus, are amongst the least-known countries of Central Asia. The district however between Karshi and the Oxus at Chuska-Hazar is known from a published itinerary of the route from Huzar to Bash-Hissar, and thence to Karategin.

All the country south of the Hissar range as far as the Oxus was so unknown that for a long time it was uncertain whether there was a town called Hissar, or whether it was the name of a province.

To explore the country, a Russian expedition left Tashkent in April, 1875, consisting of Major Maeff, Sub-Lieutenant Vishnevsky, Astronomer Schwartz, and Interpreter Kazbekoff.

The route proposed to be pursued was approximately the following:—From Samarkand by a road practicable for pack animals through the Takhta-Karach pass to the Shahr-i-sabz valley, and thence to Karshi, there to meet the Emir, who was then in

Shahr-i-sabz. After obtaining the permission of the Emir to visit his Hissar possessions, the expedition proposed proceeding to the Hissar mountains, thence to the town of Baisun, and all the other more important towns along the south slopes of the range. From the town of Hissar the expedition was to move to the mouth of the Surkhan, an affluent of the Oxus, to Kulab, and return to Samarkand, either through the mountainous country at the source of the Zerafshan, by way of the Anzob, or some other pass, to the valley of the Yagnob, or through Shahr-i-sabz, crossing the Hissar range by the Kalta-minar road. The intended route was, however, subsequently changed in its details.

The road between Samarkand and Karshi is so well known, that it need not be described again.

Karshi.

On the 4th May we left Karshi by the Huzar road. Our route lay to the south-east, in the direction of Huzar, one of the three towns which close the issues from the Hissar mountains into the Shahr-i-sabz valley. The easternmost issue, the Tash-Kurgan defile, is closed by Yakobak; the Kalta-minar road is closed by the village of Yar-tiube, while the westernmost road, leading from Baisun to Ak-rabat, Chashma-i-hafizjan, Tenga-khoram, and Kush-lush, is closed by the town of Huzar.

The neighbourhood of Karshi on the south, towards the mountains, is well cultivated. The first village is met at three quarters of a mile from the town. This is Yangi-mazar. Four and a half miles further on, we come to the rich village of Takhta-Kaprinik, on the Bish-aryk. No more villages are then met with until we arrive at Yangi-kent, 15 miles from Karshi, a poor steppe village.

Beyond Yangi-kent, villages become more frequent. The Karshi-Huzar steppe loses its monotonous, death-like character; the propinquity of a large settlement becomes more evident at every mile. Huzar lies 12 miles from Yangi-kent, and the entire road between is studded with villages. At 12 miles from Yangi-kent, and at the same distance from the great road, lies the village of Yalguchi, while a mile or so beyond we reach the double village of Poyan-tiube.

Two and a half miles on this side of Huzar, on the right of the road, is seen the village of Chulak, and beyond it the village of Bagat. Beyond Chulak the road approaches the left bank of a rapid mountain stream, the Huzar. This river, little known and shown incorrectly on Liusilin's and Fedjenko's maps, deserves attention. On it are situated not only Huzar and the surrounding villages, but numerous mountain villages between Huzar and Baisun. Here live very wealthy half-sedentary Uzbeks, many of whom possess two or three thousand head of sheep.

This river takes its rise in the snowy summits north-east of Baisun, and is formed of two streams, the Katta-uru and Kchi-uru. The former rises in the Sengri-dagh, and the latter in the Baisun mountains, whence, on the opposite side, issues another important affluent, the Shir-abad. About 10 miles from Huzar, at the mountain village of Kush-lush, the Katta-uru and Kchi-uru join and form one large mountain stream, the Huzar. This latter river flows as far as Yangi-kent, where it expends itself in numerous aryks.

The road between Huzar and Karshi is only fit for pack animals, although it passes over an even flat steppe.

Huzar.

Huzar, a very clean, attractive, fortified town, with broad straight streets, is situated on the hilly spurs of the range which is seen about 5 miles to the south.

The road from Huzar leads through a hilly country, on the right bank of the Huzar river. Near the town, where the river flows along a narrow low valley, lies, at a distance of half-a-mile, the village of Yar-tiube. Beyond that place the river flows between abrupt steep banks. No villages are met with until Kush-lush, where we halted. The village is situated in the mountains, which commence about 8 miles from Huzar. Here the road traverses a defile, with gentle ascents and descents. The hills through which the road winds are barren and burnt up. About 9 miles from Huzar there is a *serai* with pastures.

Kush-lush lies on a mountain plateau, 11 miles from Huzar, at the point of junction of the two streams Katta-uru and Kichi-uru.

From Kush-lush to the next cultivated place, Tenga-Khoram, is about 19 miles. Close to Kush-lush the road bifurcates. One broad, and apparently, from the deep wheel-tracks, much-used road leads to the Ak-rabat road, which it joins at the source of the Anar-bulak; the other road separates to the right of the first. It is very stony and difficult, particularly at first, near Kush-lush, where a path winds along the slope of the mountain, and is very narrow in places. It subsequently becomes again broad as far as the very steep and difficult ascent to the Gumbulak heights, as the range is called, which the road, leading south-west, cuts about 8 miles from Kush-lush.

Commencing from the Gumbulak ascent, the road passes along a broad valley, pent in on both sides by chains of hills, behind which appears now and again a second higher

chain. The valley at first, near the ascent, bears the name of Gumbulak, but further on it is called Kara-chash, near the winter quarters of the same name.

From Kara-chash to Tenga-Khoram is about 5 miles. Such is the name of a field with irrigating ditches, full of sweet water.* Along one of the aryks grow several willows, the only trees we had seen since leaving Kush-lush.

There is little life in this mountainous region.

Tenga-Khoram derives its water not from the Kichi-uru-darya, but from the spring of Chashma-i-hafizjan, which issues from the mountains further to the south.

From Tenga-Khoram the road passes over a high but level mountain valley with a strong soil, covered with low bushes of a steppe plant. Ranges of mountains on the right and left border this valley, which broadens as we ascend in a south-easterly direction, so that the valley is triangular in shape. Ahead, the valley is closed by a range of high hills. Straight before us is seen the defile of Ak-davan (white pass), along which lay our further route. Before entering the defile, we descended a very steep place to the bottom of a deep ravine, along which ran the stream of Chashma-i-hafizjan. This stream, after winding round the north-west side of the elevated Tenga-Khoram plain, flows onward to Tenga-Khoram, where we halted for the night.

Tenga-Khoram.
Ak-davan pass.

The defile of Ak-davan is in truth a white pass; it is a mass of blocks of grey limestone, piled up without order. In spite of the fact that the road through the defile is encumbered with a multitude of small stones, *débris* from the rocks, it is not difficult. The defile itself does not retain its wild character long, opens out shortly into an undulating valley surrounded by high mountains. The mountains on the left hand are called the Kara-hoval, and behind them extends the elevated plateau (Kara-hoval), which in spring and autumn becomes the haunt of the Uzbegs. The Kara-hoval, and its neighbours, the Kalta-minar Aksakalates, are considered the richest and most accessible mountain Aksakalates in Bokhara.

The country through which our route lay is remarkable for its lifeless, wretched, and treeless appearance. After three hours' ride we reached the Yak-archa pass; so-called from its solitary juniper tree (*Archa*).

Yak-archa pass.

The pass of Yak-archa is only a secondary pass, that is to say, the first step up the huge mountain mass of the Tian-shan. From the Yak-archa pass the country commences to rise to Ak-rabat, the highest point in the mountain chain between Huzar and Baisun.

Beyond the pass vegetation becomes more prolific, the juniper and mountain maple being met with.

Chashma-i-hafizjan means literally "life-giving spring." The name is too high-sounding for so unimportant a stream. It is true that the distance from the source of the stream to Tenga-Khoram, where it separates into irrigating channels, is about 16 miles; but during all this extent it is not drained for irrigating, hence it reaches the Tenga-Khoram in its full force, giving life, the other streams being salt.

At Chashma-i-hafizjan there are two caravanserais and a few huts. Here ends the Huzar Bekate, and we are already in the territory of the Derbent Amlakdarate.

From Chashma-i-hafizjan, as already mentioned, the ground continues to rise. The mountain mass here reaches its greatest elevation. The ground over which the road passes is a high, undulating plateau, across which stretch isolated short ranges; precisely similar in character is the part of the range to the east, along which passes the well known Kalta-minar road.

All the way to Ak-rabat trees of the juniper, &c., are met with.

About two-and-a-quarter hours from Chashma-i-hafizjan (8 or 9 miles) the road turns sharply to the east. Here commences (Shur-su) a rather steep ascent to the Ak-rabat pass.

From Ak-rabat there separates direct to the north a good bridle path, leading to the villages of Kara-hoval, Kalta-minar, Yar-tiube, and Shaar. From this road, near the source of the Anar-bulak, separates another good road (avoiding the country through which we had just passed), leading to Kush-lush (place of juncture of the Katta-ura and Kchi-ura), and thence to Huzar. This is the road used by all the mountaineers of these parts when proceeding to the Huzar bazaar. Further on, about 5 miles from Yar-tepe, separates from the same road a direct mountain path to Yakobak. There are several other paths known to the local Uzbegs.

Ak-rabat.

At the ruins of Ak-rabat, where the two roads meet (one, leading to Huzar and Karshi, and the other leading to the town of Shahr-i-sabz), commences the most picturesque and interesting part of the road. It enters a narrow defile between two closely approaching rocks, rises by an exceedingly narrow cornice over sharp stone

* As far as Tenga-khoram the springs and aryks are mostly salt.

débris, and issues into the broad stony valley of the Chakcha, which extends in a south-east direction for a distance of 6 miles. Along the valley flows the stream of the Chakcha, which was dry when we saw it. Low ranges of mountains shut in the valley on both sides; a difficult stony road descends in one place to the rock-bestrewn bed of the stream, and follows its course; in another place it rises higher and passes over a stony slope. The trees scattered about serve to embellish the landscape. At the end of the valley the road passes over a soft, friable soil of a red colour. In this place the valley is entirely closed by a transversal range with a narrow chasm in the centre. These are the far-famed "Iron Gates;" in the present day this pass is simply called Buzgol-khan.

Buzgol-khan pass or "Iron Gates."

It is difficult to conceive anything more solemn and magnificent than this huge cleft in the frowning rocks overhanging the road. The impression was heightened still more by the circumstance that we passed through the place about an hour before sunset, when the defile was already sombre and lowering, like a tomb. In places the defile narrows to a width of 5 paces, in others it opens to a width of 30 to 35 paces, but never more. It is a gloomy, tortuous corridor, which is apparently threatened every instant with being choked by a falling rock. In spring, shortly after the melting of the snows, the mountain stream of the same name runs along the bottom of the Buzgol defile. The length of the defile with its sinuosities is about $1\frac{1}{2}$ miles.

The defile issues into a flat semi-circular basin surrounded by mountains, and overgrown with tamarisk and other shrubs. The defile is terminated by the ravine of the Shur-ab, a brackish salt stream. On the steep side of this ravine the road bends eastward, and passes between limestone hills over a soft, dusty soil. In the distance straight before us, we saw a mountain top with patches of snow along the deep fissures; this is the beginning of the Baisun Mountains. It was impossible as yet to distinguish Derbent.

At last Derbent is near. We forded the rapid Shir-abad-darya (an affluent of the Oxus). It is here called the Derbent-darya. In Asia mountains and rivers are constantly called by the names of the nearest villages.

From the mouth of the Buzgol-khan defile to Derbent the distance is about 5 miles, and from the summit of the limestone pass, from which Derbent was visible, to Derbent itself, is $1\frac{1}{4}$ miles.

II.

FROM DERBENT TO CHUSHKA-HAZAR.

Derbent.

Derbent is a poor mountain village, inhabited by Tadjiks, and lies at the foot of the high mountain mass of the Baisun-tau. It contains about 500 houses.

On approaching Derbent we passed at a distance of $1\frac{1}{4}$ miles from it the direct road to Shir-abad, which separates here from the Baisun road. In the semi-obscurity of falling night, we could barely see the defile into which this road enters before it issues into the valley of the Shir-abad. Riding on the following day from Derbent to Shir-abad, we resolved, instead of making a detour by the stony inconvenient path, to ride across the mountains which separates the Derbent basin from the Shir-abad road. An undulating road (in places unmade, in places obliterated by corn-fields) led us to the foot of a very steep pass, which may be called Dakh-kara-kent, as the descent from it leads to the valley of that name. The valley has a stream in spring. Between the pass and the village of Ser-ab, 11 miles, the road passes over an excellent dry soil, covered sparsely with grass. To the right of the road are seen in the distance the outlines of the Bash-khurd range, the immediate prolongation of the Baisun Mountains.

The inhabitants of the village of Ser-ab (250 houses) are Tadjiks.

Bash-khurd range.

Passing through the gardens of the village we emerged on a broad plain surrounded by mountains. Our road lay to the south-east. On the right stretched the same sombre and inaccessible Bash-khurd. The range ran apparently south-west, gradually getting farther and farther from our road. Low short chains bordered the plain on the left, separating it from the narrow and difficult valley of the Shir-abad.

At the village of Munch, distant from the village of Ser-ab about 7 miles, we again met this river.

The high mountain plateau merges gradually into a hilly terrain furrowed by ravines and dry beds of rivers. To Igerchi from Munch is $4\frac{1}{2}$ miles; thence to Shadi-bai-tugai, $1\frac{1}{4}$ miles.

A little further on is the river Pianj-ab, which crosses the road. From this river to Shir-abad is about 19 miles, over bad and hilly ground, with difficult ascents and descents.

We resolved to halt for the night at the village of Liailakan, about 13 or 14 miles

from Shir-abad. The river Shir-abad is here a rapid mountain stream, 70 feet broad.

The road to Shir-abad crosses to the other bank of the river, and passes at first along the Liailakan valley, and then gradually approaches the low mountains which border the valley on the left. Where the valley is shut in by a low range, the road rises to the mountains and traverses the pass of Khatantai-kurgan. There is another road along the bank of the Shir-abad-darya, but it is stony and very bad. The mountain-road leads over gentle clay slopes to the defile of the Nan-davan, through which runs the Shir-abad-darya. Before entering the defile, and in the defile itself, we forded the river. The distance from the village of Liailakan to the entrance into the defile of Nan-davan does not exceed 10 miles.

Khatantai-kurgan pass.

Nan-davan pass.

From the point where the Shir-abad issues from the defile to the town of Shir-abad is $2\frac{3}{4}$ miles, but to the gardens only $1\frac{1}{2}$ miles. The road lies all the time along the right, high bank of the river.

Shir-abad.

Shir-abad, with its surrounding villages, presents a flourishing green oasis, surrounded on the north and west by a mass of barren mountains, and on the south and east by a broad strip of barren, clay-salt country extending to the Oxus. The Shir-abad river only reaches the Oxus in spring; at other times the amount of water is small, and is absorbed by the irrigating canals which water the oasis.

The country along the river Shir-abad is peopled by Turcomans—some sedentary, others half-sedentary. Nearer to the mountains are Uzbek villages.

Shir-abad has a citadel erected on the crest of the mountains, and commands not only the town but the entire locality. It has three rows of walls; the house of the Bek occupies the centre of the citadel, and forms of itself a fort.

Shir-abad is a very ancient town, and the local bookworms affirm that this town saw under its walls the phalanxes of Alexander of Macedon. This supposition is not improbable if we take into consideration the former population of Bactriana. At that time Shir-abad was called Shahr-i-khyber, and was peopled by Tadjik fire-worshippers. Later, on the introduction of Mahomedanism, Shir-abad became a place of exploits for Ali.

The cultivated strip of ground along the river Shir-abad extends for about 11 miles, after which commences the steppe, dried-up and lifeless. Not until the banks of the Oxus are reached do the villages of the Turcomans appear.

We next proceeded from Shir-abad to the passage of the Oxus at Chushka-hazar.

The Shir-abad authorities were in great fear of being attacked by Turcomans or Afghans. The reason of this was as follows:—

The Afghan Emir, Shir Ali Khan,* is very unpopular in his own country; more especially is this the case in North Afghanistan, where there are many adherents of his rival, Abdurahman Khan. But for the sharp surveillance of those devoted to Shir Ali, the rulers of Balkh, Badakshan, and other Cis-Oxus districts, an insurrection would break out at once. On his side, Abdurahman would be ready to take advantage of the present state of affairs in Kabul and North Afghanistan, and assume the sovereignty in the last-named part of the country. Living in Samarkand, he quietly but narrowly watches events taking place in Kabul. In order to obtain fresh and accurate news from Kabul, Abdurahman Khan has to send from time to time some trusty persons into Afghanistan, who proceed thither under the guise of merchants. Thus in the present year, not long before our arrival, some Afghans were seized by the Bokharians at the passage at Kerki, some of whom were suspected of being emissaries of Abdurahman Khan. Strong garrisons are maintained in the villages along the banks of the Oxus.

Relations between Shir Ali and Abdurahman Khan.

When proceeding from Shir-abad to the Oxus, after passing through the gardens of the town, there lies in front on the south and east, the flat basin of that river. On the right extend in a semicircle the mountains, behind which is seen the sombre mass of the Bash-khurd, less well-known by the name of Kuityn-tau. This mountain mass, gradually getting lower, extends as far as Kelif, where it closely abuts on the Oxus. In breadth the mountain mass extends nearly as far as Kerki, from which place the mountains are still more plainly seen. To the east and south stretches a plain, which is here and there dotted with green patches, indicative of villages.

From the small Turcoman village of Mulla Nazar, our road bent to the south-west, parallel to the course of the Oxus. Nothing of the river was yet seen; it was thought that a silvery streak was here and there visible, with trees on the further bank. But it was only a mirage.

The breadth of the Oxus at Chushka-hazar is as much as 7,000 feet ($1\frac{1}{2}$ mile), consequently wider than at Uch-uchak, where it does not exceed 5,600 feet (1 mile).

Passages of the Oxus.

* Died at Mazar-i-sherif early in 1879.

We could distinguish on the opposite bank the Afghan village of Chur-tepe. The river here is very rapid.

Besides the Chushka-hazar passage, there are three other points at which the river may be crossed in the Shir-abad bekaté, namely, Patta-kisar, Shur-ab, and Kara-kemir. Chushka-hazar and Shur-ab are those most used.

After visiting the river, we returned to the village of Talashkan for the night. This is the point where the cultivation of the Shir-abad oasis commences. From Talashkan to Shir-abad is about 11 miles. From Chushka-hazar to Shir-abad by the direct road is about 30 miles.

III.

FROM CHUSHKA-HAZAR TO HISSAR AND KULAB.

The road from Karshi to Shir-abad can give no clear and distinct idea of the character of the mountain mass, which extends in a broad hilly strip north-east and south-west as far as the banks of the Oxus, and which we crossed on our road. It was with great pleasure that we learnt that we could proceed from Shir-abad to Baisun by a more direct mountain-road, avoiding Derbent.

In order not to lose time, we rode out from Shir-abad to the nearest village of Liailiakan (11 miles from Shir-abad) on the day of our return from Chushka-hazar. The road to Liailiakan was already known to us.

At $4\frac{1}{2}$ miles from Liailiakan we left our old road along the steep bank of the Shir-abad-darya, and descending from the steep bank by a very steep and tortuous path, forded the Shir-abad river. The descent to the river was so difficult that we had to unload the pack-animals, and take the packs across by hand.

From the passage of the Shir-abad-darya, for a distance of 12 or 13 miles, our road lay along the high mountain plateau of Kudukli. The wells along the valley, and the traces of nomad villages, showed that Kudukli is not uninhabited in the winter season. The nomads who come here in winter are Uzbeqs of the Kungrad tribe.

The breadth of the valley is inconsiderable, and nowhere exceeds 150—200 paces.

About $7\frac{1}{2}$ miles from the passage of the Shir-abad the country changes from a plain to hilly ground. The direction of our route was north-east.

The hills here commencing are the spurs of the high mountain mass of the Buri-takht, which at this point (on the caravan-road from Shir-abad to Baisun) joins the elevated mountain valley of Kudukli. The well-water along the road, for a distance of 12 or 13 miles, is bitter and unwholesome.

Somewhat beyond where the hills commence, lies the steep descent from the Buri-takht range, to which we had ascended insensibly. The descent is at angle of 45° — 50° in places, overhanging a precipice. It leads to the village of Pitau, where we passed the night, in order to rest our tired horses and pack-animals. From this place to Baisun there remained 10 or 11 miles of good road.

Early in the morning of the following day we reached Baisun. Pitau lies on a spur of the Buri-takht range; beyond it, to Baisun, leads a level valley, surrounded on three sides by mountains; to the north rose the Baisun-tau; adjoining this were the less high Derbent mountains, bounding on the west the Baisun valley. On the south rises the Buri-takht range, which consists of high valleys, sometimes hilly, sometimes level and steppe-like. It is only in the Baisun valley that the Buri-takht falls in steep slopes. Further east, the Buri-takht becomes more elevated and rocky; it also surrounds the Baisun valley on the east, and is here intersected by the defile of Kalluk, through which passes the road from Baisun to the valley of the Surkhan, to Denau, Yurchi, and other towns.

From Pitau to Baisun we rode through a well-cultivated fertile country, between four villages bearing the general name of Jemshi.

The town of Baisun is very ancient, and is very picturesquely situated. It lies 3,410 feet above the sea level, and is very healthy. Its inhabitants are all Uzbeqs of the Kungrad tribe.

From Baisun to Denau there are two principal roads; one along the mountains, over places comparatively level and easy, passing the villages of Kizil-hazli, Kempir, An-Kadut, Desht-az, and Chash-tepe. At the latter village the country becomes hilly, and the road enters the spurs of the Buri-takht range, which surrounds on the south and east the Baisun mountain valley.

Here, at the village of Chash-tepe, another road joins the Baisun road; that road leads from Derbent, avoiding Baisun, direct to Denau. Besides the road which we were taking, there is another somewhat shorter road along the spurs of the range of

Kairak-bel, which, in its turn forms the outlying ridge of the massive Baisun mountains. The road by Kairak-bel bears the original name of "playful kid" (*lak-uinar*), which sufficiently characterises its ups and downs. The road leads to the village of Kalluk, through the defile of that name. Kalluk lies in the Denau bekate.

The valley between the mountains of Kairak-bel and Baisun-tau abounds in villages, so that from Baisun to the eastward, along all the valleys, stretches an almost unbroken chain of villages. Along the road from Derbent to Chash-tepe, and from thence to Sary-kamish, there are in all only two villages.

The Serai of Sary-kamish stands on the bank of a small dried-up lake of the same name. The road from Sary-kamish leading onward to Denau, enters the mountains, and traverses at first a broad and convenient valley, reminding us much of the *Jelan-ata* valley near Jizakh. Along the valley flows a mountain stream. At the end of the defile the rocks on either side approach, and form the gorge of *Ak-karachugai* (*i.e.*, white vulture). On issuing from the gorge the road rises abruptly to the mountains, to the height of *Turpak-atlysh*, whence is seen the *Surkhan* valley with its shining ribbon, the river *Surkhan*. The valley is surrounded by the massive range of the *Baba-tagh*, which separates the valley of the *Surkhan* from the adjacent valley of the *Kafirnihan*. We asked the natives if the river *Surkhan* was not also called the *Tupalan*, but were told that the latter name was unknown to them. Some added that, according to report, among the sources of the *Surkhan* there is a stream called the *Tupalan*, which joins the *Surkhan*. This was news to us, as on all the maps the most western affluent of the *Oxus* (except the *Shir-abad*) is the *Tupalan* or *Tuplang*, as some spell it, *e.g.* *Faiz Baksh*, who includes the *Tupalan* among the five rivers which form the *Oxus*. Only in *Fedjenko's* map, "*Kokand Khanate*, and the upper waters of the *Oxus*," is the western affluent called the *Surkhan*; but among others *A. P. Fedjenko*, in his remarks on *Yule*, expresses a strong doubt whether the *Surkhan* exists, and affirms that in spite of his inquiries, no one could give him any information of the *Surkhan*, so that in *Fedjenko's* opinion, there is no river of that name. This majestic river now flowed before our eyes. The *Surkhan* is formed from numerous mountain streams which issue from the snowy summits of the *Hissar* range. The chief of these streams is the *Sengri-dagh-darya* (two rivers of same name), the *Tupalan* or *Sari-juidarya*, the *Dashti-novat*, *Regar*, *Karatagh*, *Kalluk*, great and little (both flow from the *Hodja-ipak* defile). The valley of the *Surkhan* where we stood was 40 to 45 miles in breadth. The banks of the river are flat and reed-grown, abounding in hog and a few tigers. Villages sparse. Its breadth is three times as great as that of the *Shir-abad* river. Further south the *Surkhan* divides into several rapid and deep branches, which cannot be forded, and must be passed in boats.

River
Surkhan.

The valley of the *Surkhan* runs in a north-east direction, and narrows somewhat in its south part; but nevertheless it is the broadest of all the valleys in *Hissar* which open towards the *Oxus*, and accompany its affluents, the *Shir-abad-darya*, *Kafirnihan*, and even *Vaksh* (*Surkhab*), if we consider it an affluent, and not the upper waters of the *Oxus*, as the natives believe.

The descent from the heights of *Turpak-atlysh* is not difficult; the road passes all the time between low clay hills. From *Sary-kamish* to the village of *Shadi-bai*, the usual halting place of all the caravans proceeding to *Denau*, is considered 16 miles. At *Shadi-bai* we halted for the night at the *Ziaket-Serai*, an excellent building. From the village of *Shadi-bai* to the town of *Denau* is reckoned 18 miles.

The entire valley of the *Surkhan* is very cultivated, so that from *Shadi-bai* to *Denau* and beyond, we did not come across a single patch of unworked land. It is the best district in all *Hissar*. It might be called the granary of the country, if the country were in want of one. It is, however, the granary of *Bokhara*, as corn and sheep are taken from it to the capital. The chief products of the *Surkhan* valley are rice and flax.

Granary of
Bokhara.

The density of the population may be judged from the circumstance that for a distance of 21 miles from *Shadi-bai* to *Denau*, we found thirteen villages, *viz.*: *Mirshadi* (second village of that name), *Aga-bulak*, *Jandy-bulak*, *Buh-einyk*, *Batash*, *Kunpeikhana*, *Amansei*, *Hatyrehi*, *Chakcha*, *Karsa-agan*, *Kalluk* (a large village, the summer resort of the *Denau* *Bek*), *Ipak-hodja* and *Kosh-savat*. These were on the road itself; there were other villages to the right and left.

When *Hissar* was independent, the valley of the *Surkhan* was always its political centre. *Hissar* properly was a fortress lying at the entrance to the defile of the river *Kafirnihan*, consequently it had a purely military importance just like the fortified town of *Kobadian* in the south part of the valley of *Kafirnihan*. When on the last occasion the *Hissarees* rose against the *Emir of Bokhara*, the forces concentrated from all the *Hissar* towns at *Amansei*, and here it was that was fought the decisive battle in which the

History of
Hissar.

Hissarees were totally defeated. The following is the story of the conflict between the Hissarees and the Emir of Bokhara.

The broad and fertile region called Hissar (*i.e.*, the locality south of the so-called Hissar range) has been from time immemorial an attractive bait to the Bokharian rulers. When Bokhara became powerful, it immediately extended its authority to Hissar, but when the khanate declined in power, the Hissar rulers at once declared themselves independent. Some of these became a terror to their neighbours; of such was the Regar ruler, Sabdar-Kul Datkha, made Bek of Regar by the Emir Nasr-Ullah. Sabdar-Kul up to the present day is well remembered in Regar, and particularly in Sarijui, which he destroyed on more than one occasion.

The Emir, Nasr-Ullah, likewise made a certain Abdul-Kerim Datkha Bek of Denau. When the present Emir suffered reverses at the hands of the Russians (shortly after the capture of Tashkent), Abdul-Kerim Datkha resolved to take advantage of the moment of weakness of the Bokharian Government, and proclaimed his independence. This was about three years before the Russians took Samarcand. The Emir himself marched with a force into the difficultly accessible Hissar, and brought his artillery along a mountain-path, where caravans could only pass with difficulty. Abdul-Kerim found an ally in Sari-Khan, the independent ruler of Kulab, and carried with him all the Hissar people. The forces of Hissar were assembled on a plain 5 miles from Denau, near the village of Hatyrchi, in Amansei. The Hissarees had four guns, but they were totally defeated. They then shut themselves up in the citadel of Denau. The Uzbegs made peace, while Abdul-Kerim took refuge with his ally in Kulab. Abdul-Kerim was, however, given up by Sari-Khan, and was executed at Derbent.

The second insurrection of the Hissarees occurred at the same time as the insurrection of Katta-tiura, in 1868. Dislodged from Karshi by the Russians, the revolted son of the Emir entered Hissar; but the Uzbegs, taught by bitter experience, would not follow him. As is known, Katta-tiura does not stop at the harshest measures. He burnt all the grain, and devastated the whole of the villages in Shir-abad on the bank of the Oxus, so that this place in the present day is an arid plain intersected by the beds of former aryks. Sary-Khan did not let slip the present opportunity of endeavouring to increase his possessions. With his Katagans and Lakais (Uzbek tribes living near Kulab) he came to the assistance of Katta-tiura, and sent to Denau as Beg, his follower Ulug-Beg. The Emir sent another army into Hissar under Yakub-Beg Kush-begi. No battle was fought, and all the towns in Hissar voluntarily surrendered to the Emir. This time the Bokharians moved to Kulab. Sary-Khan fled to Kabul, and Kulab was taken without a blow. Ulug-Beg was taken prisoner, and executed at Kalluk.

Yakub-Beg Kush-begi was appointed ruler of Hissar with full powers. He is said to have been a clever, active old man. As a monument of his short rule in Hissar, there is a large bridge (35 paces) over the Kafirnihan to Faizabad, and a new road in the narrow defile of the Surkhab (Vaksh) in lieu of the old and dangerous one.

Yakub-Beg Kush-Begi died at Hissar, and in his place was appointed the Emir's favourite, Selim-Dostarkhanchi. He was soon after deposed and succeeded by the Emir's son, Said-Abdul-Mumin-Khan, but his sphere of sovereignty was limited to Hissar and Karatagh, with the neighbouring villages. The Emir appointed separate Beks for the remaining towns of Baisun, Shir-abad, Denau, Yurchi, Baljuan, Kulab, Kurgan-tepe, and Kobadian.

The population of Hissar is apparently well disposed towards the Emir.

Denau.

On entering the town of Denau we were surprised to find the walls half-ruined. They had been destroyed during the siege of the citadel, which was defended for several days after the Bokharians had occupied the town. Into the *Kurgan* proper, *i.e.*, the part of the town surrounded by a wall, the Bokharians had penetrated from the side opposite the citadel. From the north-west side—the side from which the town was stormed—the town wall was entirely destroyed for many hundred feet.

At the present time Denau is a provincial town of the Bokharian khanate, and is administered by a Bek from that country. There are no troops in the place.

Denau is a Tadjik word, signifying "new settlement;" *deh*, settlement; and *nau*, new.

Yurchi.

About 4 miles from Denau lies Yurchi, a large fortified town. The citadel is stronger than that at Denau. Yurchi is a Turkish word, signifying "guide." The country between Denau and Yurchi is well cultivated; it is a park full of various trees. The neighbourhood of Denau and Yurchi is abundantly supplied with water. There is the Hodja-Ipak, flowing from the defile of the same name. There are several aryks cut from it.

Between Yurchi and Denau there are two villages, Shamal-tepe, on the right of the road, and Andijan on the left. At 16 miles from Yurchi the mountains overhang like a huge wall.

We proceeded to Kara-chulluk, a poor miserable village. Here we were received by the Tiura-jan* of Hissar, the third son of the Emir, and by the other sons of the Emir, the Beks of Huzar and Kermine.

Said-Abdul-Mumim-Khan, the third son of the Emir,† is a very young man (about twenty years of age), without the brains of his youngest brother, the Bek of Kermine, Said-Abdul-Akhat-Khan.

The Tiura-jan passed the night at Kara-chulluk, but we went on to Sari-jui, a march of 10½ miles. We passed through the village of Tartulla, and after winding among clay hills, emerged into a broad cultivated valley of a river, the Tupalan.

As we had already determined beyond doubt that the second affluent of the Oxus, after the Shir Abad Darya, is the Surkhan, it was most interesting to visit the affluent of the Surkhan, the Tupalan, which name was so long usurped by the Surkhan. We were now riding along the valley of the Tupalan, or more correctly the Sar-i-jui darya, because in Central Asia the rivers, like the mountain ranges in the majority of cases, do not have a definite name, but are called by the name of the towns through which they pass. Thus the Tupalan in the neighbourhood of Sar-i-jui is called the Sar-i-jui-darya; the Zigdi-darya, near the town of Dushambe, is called the Dushambe-darya, &c.

We soon came in sight of the walls and gates of the town of Sar-i-jui.

Here we passed the night at the house of the amliakdar in charge of Sar-i-jui. Early in the morning we continued our journey. The Tupalan is unfordable, and in order to cross to the opposite bank we had to proceed about 300 yards up stream to the bridge. At Sar-i-jui the river is from 45 to 50 yards in breadth, but at the bridge it is not more than 25 yards. The bridge consists simply of huge beams thrown across from bank to bank; it is, however, quite firm. Our course lay eastward through the village of Deshti-novat (16 miles), which translated means "Steppe-candy."

To Regar is 14 miles, where we were to pass the night. The road traverses a highly cultivated district.

Regar was at one time a distinct, independent possession under Sabdar-kul-datkha. He was appointed Bek of Regar by the Emir Nasr-Ullah. Whilst the latter was busy in a contest with Shahr-i-sabz, Sabdar-kul thought himself out of danger and again proclaimed his independence. He fortified his town and built himself a palace in the citadel with a high tower; from this place he daily looked through a telescope at the country around, and watched the approach of the enemy's forces. At length the Emir appeared before the town with his army. Sabdar-kul was seized and executed.

Regar is now administered by an amliakdar. Its citadel is still strong, and, with the exception of Hissar and Shir-abad, is stronger than any other in Hissar.

The next day we proceeded to Kara-tagh (13 miles). The road lies to the north-east as far as the north end of the valley of the Surkhan, or, more correctly, to that part of it where the valley of the Surkhan unites with the neighbouring valley of the Kafrihan. This point of junction of the two valleys, bounded on the north by the slopes of the Hissar range, and on the south by the northern spurs of the Baba-tagh, I would propose to call the Kara-tagh plateau. A low, scarcely perceptible elevation, which divides the basins of the Surkhan and Kafrihan, does not alter the plateau-like character of this locality.

On our right stretched the Babatagh like a flat wall. Two ridges could be detected. The nearest, a low range gradually approaching us and passing at its north end into sloping hills. Beyond it was seen the second, a high wall-like chain running nearly due north and south, and further on apparently bending to the north-east.

On our left stretched a much more massive range than the Baba-tagh. Its highest point, a mountain, rising directly opposite Denau and Yurchi, is called Hazara. Beyond Hazara snow is seen to lie in patches, and in the crevices. Here the range is called Hulkhas; it is intersected by the defile of Shirkent, whence rises the Shirkent-darya, a rapid mountain stream, which we forded. Our route lay to the north-east. Beyond the Shirkent defile are seen dentellated mountain masses covered with snow. This second range is evidently much higher than the first, is not parallel to it, but inclines

* The name in Bokhara for the sons of the Emir.

† The eldest son, Katta Tiura, rose against his father in 1868, but was defeated and fled to Khiva, Kabul, and eventually to Kasligar. The second son is the Bek of Charjui, and said to be a wise and energetic man. The third son is the Bek of Hissar, to which he was appointed on the death of Yakub Kushi Begi. The fourth son is Bek of Huzar, and the fifth, the father's favourite, is Bek of Kermine.

Kara-tagh
range. towards the north. Straight in front of us rose the mountain masses of the Kara-tagh. The Kara-tagh is evidently part of the Hissar range, and from its defile issues the Kara-tagh-darya, an important and unfordable affluent of the Surkhan.

Kara-tagh
town. The town of Kara-tagh, with a citadel, lies in the defile in the spurs of the Kara-tagh, and on the bank of the river of the same name, over which there is a bridge.

After staying three days in the unhealthy town of Kara-tagh, we left for the still more unhealthy town of Hissar.

Hissar lies to the south of Kara-tagh, about $2\frac{1}{2}$ miles from the river Kafirnihan, whilst the Kara-tagh Darya belongs to the basin of the Surkhan. From Kara-tagh to Hissar is 16 miles. The road at first lies between the spurs of the Kara-tagh, then issues into the *Kara-tagh plateau*, well cultivated and watered. On the right is seen the Baba-tagh, in two not-parallel ridges. This is the north end of the Baba-tagh, and is not of great height. The Baba-tagh does not present one or more sharply-defined mountain ranges. It is simply a mountain mass furrowed in various directions by low ridges. Such at least is the Baba-tagh in its middle and south part. It is, however, easily passable, and is intersected by numerous roads and paths leading from the valley of the Kafirnihan to the valley of the Surkhan. The highest part of the Baba-tagh is opposite Denau.

To the left of the road was seen a low ridge, intersected by defiles, and running to the south-west. This is an offshoot of the Hissar range without any definite name, but bearing the names of the adjacent villages: Hanake-tagh, Varzob-tagh, Roumit-tagh, &c. From the latter defile flows the Roumit-darya, the source of the Kafirnihan. From the Varzob defile flows, in two streams, afterwards uniting in one, the Zigdy-darya, and from a defile in the Hanake-tagh flows the Hanake-darya an affluent of the Kafirnihan, falling into this river near Hissar.

The road gradually approaches the north end of the Baba-tagh, and afterwards passes along its east slope. Here the Baba-tagh is a low ridge. Past the walls of Hissar flows the rapid Hanake-darya, supplying the town with water and irrigating the fields.

Hissar
town. Hissar lies at the entrance to a narrow defile formed on the one side (west) by the Baba-tagh, and on the east by the still more mighty range of the Mazi-melek, a spur of the Hissar range. The Kafirnihan flows about $5\frac{1}{2}$ miles from Hissar. The defile formed by the Baba-tagh and Mazi-melek, and at the entrance to which lies the strongly fortified town of Hissar, bears the name of Pavi-Duldul, *i.e.*, the foot of Dul-dul, a fabulous horse of Asia, which was smaller than a horse and bigger than a donkey, and was distinguished for its extraordinary fleetness.

Pavi-duldul
defile.

Generally the entire Hissar range, between Shahr-i-sabz, and the Oxus, and even further to the Hindoo-kush,* is full of reminiscences of the famous Apostle of Islam.

The word Hissar means "fort," and certainly this town, with its strong citadel, built upon an artificially-formed hill, forms a fortified point, defending the entrance to the defile of Pavi-dul-dul. That such was the original importance of Hissar, is evident from the fact that at the opposite end of the narrow defile of the Kafirnihan there is a similar fortress, Kobadian. It is evident that the Hissarees jealously defended the passes from the south, from ancient Khutl, into the fertile valleys of the Kafirnihan and Surkhan. Hissar cannot be considered the chief town of all Hissar, because it does not lie in the centre of its cultivated part but on the border, and consequently to the present day preserves the character of an advanced post. Where the centre of Hissar was in ancient times it is impossible to decide; probably the town of Kafirnihan, at the present time of little importance, or perhaps Denau or Dushambe. Further on we shall have occasion to speak of the ancient principalities of Chagadian, Khutl, and Vashird, into which the present Hissar was at one time divided. In spite of the opinion of such authorities as Rawlinson, Yule, and Fedjenko, we believe, on the authority of Ibn-dasteh, that ancient Khutl occupied the present Kurgan-tepe bekate, with Fyzabad and Kobadian; Vashird is the present Kulab with Baldjuan, while Chagadian was the plain at the upper part of the Surkhan and Kafirnihan, with the towns of Hissar, Dushambe, Denau, Yurchi, &c. If this hypothesis be good, it may be supposed that Hissar was a fortress defending the pass from Khutl (through Kobadian) to Vashird.

The valley of the Surkhan, open on the south, has no advanced defensive point on this side. Every town has its strong citadel.

Kafirnihan
river.

Beyond the defile of Pavi-Duldul, the valley of the Kafirnihan broadens somewhat. The Kafirnihan flows at the foot of the Mazi-melek range, while in places the Baba-tagh

* Near Balkh is the tomb of Ali, which the Mussulmans of Central Asia go to worship.

contracts the valley as the mountain approaches the river. From Hissar to Kobadian is 75 miles, and from Kobadian to the Oxus 30 miles. The road to Kobadian by the Kafirnihan valley is very difficult, with steep ascents and descents.

Hissar is usually given the epithet of "Shadman" (joyous), like as Bokhara is called "Sherif" (noble), and Kokand "Latif" (enchanted). What Hissar was in times of yore it is impossible to judge, but now it rather deserves the title of "sickly." It is considered the most unhealthy place in the khanate.

From Hissar to Dushambe* is 20 miles; the road strikes north-east, nearly at right angles to the road from Karatagh to Hissar. Our road lay along a mountain valley, rich in water, and covered with the nomad tents of the Marka-kichi-yuz Uzbeks, who migrated here from Ura-tepe and Jisakh in 1866. Further down the valley were the Lakai and Durbun Uzbeks.

Dushambe, with its strong citadel on a hill, lies at the entrance to the Varzob defile, on the bank of the Zigdy, which, rising here, receives the name of Dushambe-darya. The Zigdy is a mountain-torrent, scarcely fordable. Above the town of Dushambe, at the entrance to the defile, is a bridge; but in order to pass by it a considerable detour has to be made.

At Dushambe is the only gentle spot on the Zigdy where it is possible to ford, and this can only be done at low water. There are no other fords on the river. The Dushambe-darya (Zigdy-darya) falls into the Kafirnihan at the village of Munk-tepe, about $2\frac{1}{4}$ miles from Dushambe on the Hissar road.

The banks of the Dushambe are covered with villages; to the east of Dushambe lies the largest of the suburban villages, Shah Mansur.

The mountains of Varzob-tau, seen from Dushambe, abound in various trees.

From Dushambe to the town of Kafirnihan is 20 miles. The road leads in an easterly direction, along the massive range of Mazi-melek. We passed the village of Shah Mansur by a level road. In the distance glimmered the shining riband of the Kafirnihan. To the right, near the road, along the side of the river, were seen the villages of Hazrat Mulliana, Karavah, and others of less importance. At Karavah the Yavan-tau separates from the Mazi-melek. The latter retains its north-east direction where it enters Karategin, while the Yavan-tau stretches at first to the north, then north-west, and joins the offshoot of the Hissar range, the Roumit-tagh, which strikes south-east. These two ranges enclose the Fyzabad plain, which is shut in on all sides by mountains, except on the south-west. The village of Roumit, with a kurgan, is situated in the defile of Roumit-tagh, and from Kafirnihan is not seen beyond the outlying heights. From its defile flows the Kafirnihan, under the name of Roumit-darya. It is formed of two streams, one flowing from the Magian mountains, the other from Karategin.

After passing the two villages of Kiskach, we approached the bank of the Kafirnihan, which here divides into several branches. The road rises to the top of a low hill, which permits of an excellent view of the Fyzabad plain. Near the hill is a bridge (35 paces) over the river.

From the bridge the road follows by the left bank of the Kafirnihan, passes several villages and nomad tents of Liuli (gypsies), and enters the town of Kafirnihan, situated on the left bank of the river.

From Kafirnihan to Fyzabad is 13 miles; the road at first lies to the south-east, then approaching the mountains of Yarjid, which close the valley of the Upper Kafirnihan, bends back along their foot to the south, and enters a narrow but practicable defile. Near the mountains, on the plains, is seen the village of Hozi-begi. The road to Fyzabad strikes off from the river Kafirnihan, which is left on the left hand, and which may be followed as far as the Roumit defile.

The mountains of Yarjid are covered with villages, and are highly cultivated. From their highest point is seen the mountainous mass of the Yavan-tagh, covered with excellent pastures. The Yavan-tagh, a branch from the Hissar range, extends in a north-east direction, whilst the Yarjid range bounds the Kafirnihan valley in an east and west direction. Thus a triangular, undulating valley is formed, shut in on the north-west by the Roumit-tagh, on the north by the Yarjid range, and on the south-east by the Yavan-tagh. This is the Fyzabad plain, well cultivated and fertile, with a healthy climate, abundant streams, and verdant all the summer with grass. Through it flows the Ilek, an affluent of the Kafirnihan, $2\frac{3}{8}$ miles from Fyzabad.

The Kurgan of Fyzabad is half in ruins. This shows that Fyzabad of late years has played an independent political rôle. It is now governed by an amliakdar, appointed by the Bek of Hissar.

* Dushambe signifies "Monday."

Vaksh,
Vakhab and
Oxus.

Fyzabad is the last town in the basin of the Kafirnihan an affluent of the Oxus, Further on, beyond the mountains which bound the Fyzabad plain on the east, lies the unexplored mountain region wherein flows the Vaksh or Surkhab, a river which the inhabitants of the spot believe to be the source of the Oxus. The statements of the natives were confirmatory that the Vaksh, called Surkhab in Karategin and Kizil-su in Kokand, issues from the south Kokand mountains. Thus there is no doubt of the identity of the Vaksh with the Kizil-su, the sources of which were discovered by A. P. Fedjenko. At the same time the supposition expressed by certain geographers, that the Vaksh is the local name for the Punja, is upset. Thus although Rawlinson also identified Vaksh (Vakshab) with Surkhab on the basis of Ibn Dasteh's statements, who says that the Vaksh passes through the mountainous regions of the Pamir, Rasht, and Kale-i-Khum, yet A. P. Fedjenko, on the basis of the information collected by himself, expressed a doubt as to the identity of the Vaksh and Surkhab, although he does not speak positively. In fact, there is much resemblance between the names Vaksh or Vaksh-ab and Vakhab. We will remark that the Vaksh (Surkh-ab) joins the Vakhab (Punja) and forms the Oxus, so that we have in one and the same locality two rivers with names proceeding from one and the same root (Vakh-Vaksh). We may therefore presume that there was a time when the whole of the Oxus was called the Vaksh or Vaksh-ab (*ab* means water or river); and hence it is not far-fetched to suppose that the Greek name of the river, *Oks*, is only the mutilated native name, Vaksh. If this is correct, the natives have taken for a long time (and they take also now) for the source of the Oxus both rivers indifferently, the Punja and Surkhab, calling the great central Asian river by both names.

The mountainous region forming the basin of the lower parts of the Vaksh and Punja, formed for a long time two separate independent principalities; so that Fyzabad was the easternmost frontier town in Hissar* (we will so call the country occupied by the valleys of the rivers Surkhan and Kafirnihan). Fyzabad, although it also belongs to the basin of the Kafirnihan, still, from its situation in a separate plain surrounded by mountains, has always presented an attractive morsel to the rulers of the neighbouring Kulab Bekate, who endeavoured to seize it on every favourable opportunity.† Its fertility made it still more attractive. A particularly lively and agreeable impression was produced during our ride across the Kaudan range to the mountain village of Norak, in the valley of the Vaksh.‡ The view of the Fyzabad plain from the top of the Kaudan pass (3,350 feet),§ to which we climbed by a steep ascent, is very fine. The summit of the pass is covered with fields; higher up, the mountain slopes are green with trees: the almond, maple, birch, yellow and white rose, wild vine and hawthorn. There are three villages, all bearing the name of Kaudan.

The descent from the pass to the opposite side is more gentle, but there are places where it is very steep, and where the horse has to be led down. There are some dangerous places; for instance, near a tortuous descent known as the "Copper Mines," and near the village of Khairabad.

At the descent from the Kaudan pass appears the distant blue mass of the Kur-tagh, with an isolated pyramidal peak. At the foot of this range winds the river Vaksh in a narrow bed.

It was dark when we rode out of the mountains into the valley of the Vaksh, narrow (not more than 500 or 600 yards broad) and tortuous. From the place where we were it seemed as if the whole valley were surrounded by mountains. The village of Norak is surrounded by a wall, and thus presents a small—and, for Asiatic troops, rather strong—fort. In the present day here is the frontier of the Fyzabad bekate and the custom house. But formerly, when the Kulab Bekate was independent, Norak formed part of Kulab, and thus was the advanced Kulab fort towards the Vaksh valley. On entering the defile of the Vaksh, about 300 yards from Norak, the attention is arrested by two rocks, with layers of rock salt cropping out. Proceeding another 300 yards, we see the entrance to a wild and narrow gorge, out of which dashes through rocky banks the river Vaksh. Here in the defile is built the well-known bridge, Pul-i-senghi (stone bridge). The place for it was selected where the bed of the river was most narrow. The length of the bridge is 10 paces; it is made fast to two abutting rocks which rise high above the level of the river. Between them in a narrow crevice the river dashes with immense force. The Vaksh is here not more than 20 paces in breadth. The bridge rests with both its extremities on steep, nearly perpendicular rocks, along

* Hissar is sometimes called Hissar-balan (upper), although I never heard it myself, but I heard that Begar is called by some Hissar-payan (lower).

† We speak of those recent times when Kulab was powerful, not when Khutl existed.

‡ Fyzabad to Norak 10½ miles.

§ Absolute height of Fyzabad 3,020 feet.

which serpentines the only path and the only communication between Baljuan and Fyzabad. This path passes from rock to rock; it is called Dandan-chishkan, *i.e.*, "broken teeth."

In order to render the communication between Hissar and Kulab or Baljuan rather more convenient, the former Viceroy of Hissar, Yakub-kush-begi, made a new road along the bed of the Vaksh, from the bridge to the village of Deurt-Kaul, for a distance of 4 miles. This road for the greater part passes along an artificially-made cornice; it and the bridge over the Kafirnihan are conspicuous monuments of the clever Yakub-bek-kush-begi, by whose death the country suffered a great loss.*

The bed of the Vaksh is blocked in many places with huge masses of stone, detached from the rocks at the sides of the defile.

The river is so little known that it will not be unprofitable to mention what is known about it from Eastern geographers and historians.

In "Tarikhi-Rahim-Khana," says Professor Lerkh,† the river Vaksh is known only under this name. Between it and the Oxus, according to the same authority, is the fortress of Kurgan-tepe (16 miles from the point of passage across the Vaksh at the ruins of Lehman), consequently where the Vaksh approaches the chief bed of the river Oxus. In the geographical documents of the tenth century, Vaksh is called simply Vaksh-ab. Rawlinson, in his annual address to the Geographical Society in 1872, read an extract from the description of the Oxus by Ibn Dasteh.

Ibn Dasteh‡ thus commences: "The Jihoon (the name by which the Oxus is known to the Arab geographers) flows from Thibet, from the east, and passes through Vakhan. Here it is called Vakh-ab. It then flows into the country above Balkh, to the east of it; here it trends to Zemma, then to Amola, and lastly to Khwarezm. Into the Jihoon fall many rivers; among them is one large river, the Vaksh-ab, which flows from the country lying above the territory of the Kharlukh Turks. Then it flows into the country of Famir (in the original κ (Kamir) instead of ϕ —ج instead of ب—there is no *p* in Arabic), afterwards into the country of Rasht (in the original Rasb, *b* instead of *t*, ب instead of ت), thence to Kumid (Vallis Comedarum of the ancients) territory; the river afterwards flows between the mountains lying between Vashjird and Khutl, called Temliat. Where the Vaksh passes between the mountains there is a bridge called the *stone bridge* (by this name Istakhri and Ibn-houkal knew it; but in the history of Timur it was called by the Persian name of Pul-i-senghin, and the Turkish Tash-kepri, meaning one and the same thing). Across this bridge the road leads from Vashjird to Khutl. To the right lies Khutl, to the left Vashjird. It flows right through Khutl, and falls into the Jihoon at a little place called Mileh, above the town of Termid. In Khutl, lying between these two rivers on the right hand, are mountains, which on the east surround the river Vakh-ab, and on the left the river Vaksh-ab. To the right of the Vakh-ab, touching it on the south, is the country of Upper Tokharistan, known under the name of Bargin. Between these two rivers falling into the Jihoon is another river called Ramid (Zamil or Zamid). It flows from Rasht (or Rasb) which lies between the Vashjird and Chaganian territories. Afterwards it flows to Chaganian. Into it fall several rivers, which rise in the Buttum, Sinam, Niham, and Khawer Mountains; they are called the Kam-rud, Niham-rud, and Khawer-rud. And this river Ramid flows to the confines of Chaganian, and then joins the Jihoon above Termid. The mountainous region between the rivers Ramid and Vaksh-ab is called Kobadian. In an administrative respect it is counted as part of Khutl. To the right of the Ramid, to the east of Chaganian, and to the left of Vesha-tshird (probably the same as Vashjird) flow into the Jihoon those rivers which come from the south, from Upper Tokharistan. Above Khutl, on the Vaksh-ab, which flows from Thibet and is the source of the Jihoon, are found grains of gold.

I concur with Fedjenko, says Professor Lerkh, in not sharing Rawlinson's opinion, that the Vaksh-ab of Ibn Dasteh is not the river Surkh-ab. The river Ramid, it seems, is the present Kafirnihan.

The Vaksh-ab flows, according to Ibn Dasteh, from the mountains above the country of the Kharlukh Turks, but we know that the Vaksh, or Surkh-ab, flows from the Alai Mountains, under the name of Kizil-su. Then, according to Ibn Dasteh, the Vaksh flows in the country of Famir. As it is now known that there are many Pamirs in Central Asia, and that they are nothing else but high plateaux, like the Alai, which Fedjenko visited, or the Baba-tagh plateau, which we should have to traverse on the road

* At his death the country was divided into nine parts. Excluding Huzar, there are nine betakes: Baisun, Denau, Yurchi, Hissar, Baljuan, Kulab (Kul-ab), Kurgan-tepe, Kobadian, and Shir-abad.

† Russische Revue, 1875. Vol. vii, Part 8.

‡ Ibn Dasteh wrote in the third century of the Hejreh.

to the river Surkhab (from the valley of Kafirnihan), it may be affirmed that the word *pamir* or *famir*, is a general name for all high mountain plateaux, which characterise the mountain systems of Central Asia. Thus under the name of Pamir, in Ibn Dasteh's description, is meant the Alai Mountains, and not any particular district.

From the Pamir, according to Ibn Dasteh, the river Vaksh flows to Rasht or Rasb, and afterwards to Kumid. Fedjenko sees in Rasht or Rasht the principality of Roshan, and believes that either the names Rasht and Kumid are incorrectly read, or that Ibn Dasteh mixed them up with the river on insufficient grounds. But at any rate we know (1) that the Vaksh-ab of Ibn Dasteh is unquestionably the Surkh-ab, and (2) that the country of the Kharlukh Turks and the Pamir are the South Kokand Mountains and the Alai plateau, consequently under one of the names Rasht and Kumid must be hidden the present Karategin.

Further on the Vaksh flows, according to Ibn Dasteh, between the mountains which lie between Vashjird and the *gow* of Khutl, called Temliat. This locality was visited by us; to the east of the narrow valley, through which the Vaksh winds, is the valley of Bel-juan, whence leads to the eastward a direct and more used road to Darwaz and Kulab; one of them is also Vashjird. As regards the Khutl *gow* of Temliat, this cannot be any other than the Faizabad plain, rich and fertile with its beautiful mountains. Here probably was the northern frontier of Khutl. Ibn Dasteh also says that along the stone bridge over the Vaksh in this neighbourhood, passes the road from Vashjird to Khutl. In fact, this bridge, as also another near the village of Darwaz-kala, 22 miles to the east of the former, served as a road to the Kulab conquerors, who made repeated attempts to seize Fyzabad.* I suppose that Ibn Dasteh spoke of the road between Kulab and Fyzabad, because the relations (both military and commercial) with rich and warlike Kulab, were of greater interest than with poor and inaccessible Darwaz. Thus it may be supposed with fair certainty that under the name of Vashjird, Ibn Dasteh understands the present Kulab possessions with the Beldjuan valley (the valley of the Kichi-Surkh-ab). This is confirmed by the subsequent words of Ibn Dasteh: "To the right of its (Vaksh) course lies Khutl territory, and on the left Vashjird." In reality, in the middle part of the course of the Vaksh, *i.e.*, immediately beyond the stone bridge, there lies on the right the country of ancient Khutl, *viz.*, the Khutl *gow* of Temliat, and on the left the Kulab, or, according to Ibn Dasteh, the Vashjird possessions.

But the country of ancient Khutl had for its eastern frontier this river only along the narrow valley of the Vaksh. Further south, where the Vaksh issues into a more open plain, the Khutl country passed, it seems, to the left bank of the river, consequently occupying the present Kurgan-tepe Bekate. Here, probably, was the political centre of Khutl. This may also be inferred from the words of Ibn Dasteh: "Then, further on, the Vaksh flows to the confines of Khutl. In the territory of Khutl, lying between these two rivers (Vaksh and Jihoon), on the right hand are mountains, which on the east surround the river Vakh-ab (*i.e.*, Oxus, or more correctly Punja), but on the left the river "Vaksh." The description of Ibn Dasteh is remarkably correct; in fact, from the east of the Kurgan-tepe bekate (ancient Khutl) is surrounded by a mountain mass, which has no general name; its highest range is called Kara-tau. Beyond this mountain mass, further east, flows the Punja, the upper course of the Oxus. Beyond the Vakh-ab and Punja, commenced in the time of Ibn Dasteh ancient Tokhara (*gow* or district of Bargin).

From the subsequent words of Ibn Dasteh, we learn that the principality of Khutl extended west to the valley of the Kafirnihan or Kumid, as Ibn Dasteh calls it. Kobadian was vassal to Khutl, and this is very material; if the Khutl rulers could extend their authority to Fyzabad, it would not be difficult for them to reach the lower Kafirnihan.

Less accurate and correct is the information of Ibn Dasteh with regard to another important affluent of the Jihoon, the Kafirnihan, or, as he calls it, Ramid. According to Ibn Dasteh, the Ramid flows from Rasht, through which also flows the Vaksh. That the Ramid is the Kafirnihan is proved by the circumstance that its upper part, as far as its issue from the Roumit defile, is called in the present day the Roumit-darya. "Afterwards," says Ibn Dasteh, "it (*i.e.* the Ramid) flows to Chaganian and afterwards joins the Jihoon above Termid." All this is true, and consequently the valley of the Kafirnihan, commencing from the mountains to the north as far as Kobadian, which belonged to Khutl, formed in ancient times Chaganian. To it belonged the towns of Kafirnihan, Dushambe, Kara-tagh, and Hissar.

According to Ibn Dasteh, into the Ramid (Kafirnihan) fall several rivers flowing from

* The Kulab Khans extended their influence not only to Fyzabad but even to Denau. Sary Khan made Chug Bek ruler in Denau.

the mountains Buttum, Sinam, Niham, and Khawer; they are called Kem-rud, Niham-rud, and Khawer-rud. The name of the first and fourth are unknown to us; Sinam and Niham are known. The mountain mass of Sinam, with the village of the same name, lies opposite Yurchi, consequently in the valley of the Surkhan. About Niham we know from Tarikhi Rabim Khana. Rabim Khan, with his army, made one march from Hissar-bala* to Tupalak, where he destroyed the fortress of Djui (Sar-i-djui). But this fortress, as also Deh-nau (Denau) were in the valley of Niham. But we know that Sar-i-djui and Denau lie in the valley of the Surkhan. Thus it is clear that Ibn Dasteh included the Surkhan or Niham-rud as affluents of the Ramid or Kafirnihan. But there is no doubt that he was never himself in Chaganian, and he derived his information from hearsay.

Of the south affluents of the Jihoon, flowing from Upper Tokharistan, we shall not speak, as our expedition did not touch the country on the other side of the Oxus.

Let us now revert to our description of the mountain road from Fyzabad to Baljuan.

Near the mountain village of Deurt-kaul is seen an old road which descends to the river with a steep rocky incline. The river Vaksh, of a muddy-red colour, forms a creek at Deurt-kaul, which overflows in summer; gold is found here on the subsidence of the water in autumn. Deurt-kaul.

Deurt-kaul is a small mountain village, lying in a valley two-thirds of a mile in breadth, along which flows the Vaksh. Near the village the river bends, changing its former south-west direction for an east and west course. At the end of the valley were seen traces of a former bridge over the Vaksh, destroyed by the ruler of Kulab, Surkhan Khan. Here is also the village of Darwaza-kala. The valley of the Vaksh is formed on the one hand by the mass of the Nur-tagh, and on the other by the Sengi-lak. River
Vaksh.

At the end of the valley the Vaksh bends to the north-east. Its narrow valley is here pent in on the one hand by the mass of the Nur-tagh, and on the other by the Hodja-yukur range which extends to Karategin; from here to Karategin is two days' journey.

We left the valley where it bends north-east, and struck south-west by the Obi-kur defile. In our ascent to the first terrace of the range we saw in the distance the Sebitan-tagh, over which we had to cross the same day. The ascent, although steep, was not rocky. The first village in the ascent was Kuli-Sophian; there was another a little further on. Here the road, after inclining to the south-west, resumed its former direction to the south-east.

From Deurt-Kaul to Kangur is 24 miles. We rose by a very steep path to the Gul-i-zindan pass. The descent from the pass is very steep and dangerous—the slope often 50° to 55°. The march is exceedingly fatiguing. Gul-i-zindan
pass.

After some time the road issues into the valley of the Kangur-bulak. The road has throughout a south-easterly direction.

From Kangur to Baljuan is 10½ miles. The road passes at first along the valley of the Kangur, and shortly enters the narrow valley of the Rudja-kul, surrounded by low and sloping hills. Along the valley flows the stream of the same name. A gentle ascent leads to a terraced height, where lies the small village of Huzar. The slopes are all cultivated. From the village leads a steep descent to the river Kara-su, and then the road rises to the steep pass of Djari-parran, whence a beautiful view is obtained of the valley of the Baljuan-darya, or Kichi-Surkh-ab, as the natives call it. The Kichi-Surkh-ab is formed in the mountains from numerous springs, and after joining the Kulab-darya, falls into the Punja 8 miles from Kulab. The valley of Baljuan is not above two-thirds of a mile in breadth. The Kichi-Surkh-ab flows along it in several arms; its water is reddish, due to the tertiary formation characteristic of the locality, commencing from Fyzabad. This formation abounds in salt, and the streams are brackish in consequence. Djari-
parran pass.

Kichi-
Surkh-ab.

After descending from the Djari-parran pass, the road changes its course from an east to an east-south-east direction, and runs parallel with the river Kichi-Surkh-ab and the Baljuan range. Near the descent is the village of Djari-parran. Not far from this village the road crosses by a ford the Kichi-Surkh-ab and ascends to Baljuan, which lies at the point where the Baljuan valley is joined by one of the lateral defiles. The town extends along the valley and along this defile. Gardens and houses are seen even on the gently sloping and terrace-like hills of the valley. Baljuan
town.

Baljuan lies at a height of 2,130 feet, *i.e.*, about the same height as Kara-tagh.

From Baljuan to Darwaz is two to three days' journey, but the road is very difficult, and lies across snow ranges. Nevertheless the ruler of Darwaz rides to Bokhara through Baljuan.

The mountains of Baljuan-tagh hem in the narrow valley of the Baljuan, in a north Baljuan
mountains.

* Probably Kara-tagh; it would be impossible to go in one march from Hissar proper to Sar-i-djui.

and south direction. They are furrowed with many defiles, and are a true mountain range. Our route lay down the valley of the Kichi-surkh-ab to the south, as far as the issue from the defile of Djari-parran. We gradually approached the left border of the valley, and crossed the Baljuan-tagh in an easterly direction.

The Baljuan-tagh are gently-sloping mountains, covered with pastures, and cultivated in places, especially near the villages of Fyzabad and Salduzi, which lay on our road.

Uzun-akur
pass.

The pass over the Baljuan-tagh is called Uzun-akur ("long mangers"); this is also the name of the valley along the eastern slope of the range as far as the small summer village* of the Uzbegs of the Lakai tribe. Near the pass is the Uzbeg mountain village of Shar-shar. There are numerous other villages.

The eastern slope of the Baljuan-tagh is far more gentle than the western, along which we ascended on riding out from Baljuan. But our route lay not by the defile which descends directly from the top of the pass to the plains below, but by a narrow and tortuous mountain valley. Along the valley flows the Uzun-akur-bulak. From the top of the pass were seen the mountains which bound on the east the Kulab valley. This is the Hazrat-imam range, with the peak of Yak-archa. Behind it rise the snow summits of the Kugi-frush, which forms the frontier between Kulab and Darwaz. On the opposite western side, the Kulab valley is bordered by the Baljuan-tagh.

After leaving the mountains, we took a south direction along the Kulab valley. At this point lies the large and rich village of Pushian, and near it another of the same name.

From Baljuan to the Uzun-akur valley is 16 miles, and from thence to Pushian 10 $\frac{2}{3}$ miles.

Kulab river.

The Kulab valley is not broad. Five and a half miles above Pushian the valley narrows to a defile, along which flows a small stream. The Kulab-darya takes its rise in the Kugi-frush, somewhat more to the south. At first it is called 'Talvar.† As we proceed southward, the valley becomes broader and broader, and at the town of Kulab is marshy. At Kulab the river bends to the south, and after joining the Kichi-surkh-ab, falls into the Punja about 35 miles from Kulab.

Punja.

The valley of the Punja is low; its banks are covered with bushes (*patta*), which swarm with wild animals.

From Pushian to Kulab is 8 miles. The road lies always south-east, crossing the Kulab valley diagonally. At Pushian the valley is not more than two-thirds of a mile in breadth, but at Kulab it is 2 or 3 miles. The road gradually approaches the Hazrat-Imam. The Kulab valley in its upper part is inhabited, the villages being situated high up the sides of the valley.

The Kulab-darya is a gentle mountain stream. On Fedjenko's map it is called the Hovalin. Such a river does not exist, although there are mountains of that name, through a defile of which the Kulab-darya runs.

We passed many villages on the road, especially as we drew nearer to Kulab. Their names were Abi-tauluk, Jangil-bashi, and Chantime, rather to the left. From it to Kulab is 4 miles. Then the villages of Mulla-Sultan, Abbas, and Kaptar-Khan. Here the mountains of Hazrat-Imam, gradually getting lower, merge into gently-sloping low hills, over which the road leads to Kulab.

IV.

FROM KULAB TO KOBADIAN.

Kulab.

Kulab, or Kul-ab, received its names from those lakes or inundations near which it stands. Formerly Kulab was built on a still lower and more unhealthy spot. Its present site was changed by the late sovereign, Sary Khan, who ruled over Kulab and Baljuan for about ten years. Sary Khan was a native of the district, an Uzbeg of the Katagan tribe. When the Emir, after defeating the Hissarees at Denau, arrived at Kurgan-tepe with his army, Sary Khan fled to the mountains, but was captured and brought to the Emir, who sent him to Bokhara, after appointing Omar Khan (Sary Khan's nephew) Bek of Kulab. The new ruler speedily revolted, and the Emir again appointed Sary Khan bek. When Katta-tiura rose, Sary Khan joined in the insurrection, and when Yakub Kush Begi's troops appeared before Kulab, Sary Khan fled to Cabul, where he still resides.

The Bokharian Government are not over satisfied with the hospitable reception

* (*Yaitau*.)

† Pushian to Talvar is a day's journey, and from Kulab to Badakshan a week's journey.

accorded by the Afghans to Sary Khan, who still entertains the hope of regaining, sooner or later, his father's heritage of Kulab, Baljuan, Kurgan-tepe, Kobadian, and generally all the territory on the lower Punja and Vaksh, over which he reigned independently for ten years. The population of Kulab and Baljuan would like to have Sary Khan for their ruler; they are dissatisfied with the Bokharian Government for several reasons.

The Bokharians expect that if a revolution takes place in favour of Sary Khan, that it will break out in Baljuan, amongst the Lakais, and will be afterwards joined by the more peaceful Kataguns in Kulab. Serious disorders may be expected in this country before long, which will entail a campaign on the part of the Emir.

Such is the state of the mountainous south-eastern border of the Bokharian khanate—secret agitation and dissatisfaction in Kulab, which is only restrained by the garrisons maintained in Kulab and Baljuan* under experienced leaders. The agitation and dissatisfaction are becoming still more dangerous for Bokhara, in consequence of the strained relations between that State and Afghanistan. Fearing lest the Emir at a favourable minute may lay his hand on the attractive morsel—Badakshan, the Afghans find it to their advantage to harbour Sary Khan. Outwardly the relations of the two countries are perfectly satisfactory; but the Afghan embassy comes more often to Bokhara than the Bokharian goes to Cabul, and the latter, according to report, keeps itself far more free and independent.

As a town Kulab occupies a very small space; within the town walls there are not more than 400 houses; but round the town for a considerable distance there are gardens. Kulab is much more populous than Baljuan. The citadel is a very sorry place; it is a simple mud rampart, with bastions at the angles and on both sides of the gates. In the citadel is the residence of the Bek. The streets are broad and comparatively clean. The town is disposed in a semicircle at the foot of low hills which form a separate group. The highest hill is called Tomasha-tepe.

It has been already stated that from Baldjuan leads a road to the neighbouring principalities, Darwaz and Karategin; Darwaz and Karategin, being poor and insignificant powers, were subject at one time to Kokand, at another to Bokhara, whichever happened to be supreme. After the fortunate campaign of the Emir in Hissar, a campaign which ended with the occupation of Kulab and Kurgan-tepe, Karategin and Darwaz also acknowledged themselves vassals of Bokhara, and their sovereigns (Shah) paid annual visits to *salam* the Emir. The Shah of Darwaz goes twice in a year, or sends his son; the Shah of Karategin not more than once a year. Both Karategin and Darwaz are considered poor countries, and pay but a small tribute to the Emir.

Relations
between
Bokhara,
Darwaz and
Karategin.

The small trans-Oxus principality of Shiburghan also at one time acknowledged vassal dependence to Bokhara; and the Emir conferred on its sovereign the title of Atalik, the highest title which in Bokhara is granted only to semi-independent ruling princes.† Now Shiburghan acknowledges the superior authority of the Emir of Cabul, Shir Ali Khan, as also does the mountain principality of Shignan.

Shiburghan
and
Shignan.

The road from Kulab to Kurgan-tepe passes at first along the narrow valley of the Kulab-darya, crosses the south extremity of the Baljuan-tagh, which bounds the Kulab valley on the west, and rises to the low mountain of Alim-tau. Here in the village of Khul-bagh we proposed to pass the night, as we had a long difficult march before us on the next day.

As the distance from Kulab to Hul-baz was only 12 miles, we did not leave Kulab until after dinner. Near the town we forded the gentle river Kulab-darya, gentle because it is drained by arys, and moreover overflows to the low parts, forming inundations and marshes. On the road from Kulab to Hul-baz we passed the villages of Abbas and Kaptar-khan, and also Angona, inhabited by Afghans, who migrated here some twenty years ago.

Hul-baz is on the Baljuan-darya (Kichi Surkh-ab), which not far from here joins the Kulab-darya. The Kichi Surkh-ab flows here with four arms. Here we halted, intending to rise early, in order to go to Tash Rabat next day, supposed to be 37 miles from Hul-baz.

Hul-baz.

At a distance of about 250 yards from Hul-baz, we ascended to the first terrace, the low mountains of Alim-tau. Along this terrace runs the great road from Baldjuan to Kurgan-tepe; our course was south-west. This road passes along a narrow valley, between the Hul-baz mountains; it is level and gently sloping. Towards the

Alim-tau.

* Three sotnias of Bokharian troops in Hissar (Kara-tagh in the summer), and one sotnia each at Baljuan and Kulab. Seven guns, all in Hissar.

† Such, for example, was the well-known rival of the Emir Nasrullah, the ruler of Shahr-i-sabz, Daiiar-atalyk.

end the valley narrows to a defile between two rows of low mountains, steep, and covered with grass. This defile is called Silbir. The pass* is not very elevated, and we descended it due south, to a bare level steppe, without water or life. But this is no steppe in the strict sense of the word, but a high plateau with steep sides. From Hul-baz to the end of the mountain of Kal-shadi is 16 miles.

Through the steppe (chul) we rode in a south-west direction; in the distance were seen the mountains where Tash-rabat lies, and beyond these again were the Jilandi-tagh. This steppe has the general name, like the mountain range, of Alim-tau. We rode along the steppe for about 7 miles. At last the level plateau began to get hilly. A steep descent led us to a precipice. On the right side of the descent was seen in a deep gorge the dry bed of a salt river. At last we descended to the valley of the Tagir, through which flows a stream with salt water.

After resting here half-an-hour, we proceeded onward in a south direction. The dry valley, overgrown with tamarisk, extended for 8 miles. At the wells where passing caravans ordinarily halt, the valley bends to the west and rises to the mountains. This valley is called Terekli. Along a steep tortuous ascent we climbed to the pass of Tash-rabat, in the mountains of the Kara-tau; Tash-rabat is a stone building of Abdullah Khan's time, but now nearly in ruins.

From the bend of the valley of Terekli to Tash-rabat is 11 miles of difficult mountain road.

Caravans do not halt now at Tash-rabat, but go on for another $2\frac{1}{2}$ miles to a hollow containing a spring of brackish water, also called Tash-rabat. In all from Kul-ab to the spring of Tash-rabat is 42 miles (11 hours). From the spring of Tash-rabat to Kurgan-tepe is 22 miles of good road.

From the night-halt at Tash-rabat spring, we moved in a south-west direction along a winding hollow, between rows of low sandy hills. The road was most monotonous and fatiguing. The rises and falls were not difficult.

Along this hollow we rode for 8 miles. Then the road became more winding, although still good; the ascents more frequent and steeper. At the 16th mile from the night-halt, the road issued from the cavity and passed across a level mountain steppe (chul). To Kurgan-tepe there were still 5 miles. On issuing from the cavity into the steppe, we saw in the distance, on the left of the road, a low chain of rocky mountains, and beyond it, the dark mass of the Tabakhta range. Along this defile flows the Surkhab in a north-east direction. The defile and range of Tabakhta have the same direction, but the low ridge, nearest to us, formed a continuation of those mountains, among which we had just passed by way of the Tash-rabat cavity. Afar off, beyond the Vaksh, was seen the Hodja-Mastam range.

The villages on the road were called Charbagechak and Mili-charbag. From the former to the town of Kurgan-tepe is $2\frac{1}{2}$ miles. Kurgan-tepe lies in low ground, and is well watered by the Vaksh, which flows at a distance of 5 to 8 miles from the town. A broad aryk supplies the town with water. The town belonged at one time to Sary Khan, but after the occupation of Kulab, submitted without resistance to Yakub-bek-kush-begi.

At Kurgan-tepe we had to halt several days to rest our horses. We wished to take advantage of the halt to visit the junction of the Vaksh and Punja which form the Oxus, but were unable on account of sickness among our party. This junction takes place about 42 miles from Kurgan-tepe.

The Kurgan-tepe bekate is separated from the adjoining bekate of Kobadian by the river Vaksh and a broad mountain range, which from its inconsiderable height, presents a series of broad mountain plateaux, with a completely steppe-like character, and are even covered in places with shifting sand-hills. Over these heights ran roads in all directions. The communication between Kurgan-tepe and Kobadian is excellent, and it is not surprising that ancient Khutl, which occupied, as it seems, the site of the present Kurgan-tepe bekate, ruled over Kobadian.

Our road lay to the south-west, approaching the end of a low mountain range, which was seen to the right of our road. This was the Ak-tau. At a distance the range appeared to end in a comparatively high dome-shaped mass; but in reality this was a higher range, the Samanchi, separated from the Ak-tau by a narrow defile. Behind us were visible other mountain ranges.

At the 16th mile from Kurgan-tepe we saw on the banks of the Vaksh the ruins of the old fortifications of Lehman. No one knows who built this fort, nor by whom it was destroyed, but it is probably not very ancient.

* The pass of Kal-shadi; the mountains of Alim-tau at their extremity are called by the same name.

Silbir defile

Tash-rabat pass.

Kurgan-tepe.

Ruins of Lehman fort.

Near the fort there is a passage over the Vaksh by ferry. The breadth of the river at this place is 160 yards. It is a deep, rapid river, with a dark muddy water like that of the Oxus. The Vaksh is here very deep, and has no shoals. We crossed with the help of horses attached to the boat (caiique), and then rode along the foot of the Samanchi range by a stony road. The Vaksh washes the foot, there being but a narrow strip of low wet ground overgrown with reeds. This is the jungle of the Indian rivers, and what we call *tugai*.

River
Vaksh.

The banks of the Vaksh are occupied with the villages of the Sari-katagans and Durmens. At the border of the Samanchi range the river flows in one deep bed, about 160 to 180 yards in breadth. After a ride of 7 miles along the foot of the Samanchi, by the river-side, we ascended to the mountains; here the river makes a considerable curve, and flows in a south-west direction. Where the Vaksh approaches the mountains, leaving only a narrow strip, the road ascends to the range itself, which consists of gently sloping hills sparsely grown with grass, dusty and lifeless. The northern slope of the range along which we descended rapidly is sloping. We once more descended to the branch of the Vaksh, which here recedes into the depth of the plain, making its way to the Punja. The point of confluence of the Vaksh with the Punja is situated between Kurgan-tepe and Kobadian (nearer to the latter) at a distance from it of 22 miles.

From the high points of the Samanchi range, when we ascended to it, were seen in the distance the mountains which surround Kobadian. A low range extended straight before us, and from behind it another larger mountain mass, Kuh-i-piaz (*i. e.*, garlic mountain), so called from that vegetable, which grows wild here.

The place where we halted for the night was called Gara-uti, or Silbur. From that place to Kobadian is 20 to 21 miles, and to the passage at Lehman 11 miles. Thus the distance of Kurgan-tepe to Kobadian may be taken at 40 to 41 miles.

Just as deserted and lifeless was the rest of the road from Gara-uti to Kobadian. We rode across a sandy uncultivated plain, surrounded on three sides with low mountain ranges and open only to the south, which was also the direction of the Vaksh. At 21 miles from this place it joins the Punja; from the night-halt to the mountain is reckoned 5 miles. A low range, which is crossed in a south-westerly direction along its gently-sloping undulating sides is called Ai-khatin, while further on the right, in the direction of Hissar, stretches the high range of the Bai-khatin (the south continuation of the Mazi-melek).

From the high points of the Ai-khatin range was clearly seen the mountain mass of the Kuh-i-piyaz, at the north foot of which lies Kobadian. Our route lay to the right of the Kuh-i-piyaz, and after a few easy ascents and descents, sank into a small defile along the north side of the Kuh-i-piyaz. The defile brought us to a level elevated plain, upon which Kobadian is situated. From this point to the town is 11 miles.

Kobadian.

Kobadian is a large town, populated by Uzbegs, and produces much silk of excellent quality. It is situated on an arm of the Kafirnihan, the chief branch of which lies at a distance of 9½ miles from the town. Here we see an entirely new type of buildings (Afghan), with dome roofs.

From Kobadian to the district of Bash-charbah on the Kafirnihan is 12 miles.

Kobadian is surrounded with rice-fields, owing to the propinquity of the river. We rode through an inundated locality due north-west. We crossed seven branches of the river by a ford; of these seven, four were very deep, up to the horses' withers.

V.

FROM KOBADIAN TO BAISUN.

It has already been remarked that the valleys of the Kafirnihan and Surkhan are separated by the mountain mass of the Baba-tagh. High and difficult of access in its central part opposite Denau, where the highest peaks of the range are situated, the Baba-tagh falls considerably to the north, and still more so to the south. Here are its southern branches, Darvaza-kam and Kuyun, and to the north the ranges of Chir-dahar and Narza-bulak, with the streams of the same name flowing into the Kafirnihan.

Baba-tagh.

There is a tradition that the valleys of the Kafirnihan and Surkhan were, at one time, densely populated, which is very probable. A series of settlements extended from Denau. From this place was cut an aryk, which provided Termez with water, although this place is situated on the Oxus. On account of its position on the high steep bank, it cannot get the water from the latter river. Termez was called in ancient times Gul-gul. After being destroyed by Chingiz Khan, and lying for along time in ruins, it sprung up

again in the following century; when visited by Ibin Batut, and later by Clavijo, it had grown into a place of some importance.

In the present day it is in ruins. It lies at a distance of 5 miles from the mouth of the Surkhan, and 26 miles from the village of Kakaiti.

The valley of the Kafirnihan is very narrow—not more than 5 miles in breadth (from Kuh-i-piyaz to Darvaza-kam). The river falls into the Oxus 32 miles from Kobadian, so that its mouth is very near that of the Vaksh.

Darvaza-
kam.

Our road, after crossing, struck westward to the mountains of Darvaza-kam, and entered a small gently-sloping defile. After crossing the low range of the Darvaza-kam, we saw before us the narrow and level mountain valley of Tulgar-dashla, shut in on the further side by the Kuyun range. This range rose before us like a level smooth wall without peaks, and, as it appeared, consisted not of a separate mountain mass, but of the edge of a great terrace-like height (plateau). The Darvaza-kam mountains were merely the spurs of this plateau, to which we climbed by two exceedingly steep and stony ascents, Tuyak pass and Guri-kalta. The plateau itself is called Ak-tepe, but further on Karagaza.

A. P. Fedjenko has remarked that the characteristic peculiarity of the Tian-shan in its middle part are the high plateaux, like the Alai, hemmed in by ranges often of great height if we look at them in the ascent, but unimportant from the side of the descent. Such are the Alai (Great and Little), and such probably are the Pamirs. A plateau of this sort divides the valleys of the Kafirnihan and Surkhan. The Ak-tepe plateau narrows at its north-east end, and splays out considerably on the south-west. From the Tuyak pass (Camel pass) we clearly saw a high range bounding the plateau on the opposite side, and not at all like those low gently-sloping ranges by which the Ak-tepe plateau is intersected in places, chiefly in a south-westerly direction. This range passes further on into hills which rise above the plain. The surface of the plateau is a level gently-undulating plain, with occasional slight ravines and gorges, but in general a smooth surface, furrowed only by cart tracks. This plain is scantily covered with grass, which dries up at the commencement of June. We did not meet a living soul on the Ak-tepe plateau, although the wells, &c., showed that the place is visited by the nomads, who depart in the summer northward to the Baba-tagh.

Ak-tepe
plateau.

The Ak-tepe plateau has a breadth of 48 miles, counting from the ascent to the Kuyun range (the border of the plateau) to the village of Kakaiti. But we crossed it diagonally as we rode due west, the direction of the plateau being north-east and south-west. At any rate the Ak-tepe plateau occupies the whole country between the south parts of the rivers Kafirnihan and Surkhan, and forms a very interesting and characteristic peculiarity of this part of Hissar.

About 47 miles from the ascent to the Kuyun range (5 miles from Kakaiti) the road bends abruptly to the north, along a small level and sandy hollow between low hills, and issues to the north-east border of the Ak-tepe plateau by a gentle stony descent leading to the valley of the Surkhan. This gentle, hardly perceptible descent leads to the fields and gardens of Kakaiti; here, about a quarter of a mile from Kakaiti, is a passage over the river Surkhan by ferry. From Bash-charbag to Chagatai (on the Ak-tepe plain) is considered 22 miles, and from Chagatai to Kakaiti, 26 miles; in all 48 miles of which 44 are over the Ak-tepe plateau and the slopes to the Surkhan. From Kakaiti to the banks of the river is half a verst.

The passage of the river is effected in a boat, pulled by horses swimming. The river is about 230 yards broad, but not deep. The course is not so rapid as that of the Vaksh or Kafirnihan which we forded, although not without difficulty.

From Kakaiti to Shir-abad is 22 miles due west, and the distance along the banks of the Surkhan to the Oxus 26 miles.

The right bank, unlike the left, is not covered with jungle, but the river above the point of passage divides into several branches and overflows. Auls of nomad Uzbegs are frequently seen, but they are poorer on this bank than on the left.

From Kaptagai (10½ miles above the passage) to Baisun is considered 37 miles; at first the road lay over an elevated and waterless steppe, in places sandy, in places a hard saltish clay soil. Low hills and ravines break the monotony of the picture. The wind raised the dust in thick clouds. At 2 miles from Kaptagai our road crossed that from Denau to Shirabad, a caravan road. In front of us, in the distance, running in a north-east and south-west direction, were seen mountains: a low range, from behind which appeared higher peaks. This was the Shir-abad range, if we may so call the mountain mass consisting of numerous ranges, defiles, and mountain valleys, running to the north-east from Shir-abad, between this town, the basin of the Surkhan, and the Baisun Mountains. Still further on were seen through the blue mist the huge mass of mountains, at the foot of which lies Baisun and its rich villages.

From Kaptagai to the Bendi-khan range was a ride of four hours and a half—18 miles approximately. It was quite dark, but the full moon rose as we entered a great mountain defile of the same name, Bendi-khan, with a stream of brackish water, the Gubchak-bulak, which our horses refused to drink. We had to ride 16 miles to the village of Kul-kamish before we could get grass for our horses and drinkable water for ourselves. Our road lay through mountain defiles, along narrow paths, up difficult ascents, and down abrupt descents into narrow cavities, with the mountain ridges rising on both sides.

From the defile of Bendi-khan to Kul-kamish was quite 16 miles. The road which up to this time had been north-west, turned at this latter place northwards. Kul-kamish is a small stony hollow with a stream affording pasturage on its banks. We passed the night under the canopy of heaven. At sunrise we resumed our march, and after a quiet ride of one and a half hours (5 miles) arrived at the mountain village of Kafrun. From this latter place to Baisun is 10½ miles.

On leaving Kul-kamish the Baisun mountains had been visible. The road lay over a narrow mountain valley which gradually widened towards the north in the direction of Baisun. Kafrun lies among bare and uncultivated hills, but all the lower parts and hollows are cultivated. To the north of Kafrun, on the same road, is the village of Tungai-kurgan. Here the country is undulating; in front and on the right are seen high mountains of a red hue, steep and frowning. These mountains are a continuation of the Bari-takht range, which here, in its east part, is much less steep than in its west part, on the road from Shirabad to Baisun.

The Baisun mountain plateau, at that part where we traversed it (on the Kobadian road) is quite unlike its west part, which is level and well watered, and has numerous villages. Here the villages are few. All the country is undulating as far as Baisun.

VI.

FROM BAISUN TO SHAAR.

Baisun is considered the coolest town in all Bokhara, and it is surprising that the Emir has never chosen it for his summer residence. It lies at a height of 3,410 feet, about the same height as the Faizabad pass (3,356 feet). Baisun is a purely Uzbek town. It is situated at the feet of two intersecting mountain masses; to the north of it rise like a wall the Baisun Mountains; they extend in a direction from north-east to south-west. From the defile, formed by the Baisun range and the separate high mountain mass of Tuda, issues the Shir-abad-darya. The mountain-mass of Tuda (*i.e.*, mass) with a village of the same name on its slopes, rises to the north-west of Baisun. Towards this mass projects, nearly joining it, the Derbent range, forming the continuation of the same chain which bounds on the south the Baisun mountain plateau, and is called in its middle part the Bari-takht. The Baisun-Derbent road crosses the entire mass of the Derbent Mountains, rising in succession to three lofty and difficult passes, Sakyrtna, Bai-kinderni-uri, and by the third pass, Yalgiz-bagh, issues to a small mountain hollow in which lies a poor Tadjik village of the same name. All these places are difficult, but particularly difficult is the stony, winding descent from the Yalgiz-bagh, which is the only one which can be properly called a pass; the other two form consecutive ascents, and are therefore not true passes.

From Yalgiz-bagh pass it can be seen that the Bash-khurd and the parallel range of the Dakh-kara-kent are a continuation of the Baisun mountains. Both the Bash-khurd and the Baisun Mountains give off at this place numerous branches, and are broken into several separate high chains and masses, which are entangled with the western branches of the Buri-takht range (Derbent Mountains), and form an entire labyrinth of tortuous and intricate hollows and defiles. At the first glance it is plain that two mountain ranges intersect here. In one of these defiles, at the extremity of the mountain mass of Tuda, lies Derbent, a rich village, and even cooler than Baisun, although on a lower level (2,950 feet).

About 43 miles north-east of Derbent lies the snow range of the Mashai-kentli, from which issue the Shir-abad, Kichi-uru, and Denau* rivers.

From Baisun to Derbent is considered 11½ miles; the road running west for the greater part of the distance.

From Derbent to Ak-rabat, already visited by us on a former journey, is about 13 or 14 miles; we proceeded by the road, with which we were already acquainted, to the west, and it was only at the ravine of the Shur-su that the road turns to the north-west, in the

* Affluent of the Surkhan.

direction of a range which rises before us like a dark wall. In this range lies the celebrated defile of Buzgol-khan, well-known to the ancients as the "Iron Gates." The road runs straight in this wide and majestic defile, then it passes in a west direction by the valley of the Chakcha, and issues on Ak-rabat, the remains of a building erected in the olden time as a halting place for caravans in these desert localities. It is now in ruins.

At Ak-rabat the road bifurcates; one branch leads to Huzar, through Tenga-khoram, Chashma-i-hafizjan and Kush-lush; by this road we passed at the commencement of our travels, when proceeding to Shir-abad. The other branch of the road leads to Kara-hoval, Kalta-minar, Yar-tepe, and debouches on Shaar. On our return journey we took this latter branch—the shortest and most frequented line of communication between Hissar and the Shahr-i-sabz bekates, and therefore with Bokhara.

The road taking at first a north-west direction, shortly bent due north by an undulating elevated plain, convenient for riding. Small villages are met with on the banks of streams, *e. g.*, Ak-rabat and Rusta-bulak. At this latter place are already seen the chains which form the true north end of the huge Hissar range, which separates Shahr-i-sabz from Hissar and the other Cis-Oxus bekates. The ground gradually rose, and in proportion as we approached the Kara-hoval range, the road became more difficult and stony. At the village of Kutun-bulak (to the right of the road) the track passes through a defile, between crenelated ridges. The ascent leads to the Aziz pass, leaving on the left the wildest and least accessible chains of the Kara-hoval.

Aziz pass.

From the Aziz pass commences a descent to the Tadjik village of Kara-hoval (3,080 feet), the place of abode of the Amliakdar, who is under the Bek of Huzar. The village of Kara-hoval lies on the bank of the Kichi-uru-darya, which we had forded at the commencement of our journey at Kush-lush, where it joins the Katta-uru-darya.

From Kara-hoval to Kalta-minar, a second mountain amliakdarate, is 16 miles. From Kara-hoval the road rises to the high border or crest of the valley in which the village lies. Afterwards, as far as Kalta-minar, there stretches an unbroken undulating plateau. Our road over the plateau lay to the north-west, afterwards bending due north. On our right came shortly into view to the north-east the high masses of mountains, of which the most conspicuous was the huge mass of Hazrat-Lianguar. Still further to the north-east rose the snowy summit of Khan-takht (khan's throne). The commencement of the Khan-takht is the elevated snow-range of the Sengri-tagh, which rises still more with its majestic peaks and summits near Denau and Yurchi. From the mountain-mass of Khan-takht issues the Katta-uru in two streams—Bir-ahillar and Shakshar.* To the left of our road extended the compact low range of the Chakcha; behind it passes the road from Huzar to Baisun. The distance between these two chief routes, which unite at Ak-rabat, is not great; from Kara-hoval to Chashma-i-hafizjan is 5 miles, and to Tengi-khoram 13½ miles. But the further we proceed northward the wider apart do both separate; one of them (the western) leads to Huzar and Karshi, and the other (the eastern) leads to Shaar.

Hazrat-Lianguar.

Khan-takht.

At a distance of 5 miles from Kara-hoval the road passes the spring called Anar-bulak (pomegranate spring), so named, not from the presence of the fruit, but from its colour. Here separates the road leading direct to Huzar, through Kush-lush. We saw this road when passing through Kush-lush, when at the confluence of the Katta and Kichi-uru we turned to the right to the south-west, along the stony and difficult path. We did not pass that part of the road between Anar-bulak and Huzar (about 21 miles), but if this part, as some state, presents no great difficulties, then the road from Huzar to Baisun is quite accessible for artillery, to say nothing of the other arms.†

Two and a half miles from Anar-bulak, along the road, is another spring, Shakar-bulak (Sugar spring.) This is half-way between Kara-hoval and Kalta-minar.

The same distance from Kalta-minar the road enters the cavities of the low range of Koipan. As the road rose imperceptibly we crossed this range, without any steep ascents, along the bank of the dry bed of the Shur-ab, which only contains water in spring and autumn. In the broad cavity through which the stream flows is built (according to the inhabitants, by the renowned Abdulla Khan) a short column, Kalta-minar, some 14 feet high, of a conical shape. Its history is not known.

In the cavity of the Shash-tepe range, on the bank of the Katta-uru, lies the village of Kalta-minar (2,230 feet), the abode of the amliakdar, to whom all the auls and villages along that river and the neighbouring mountains are subject.

All the district between Ak-rabat and Yar-tepe, which forms a high, slightly undulating plateau, is distinguished for the healthiness of its climate.

The cavity in which the mountain villages of Kalta-minar, Shash-tepe and the two

* Khan-takht is 53 miles from Kalta-minar.

† The Emir, according to report, has taken artillery that way.

Yarchaklis are situated, are surrounded by mountain ranges bearing the same names; the range which bounds the cavity on the south is called Shash-tepe, that on the north Yarchakli. The road from Kalta-minar to Yar-tepe leads direct to the north, to the mountain mass of the Yarchakli (the Changarak defile); then the locality falls to a lower level. About 12 miles from Kalta-minar the road traverses a defile, very narrow, under overhanging rocks. Along the defile flows an unimportant saltish stream. Changarak defile.

The defile extends for 160 or 180 yards, and afterwards expands into a broad and level valley, Kam-darwaz ("little gates"). The mountains surrounding this valley gradually become lower, lose their wild rocky character, and again appear as gently sloping grassy heights.

At a distance of 7 miles from Yar-tepe, near the point where we issue from the valley into the plain, the road branches to the right to Yakobak. At this point the valley is called Jaman-chagal.

From Kalta-minar to Yar-tepe is reckoned $18\frac{1}{2}$ miles. The road from Kalta-minar trends all the way northwards, and only on issuing from the mountains has a north-west direction.

From Yar-tepe to Shaar is 27 miles, to Huzar 16, and to Yakobak also 16 miles.

Yar-tepe was formerly a Bokharian fortress on the borders of hostile Shahr-i-sabz. From Yar-tepe our road led to the east, to the village of Kamodan, populated by Arabs. Here branches a road to Yakobak. Between Yar-tepe and Kamodan lies a series of fields sown with wheat. No rice, as there is no water. Yar-tepe.

Chim-kurgan is a small village lying at the foot of a low chain, from which, however, Shaar and Yakobak were seen. From Chim-kurgan is also seen the snow mass of Kalai-shirai, out of which issues the Kizil-su in two streams, Shud-arad and Kalai-shirad. This snowy peak we also saw from the Kara-hoval—Tash-Kurgan road. Its west end is called Khan-takht; it lies approximately 11 miles from the commencement of the Patar or Tash-kurgan defile.

Through the Tash-Kurgan (Patar) defile passes the direct road from Shahr-i-sabz into Hissar. This road is much shorter than that by Kalta-minar and Huzar. From Shaar to Yurchi by the Tash-Kurgan road is $138\frac{1}{2}$ miles, viz. :—

Shaar to Chim-kurgan	$10\frac{1}{2}$ miles.
Chim-kurgan to Yakobak	5 "
Yakobak to Tash-kurgan	$37\frac{1}{2}$ "
Tash-kurgan to Vakcha	$26\frac{1}{2}$ "
Vakcha to Sengri-dagh	$21\frac{1}{2}$ "
Sengri-dagh to Yurchi	$37\frac{1}{2}$ "
Total	<u>$138\frac{1}{2}$ "</u>

Vakcha and Sengri-dagh are both villages in mountain valleys.

From Chim-kurgan to Shaar ($10\frac{1}{2}$ miles) the road leads through a cultivated country. About 5 miles from Shaar the road crossed a small but rapid mountain stream, also bearing the name Kizil-su. It flows from the Tash-kurgan defile, and loses itself near Yani-kurgan (near Urta-kurgan), on the frontier of Shahr-i-sabz.

SHAAR TO DERBENT.

Name of Place	Miles		Description of Road	Remarks
	Inter-mediate	Total		
Shaar .. ..	..	..	The road passes through a closely cultivated district, among rice-fields, which can be easily inundated, a circumstance of which advantage was taken in the wars of Shahr-i-sabz against the Emir Nasr-Ullah.	
Chim-Kurgau ..	10 $\frac{2}{3}$	10 $\frac{2}{3}$	Road passes through villages with fields of wheat and pasture lands, which provide food for large herds of camels bred here.	A large village on the mountain stream Lianger-bulak. The citadel of Yartube is almost in ruins.
Yur-tiube ..	16	26 $\frac{2}{3}$	At 4 miles, road enters mountains and passes up a level broad valley among hills.	
Kalta-Minar ..	16 $\frac{2}{3}$	45 $\frac{1}{3}$	At 10 miles, road passes through the rocky defile of Darvaza-kam.	
Shakar-bulak ..	6	51 $\frac{1}{3}$	Road passes by gentle slopes to an undulating high plateau. Ascent difficult after leaving Kalta-minar village, <i>i.e.</i> , in ascending the Shash-tiube ridge.	Village of Kalta-minar is situated on the mountain stream, Kalta-uru-darya.
Anar-bulak ..	3	54 $\frac{1}{3}$	.. .. .	Residence of Amliakdar.
Karq-hoval ..	4 $\frac{1}{3}$	58 $\frac{2}{3}$	Here the road forks to the village of Kush-lush, on the Huzar road.	Spring.
Ak-Rabat ..	16	74 $\frac{2}{3}$	On leaving the village the road ascends by a steep and narrow path to the Aziz ridge. Afterwards, at the village of Kotur-bulak, the road passes by a rocky and difficult defile. Further on, the country becomes more level, and at the villages of Rusta-bulak and Ak-rabat is quite fit for carts.	Spring.
Derbent ..	13 $\frac{2}{3}$	86 $\frac{1}{3}$	.. .. .	Village.
				Here the Huzar road joins the Kalta-minar.

HUZAR TO DERBENT.

Name of Place	Miles		Description of Road	Remarks
	Inter-mediate	Total		
Huzar .. ..	..	..	.. .. .	Large town, with a strong citadel on the banks of the Huzar river; lies at entrance of the easy Huzar defile.
Huzar defile ..	6	..	Defile commences.	
Serai	3	9		
Kush-lush ..	2 $\frac{1}{2}$	11 $\frac{1}{2}$	At this village the road divides: one branch goes to Anar-bulak, where it joins the Altaminar (see <i>ante</i>), and the other by the bank of the Kalta-uru-darya, along a rocky difficult mountain slope, to the ascent of the Gumbulak ridge, 8 miles from Kush-lush. There the road passes along the valley of Kara-chash, to the winter village of the same name, 11 miles from Kush-lush.	Village at junction of the Kalta and Kchi-uru-darya.
Rabat (in ruins).	14	25 $\frac{1}{2}$	Road bends to eastward.	
Tenga-horam ..	4 $\frac{1}{3}$	29 $\frac{2}{3}$	Road rises here to the elevated plain of Tenga-horam, along which it trends 6 miles. At the end of the plain it descends to a ravine, in which flows the Chashma. Afterwards the road enters the defile of Ak-davan, through which it runs for 2 miles. Further on, the road passes along a mountain valley, gently rising.	Winter village on the banks of the Chashma-i-Ilafizjan.
Chashma-i-Ilafizjan ..	14 $\frac{2}{3}$	44 $\frac{1}{3}$	Road good, without any steep ascents or descents. Slopes sparsely covered with the juniper and maple.	Locality level, gently undulating.
Spring	5	49 $\frac{1}{3}$	.. .. .	Village on stream of same name.
				Water brackish; fit for drinking.

HUZAR TO DERBENT—(continued).

Name of Place	Miles		Description of Road	Remarks
	Inter-mediate	Total		
Ak-Rabat ..	5	54 $\frac{1}{2}$	At a distance of 1 or 2 miles from Ak-Rabat road enters narrow defile of the same name, passing along a narrow ledge. Beyond the defile the road trends for a distance of 5 miles along the level broad valley of the Chakcha, here and there covered with patches of trees. At 7 $\frac{1}{2}$ miles from Ak-Rabat road enters narrow defile of Buzgol Khan (Iron Gates), which is 1 $\frac{1}{2}$ miles long. After issuing from the defile the road passes along a valley until the Shur-ab is reached, where it strikes eastward, and by a series of gradual ascents and descents, rises to the rocky Derbent pass (2 $\frac{3}{4}$ miles). 2 $\frac{3}{4}$ miles further is the village of Derbent.	
Derbent ..	13 $\frac{3}{8}$	68	.. .. .	Derbent lies on the bank of the Shir-abad-darya. It is one of the most important strategical points in the whole country. At Ak-Rabat unite two most important roads from Shahr-i-Sabz to Hissar, the Huzar and Kalti-minar. From Derbent roads lead to Shir-abad and the banks of the Oxus, and also to the Baisun plateau, fertile and densely populated, and thence to Denau, capital of Hissar.

DERBENT TO SHIR-ABAD AND THENCE TO THE OXUS.

Name of Place	Miles		Description of Road	Remarks
	Inter-mediate	Total		
Derbent ..	..	..	Road to Shir-abad separates about 1 $\frac{3}{8}$ miles from Derbent at the ruins of an old rabat, and issues by rather a narrow defile into the valley of the Dah-kara-kent. Another road direct from Derbent leads over the pass of Dah-kara-kent (4 miles from Derbent) to the same mountain plateau. At the ascent to the ridge there is a spring.	
Sir-ab ..	10 $\frac{3}{8}$	10 $\frac{3}{8}$	On leaving the village, the road rises by a moderate slope to the level plateau. No water until the village of Munch is reached.	A large and rich village, with gardens of mulberry, plane, and other trees. Excellent water.
Munch..	8	18 $\frac{3}{8}$	Road to next station becomes more difficult. The country becomes undulating, and in places ravines with steep ascents and descents have to be crossed.	Village on banks of Shir-abad river.
Igerchi ..	4 $\frac{3}{8}$	..	.. .. .	Arable and grass lands.
Shadi-bai-tugai	1	..	Road here leaves the banks of the river, and passes over a hilly country intersected with ravines with salt streams. At 6 $\frac{3}{8}$ miles road passes steep ravine of Punja, with a little cultivated ground.	Arable and grass lands.
Lailakan ..	5	29 $\frac{3}{8}$	At village, road crosses to other bank of the Shir-abad by a ford, then rises to the top of the banks, and after 10 miles enters defile of Nandavan, along which runs, the whole breadth of the defile, the Shir-abad river. Before entering the defile, and in the defile itself, the river has to be forded. 1 $\frac{1}{2}$ miles from the defile commence the gardens of the town, and 1 $\frac{1}{2}$ mile further is the citadel on a steep, rugged eminence.	Village on bank of Shir-abad river, with rich gardens.

DERBENT TO SHIR-ABAD AND THENCE TO THE OXUS—(continued).

Name of Place	Miles		Description of Roads	Remarks
	Inter-mediate	Total		
Shirabad ..	19 $\frac{1}{3}$	42 $\frac{2}{3}$	.. .. . The distance to the Oxus at Shur-ab is about 25 miles. The road traverses a flat and open country; on the road lie the villages of	Town situated on both banks of Shir-abad river.
Nauvah ..	6 $\frac{2}{3}$	..	.. .. .	A village.
Bish-Kutak ..	7 $\frac{1}{3}$	..	.. .. .	A large village.
Mulla-Nazar ..	6	..	.. .. .	A Turkoman village on banks of the Oxus.
Shur-ab ..	5	67 $\frac{2}{3}$		There are four points for crossing the Oxus in the Shir-abad Bekate: Kara-Kamar, Chushka - Huzar, Shur-ab, and Patta-Kisar. At each point there are five or six Bokharian caiques, and as many Afghan on the opposite side. The banks of the Oxus are sparsely populated; vegetation scanty, consisting of low bushes.

DERBENT TO DENAU.

Name of Place	Miles		Description of Road	Remarks
	Inter-mediate	Total		
Derbent ..	..	..	Road very difficult to Baisun, traversing three passes, Sakyrtina, Baikaderni-uri and Yalgiz-bag. Particularly difficult is the ascent to the last pass, whence opens out a pretty view of the Baisun valley. At the ascent to Yalgiz-bag is a Tadjik village with fine gardens.	
Baisun ..	10 $\frac{2}{3}$	10 $\frac{2}{3}$	Road passes along range of mountains, through wealthy villages. The country, level at first, becomes hilly at the village of Chash-tiube.	Village.
Chash-tiube ..	9 $\frac{1}{3}$	20	Road traverses a level mountain valley, and at 2 miles enters picturesque defile of Ak-karachugai. Defile is 6 miles long; road good all the distance. Along bottom of defile stream of fresh water. At the eighth mile, on leaving defile, commences the ascent to the Turpak-altish, whence a beautiful view over the Surkhan valley. Ascent to the Turpak-altish more difficult than the descent. Latter part of road presents no difficulties.	Small serai on banks of a brackish lake. A spring of fresh water close by.
Sari-kamysh ..	4 $\frac{2}{3}$	24 $\frac{1}{3}$	Road passes over a cultivated district with numerous villages.	
Shadi-bai ..	16	40 $\frac{1}{3}$	Road crosses river by ford.	
Kizil-su ..	16	..	.. .. .
Denau ..	2	58 $\frac{1}{3}$	.. .. .	A place of considerable importance, from its fertility and population. The latter is most dense in the valleys of the Upper Surkhan and Kafirulhan.

(Appendix to "Statistics and Geography of Russian Turkestan," by Bt. Major F. C. H. Clarke,
R.A., D.A.Q.M.G., 1879.)



ROUTES

COMPILED BY

COLONEL MAEFF

ON

THE OCCASION OF HIS SECOND JOURNEY IN SOUTHERN BOKHARA IN 1878.

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I.

ROUTE FROM JAM TO HUSAR (77 $\frac{1}{3}$ miles).

<i>From Jam to the Camp of Kara-kii (Bish-Chasha)</i>	..	13 $\frac{1}{3}$	miles.
" <i>Kara-kii to Kok-tash</i>	.. .. .	13 $\frac{1}{3}$	"
" <i>Kok-tash to Chirakchi</i>	.. .. .	12	"
" <i>Chirakchi to Kara-bagh</i>	.. .. .	16	"
" <i>Kara-bagh to Husar</i>	.. .. .	22 $\frac{2}{3}$	"

1. *From Jam to Kara-kii.*

Leaving Jam which is situated at the foot of the mountains, the road at once enters the latter, turning to the left at the boundary pillar which is passed after a few hundred yards. Jam to Kara-kii, 13 $\frac{1}{3}$ miles.

Though this road is called a cart-road, it presents considerable difficulties, deep ruts, increased by rain-water, rendering it fatiguing.

The road constantly keeps beside a rivulet, occasionally approaching close to its steep and rugged bank. At about half-way the hill camp of Arab-bend is reached.

A few miles beyond there is an extensive hollow, with water from springs.

The camp of Kara-kii is situated in a small valley, watered by the Kara-kii-bulak. On its banks are some small fields of clover, flax, and barley. The right bank has a gentler slope than the left, which descends in terraces.

Here in the open spaces stand from 10 to 15 winter dwellings (kara-oui) belonging to Uzbeks of the Kipchak-sarai tribe. In summer the camp is deserted, all the inhabitants removing to the mountains. The road through the Jam gorge, though said to be available for carts, needs repairs in many places, such as filling in deep gullies and correcting the faulty trace of ascents.

2. *From Kara-kii to the Well of Kok-tash.*

The camp of Kara-kii lies (1 $\frac{1}{3}$ miles) off the road. At 4 miles beyond the point where the side road branches off, the main road from Jam to Chirakchi emerges from the mountains. Beyond Kara-kii the side road presents no difficulties either in the mountains, or in the steppe which succeeds them. The Uchun *Aryk* (canal), led from the Kara-kii-bulak, flows past the point where the road leaves the mountains. Kara-kii to well of Kok-tash, 13 $\frac{1}{3}$ miles.

From Kara-kii to the Kashka-daria there are no fixed habitations. The flat steppe, covered with low scorched grass, is only relieved by tents of nomad Uzbeks and their flocks. There are numerous wells in this steppe, but they are for the most part very deep, not less than from 40 to 60 paces, as is evident from the tracks worn by people drawing water in buckets or mussucks. There is plenty of water in the wells.

A quarter of a mile beyond the Uchun canal a road branches off to the camp of Kara-tiube, situated on the Kashka-daria 1 $\frac{1}{3}$ miles from Chirakchi, and even a little earlier is seen a road leading to Shabr-i-sabz, Shaar, and Kitab. Both of these follow lines of wells.

5 $\frac{1}{3}$ miles after leaving the mountains, the Chirakchi road ascends a low ridge, with an abrupt descent beyond. 5 $\frac{1}{3}$ miles beyond that again the road crosses the dry channel of the Chuyan-daria, immediately beyond which comes the edge of hills called Chuyan-kirler. On their southern slope are the Chuyan wells, half a mile off the road; 3 $\frac{1}{2}$ miles further are the three wells of Kok-tash containing good water.

3. *From the Well of Kok-tash to the Town of Chirakchi.*

The character of the country in this stage is exactly like that in the last, level slightly undulating steppe, covered with high grass. Kok-tash to Chirakchi, 12 miles.

5 $\frac{1}{3}$ miles from the well of Kok-tash lie the wells of the winter camp of Ikezak,

with small fields of spring wheat. $5\frac{1}{2}$ miles beyond that is the camp of Kal-tiube situated on two canals led here from the Kashka-daria, and $1\frac{1}{2}$ miles beyond that the town of Chirakchi on the Kashka-daria.

The whole country between the camp of Kal-tiube and Chirakchi is taken up by fields, principally of rice and wheat. The Kashka-daria is crossed by a ford opposite the town itself. The water in the Kashka-daria is generally very low, but in 1878 it was very high.

4. From the Town of Chirakchi to the Village of Kara-bagh.

From the town of Chirakchi to the village of Kara-bagh, 16 miles.

The road leads the whole way over a level dry steppe, past fields and several times crosses canals known by the common name of Kairma. The main canal which goes by this name, and from which all the secondary ones are derived, is seen to the right of the road flowing between steep banks 4 miles. After leaving Chirakchi, at a solitary hut, there branches off a road to the right, leading to the village of Kairma. From the Igre-kul-sai ravine there are still $5\frac{1}{2}$ miles to Kara-bagh. $1\frac{1}{2}$ miles beyond this at the point where the road once more crosses the Kairma canal there branches off from the cart-road another more direct road to Kara-bagh. The cart road makes a *détour* to avoid the Igre-kul-sai ravine, and winds through fields under cultivation.

5. Kara-bagh to Husar.

Kara-bagh to Husar, $22\frac{2}{3}$ miles.

Country as in last march relieved near the Kishlaks (camps) by fields of wheat. Kara-bagh is the name given to a whole group of camps situated near each other on canals led from the Yakkobagh-daria or the Kizil-su. From the central camp to the furthest one is 2 miles.

$2\frac{2}{3}$ miles after leaving Kara-bagh the road crosses a series of gardens and fields, extending along the steppe in a narrow belt beside the Kamai canal (led off from the Lianger-bulak, near Yar-tiube, and reaching nearly as far as Chim-kurgan). This group of settlements is known by the general name of Kamai, from the canal which waters it.

At $7\frac{1}{2}$ miles from Kara-bagh the road to Husar is crossed by another main road leading from Karshi *via* Chim-kurgan to Yar-tiube. Between this road and a low range of heights on the left of the road to Husar extend a series of Uzbek *auls* round bitter salt wells. This belt of country is called Utch-tiube. The nomads who camp here get their drinking water from cisterns constructed some way off nearer mountains.

From Kara-bagh to these auls is $8\frac{2}{3}$ miles. In the last third of a mile the road crosses another range of heights, very gentle, and presenting no obstacle to the movement of troops. Immediately beyond this ridge commences the unbroken expanse of spring corn cultivation belonging to Husar and the surrounding camps. $7\frac{1}{2}$ miles from Husar the road is crossed by the Aparde canal, and $1\frac{2}{3}$ miles beyond the road passes the camp of Aparde itself. From this camp to Husar is a distance of $5\frac{2}{3}$ miles.

II.

ROUTE FROM HUSAR TO SHIR-ABAD (101 miles).

STAGES.

From Husar to Kush-lush	.. .. .	10 $\frac{2}{3}$ miles.
„ Kush-lush to Tenga-khoram	.. .. .	13 $\frac{1}{3}$ „
„ Tenga-khoram to Chashma-i-Hafizjan	.. .. .	14 $\frac{2}{3}$ „
„ Chashma-i-Hafizjan to Shur-ob	.. .. .	17 „
„ Shur-ob to Ser-ob	.. .. .	16 $\frac{2}{3}$ „
„ Ser-ob to Igertch	.. .. .	10 „
„ Igertch to Lalakan	.. .. .	8 „
„ Lalakan to Shir-abad	.. .. .	10 $\frac{2}{3}$ „

1. From Husar to Camp of Kush-lush.

Husar to Kush-lush, $10\frac{2}{3}$ miles.

Husar, a large town with a strong citadel, is one of the most important places in the khanate of Bokhara. It is the central mart whither the nomads drive huge

quantities of cattle to the great weekly bazaars held every Thursday. Hither too they bring from the mountains wood, salt, and lead. Every week 4,000 head of sheep and oxen are driven to the Husar bazaar, which attracts buyers from Karshi and Bokhara.

Husar is situated at the entrance of the easy defile of the same name, which commences $5\frac{1}{2}$ miles from the town. Two miles after leaving the town the road ascends to the crest of a gentle slope. Here the road, which so far has lain 1 tash ($5\frac{1}{2}$ miles) from the river, again approaches it. Here, at the entrance to the mountains, the road crosses a ravine called Kara-kamr; $2\frac{2}{3}$ miles beyond that is a shed. At this point, on the left of the road, there branches off the Ilchi-haldai channel. The village of Kush-lush stands at the confluence of the Kalta and Kchi-uru-daria, which together form the Husar-daria.

The march from Husar to Kush-lush presents no particular difficulty.

2. From Kush-lush to Tenga-khoram.

At the village of Kush-lush the road bifurcates, one branch leading to the source of the Apar-bulak on the main road to Kalta-minar, and the other to Derbent, *via* Tenga-khoram, Chashma-i-Kafizjan, and Ak-rabat.

Kush-lush
to Tenga-
khoram,
 $13\frac{1}{2}$ miles.

In our present reconnaissance of the roads leading to the Oxus we were obliged to travel not by the road we took in 1875, but by the alternative one. This was owing to the extensive inundations of the Husar-daria, caused by the almost incessant rains during the spring, and the masses of winter snow.

The road we chose twice crosses the Kchi-uru-daria, close to the village of Kush-lush, thence to Tenga-khoram it continues nearly always on its right bank, only crossing to the left occasionally for short stretches. This march presents considerably greater difficulties than the preceding one from Husar to Kush-lush, especially at starting. $3\frac{1}{2}$ miles from Kush-lush the road crosses the deep Gumbulak ravine, and $\frac{1}{3}$ mile beyond the still steeper one of Yar-tiube. At the point where the road now with difficulty climbs the steep slope of the mountains, a ramp might easily be made down to the bank of the Kchi-uru-daria, where the road is good. Beyond Yar-tiube there commences the broad valley of Kara-chash which is suitable for the movement of troops.

The *Mazar* (tomb) of Bibi-kara-tash to the right of the road in the mountains is considered half way.

3. Tenga-khoram to Chashma-i-Hafizjan.

The road leads over a level, slightly undulating plain of gravel, with occasional patches of stone. $1\frac{1}{2}$ miles from the camp the road crosses the Kon-say stream, and at 3 miles a ravine containing the Tuz-say stream, which comes from the salt mines situated $10\frac{2}{3}$ miles off the road. At the seventh mile the Kon-say enters the Ak-daghan defile.

Tenga-
khoram to
Chashma-i-
Hafizjan,
 $14\frac{2}{3}$ miles.

The movement of troops is difficult throughout its whole length. Beyond the defile extends the broad practicable valley of Uzun-kudak, called so from a well in it situated 8 miles from Tenga-khoram. The water in this well is good and fresh. The streams in this neighbourhood dry up in summer.

Beyond Uzun-kudak the valley is known by the name of Sari-kamr. $9\frac{1}{2}$ miles from Tenga-khoram the road commences to ascend the Tashlag-mishob mountain. The rise continues distinct and uninterrupted in terraces to Ak-rabat, the highest point. $3\frac{1}{2}$ miles before reaching Chashma-i-Hafizjan cultivation is met with, whilst at $2\frac{2}{3}$ miles from it the sides of the road are one mass of archa (juniper trees). This locality is called Yak-archa. The camp of Chashma-i-Hafizjan is situated on the banks of the stream of the same name. The whole country from Kush-lush to Chashma-i-Hafizjan is wholly devoid of wood, unless we take into account some low bushes of tamarisk and a few sand willows on the banks of the streams. At Chashma-i-Hafizjan the vegetation is more luxuriant; round it are found bushes of honey-suckle, tamarisk, and willow, which serve as fuel for the inhabitants and passing caravans. Firewood, dry juniper, and maple can be easily procured from the mountains near Ak-rabat, and transported by camels and mules. From these mountains, Husar and Karshi are furnished with wood. A cart load of archa (juniper) costs at Husar from 20 to 40 kopeks.

4. *From Chashma-i-Hafizjan to Shur-ob.*

From
Chashma-i-
Hafizjan to
Shur-ob,
17 miles.

From the locality where stands the camp of Chashma-i-Hafizjan there commences afresh, a distinct, and even steeper terraced ascent. The road is relieved by scattered juniper and maple trees by its side on the slopes of the mountains. $1\frac{1}{2}$ miles from Chashma it passes a spring of water, brackish but drinkable, in a hollow. Beyond that, 4 miles from Chashma, there is a sarai (shed) by the side of a stream of good water. The locality and the stream own the common name of Ak-rabat. The highest point of the whole ascent, the Ak-rabat pass, is situated $6\frac{1}{2}$ miles from Chashma-i-Hafizjan.

After descending from the pass the road bifurcates at a half-ruined caravanserai (*rabat*), one branch going direct by the Chakcha valley, and the gorge called the Iron Gates to Derbent, and the other striking off northwards and leading through Kara-khoyal and Kalta-minar into the valley of Shahr-i-Sabz. Two thirds of a mile beyond the pass there is a narrow cleft formed by two displaced rocks called Tash-kalama, beyond which commences the Chakcha valley, a very uneven, undulating, and broken tract. In the sole of the valley flows the Chakcha stream, which rises in the Ak-rabat mountains. The Chakcha valley extends for $5\frac{1}{2}$ miles, and is closed at its further end by a high mountain chain. The road to Shur-ob enters a narrow picturesque cleft $1\frac{1}{2}$ miles in length and very tortuous. This is the Iron Gates or Buzgola Khan. The sole of the gorge is stony, but carts can pass through it.

The Chakcha stream also flows in the sole of the gorge, but it dries up in summer. On leaving the Iron Gates gorge the road traverses for $2\frac{2}{3}$ miles a wide level plain presenting no obstacles to the movement of troops to a *mazar* (tomb) and *serai* (shed) on the banks of the Shur-ob. The water in this stream is good, notwithstanding its name, *Shur-ob* (salt water).

The stage from Chashma-i-Hafizjan comes under the heading of difficult roads, and requires important repairs in many places.

5. *From the Shur-ob Stream to the Camp of Ser-ob.*

From
Shur-ob to
the camp of
Ser-ob,
 $16\frac{2}{3}$ miles.

Leaving Shur-ob the road turns to the east through the gorge of Derbent. The mountains which enclose this gorge on the left are called Buli-baili, *i.e.* (the bound back). About 1 mile from Shur-ob a track branches off to the right from the main road to Derbent leading to the bed of the Shur-ob stream which 1 mile lower down enters the narrow gorge of Buzgol, which is difficult and blocked with stones. Here, partly in the bed of the Shur-ob, and partly over the blocks of stone heaped up without any attempt at regularity, passes the direct pack route to Shir-abad, leaving Derbent on one side. Opposite the ruins of the caravanserai erected by Abdulla Khan, the road leaves the bed of the stream and commences the steep ascent of a mountain by a difficult zig-zag rise which lasts for 2 miles, and leads to a gorge in which is the dry bed of a mountain stream. This gorge is likewise very difficult to pass. Thence the road ascends by a steep stony rise to the broad valley of Dakh-kara-kent, which is slightly undulating and has a gravelly soil. The valley is in places intersected by the beds of mountain torrents dry at this season. From the commencement of the valley to the camp of Ser-ob is a distance of 8 miles. The camp is situated in an undulating locality, and is not visible from a distance.

6. *From the Camp at Ser-ob to the Winter Camp of Igertch.*

From the
camp of
Ser-ob to
the winter
camp of
Igertch,
10 miles.

Leaving the camp Ser-ob the road passes for $1\frac{2}{3}$ miles over a level gravelly expanse; it then descends by a gentle slope to a plain which is intersected by three streams of good water. After another $1\frac{2}{3}$ miles the road again ascends to the plateau of Chagatai, which is stony and cut up by deep ravines with steep banks. $6\frac{2}{3}$ miles from Ser-ob the road crosses one of the deepest of these at the bottom of which flows the Hazak-su stream, and over which there is thrown a rickety wooden bridge. The other ravines, though they do not require bridges, are difficult to cross. At the eighth mile the road approaches close to the Shir-abad-daria, and after that continues constantly on its right bank. At the tenth mile, just before reaching the winter quarters of Igertch, there is a broad dry space on the bank of the Shir-abad-daria, suitable for a halting place.

7. *From Igertch to the Camp of Lailakan.*

2 $\frac{3}{4}$ miles from Igertch the road passes another winter quarter called *Shadi-bai-tugai*, where there are fields of clover and extensive submerged pastures overgrown with rushes. Here, on the right, mountains of very peculiar shape with huge round cobble stones covering their summits, approach the bank of the *Shir-abad-daria* along which the road leads. Igertch to Lailakan, 8 miles.

Beyond *Shir-bai* the country is very hilly, with steep stony ravines. Beyond the hollow at *Piandj*, which is covered with pastures and camps, the country again becomes very hilly; the mountains in this part are not of the rough stony kind, but covered with scorched grass. The camp of *Lailakan* is situated on the banks of the *Shir-abad-daria*, and possesses some fine gardens; the road crosses the *Bash-khurd-su* rivulet at the camp

8. *From Lailakan to Shir-abad.*

This section of the road presents the greatest difficulty. Two roads lead from *Lailakan* to *Shir-abad*; one by the left bank of the *Shir-abad-daria*, to which it crosses immediately at starting by a ford, and then ascends the heights bordering the river, finally to enter the *Nan-daghan* gorge the whole of which is taken up by the *Shir-abad-daria*. Here the road goes in the channel itself, to avoid the rocks which overhang its steep banks. An alternative line, which we now took, follows the right bank of the *Shir-abad-daria*, and is much better than that on the left bank. This road in like manner ascends the raised bank of the river. 4 miles from *Lailakan* it crosses the *Shur-ob* stream, which rises 2 $\frac{2}{3}$ miles from the town. 2 $\frac{2}{3}$ miles beyond this it leads on the crest of the declivitous bank, and 5 $\frac{2}{3}$ miles from *Lailakan* enters the *Nan-daghan* gorge, keeping on the overhanging right bank. This overhanging bank is merely a mass of piled up stones and boulders detached from the sides by the effect of time and of the furious rush of the water in spring. The path is overhung by rocks undermined by water action, and is unusually difficult and dangerous, but, as before stated, the danger may be avoided when the water is low, by marching in the bed itself which is usually done. When the water is high, mule caravans and travellers alike have to scramble along the overhanging bank, with the risk every moment of being hurled into the stream amidst a confused mass of stones. The road between these huge boulders is sometimes so narrow as to resemble a gate, through which pack animals can hardly pass. Beyond the *Nan-daghan* gorge the roads unite, and follow the right bank of the *Shir-abad-daria* through a raised hilly country. The gardens of *Shir-abad* commence 2 $\frac{2}{3}$ miles before the town is reached, and when within 1 $\frac{1}{3}$ miles the strong citadel (*urda*) is seen situated on a lofty hill. Lailakan to Shir-abad, 10 $\frac{2}{3}$ miles.

The road from *Lailakan* to *Shir-abad* presents great difficulties, and requires laying out afresh for nearly its entire length of 10 $\frac{2}{3}$ miles. The most difficult places are in the *Nan-daghan* gorge and the 5 $\frac{1}{3}$ miles thence to *Shir-abad* along the right bank of the river.

III.

ROUTE FROM SHIR-ABAD TO KILIF (52 miles).

(The Mountain Road.)

<i>From Shir-abad to Gaz-kishlak.</i>	.. ..	17 $\frac{1}{3}$ miles.
,, <i>Gaz-kishlak to Kempyr-bulak</i>	.. ..	11 $\frac{1}{3}$ "
,, <i>Kempyr-bulak to Kilif</i>	.. ..	23 $\frac{1}{3}$ "

1. *From Shir-abad to the Camp of Gaz.*

Shir-abad is one of the most populous towns in Southern Bokhara. Its gardens extend for 1 mile along the road to the mountains (in the south-west), and almost as far in a southern direction to the Oxus. The streets of the town are very narrow, probably because they are only passed through by horsemen and pack animals. As in the other towns of Southern Bokhara, there is not a single cart to be found in the place. Shir-abad to Gaz, 17 $\frac{1}{3}$ miles.

The road to Kilif on leaving Shir-abad proceeds in a south-westerly direction towards the hills, and at first passes through a hilly country with a hard gravelly soil, which presents no difficulty to the movement of troops. At 2 miles the road passes the camp or rather group of little camps, crowded into the area of half a square mile, known by the common name of Naovakh. The road leads constantly past fields watered by the Naovakh canal. On the right the road is bordered by barren hills of a greyish-yellow, covered with parched herbage. The country beyond the camp of Naovakh is called Khoja-kui, from the central camp of that name, situated $4\frac{2}{3}$ miles from Shir-abad.

The ruined tomb on the left of the road is reckoned $5\frac{1}{3}$ miles from Shir-abad. Beyond that the road traverses a salt steppe to the end of the reddish chain of mountains called Khoja-kui-tao, beyond which rises another higher range of grey mountains called Bash-Khurd. At the 8th mile the road enters the mountains, passing through a wide practicable defile, where the trace requires no alteration. The ascent is gentle and easy, the soil hard and gravelly. This rise ends at a level raised space, beyond which the defile has a wild character, and becomes contracted between rugged calcareous rocks, whose detached fragments block up the already narrow passage. This defile is known by the name of Han-sai. The banks of the Gaz-bulak, which flows through it, are dotted with numerous clumps of willows, between which are encountered a few wretched huts and some small strips of pasture. From the level place, to which allusion was made above, there are trees down the whole course of the Gaz-bulak.

The camp of Gaz with its reddish mud huts extends along the very crest of the rise, beyond which the defile opens out on to a level valley from 20 to 24 miles in width, which extends thence uninterruptedly almost as far as Kilif. In the north this valley reaches (according to the natives) to Derbent and Baisun. Of the mountains which form the Gaz-sai defile, those to the right, looking at them from Gaz, are called Chungul, and those on the left Utch-Kora.

2. From Gaz to Kempyr-bulak.

Gaz to
Kempyr-
bulak,
 $11\frac{1}{2}$ miles.

The broad valley into which the Gaz-sai gorge leads is known by the name of Karyz-atluk, from a subterranean canal (*karyz*) which is led through it for $11\frac{1}{2}$ miles from the Gaz-bulak. This is a remarkable work dating from ancient times. The inhabitants are most careful to keep it in repair, as it is only this *karyz* which gives life to the small settlements scattered over the valley to the south of Gaz. Above (*i.e.*, to the north of) this camp the valley abounds in streams, and as a consequence is much more thickly inhabited. The depth of the *karyz*, which is to be traced across the steppe by a row of wells, varies from $10\frac{1}{2}$ to 49 feet.

The road from Gaz after turning the Utch-kora mountain constantly follows the canal, and is quite level and practicable. On the right the valley is bordered by the Kuityn-tao range. $2\frac{1}{3}$ miles from Gaz is the camp of Yakub-bai. The intervening space is occupied by fields of wheat. At the point where the Utch-kora range, which encloses the valley on the left, recedes from the road forming a broad open space, the antechamber of the Katta-kamysh-sai gorge, is seen the camp of Zinnon lying 2 miles off the road.

The Katta-kamysh-sai gorge is formed by the Utch-kora and Katta-kamysh ranges. On the latter range, beyond the camp of Zinnon, are seen at the same distance off the road the camps Ak-tash-karyzi and Char-bagh-karyzi, distant $8\frac{2}{3}$ miles from Gaz. From 2 to $2\frac{1}{3}$ miles beyond that lies the camp of Kempyr-bulak, by the road side. This is the last camp supplied with *karyz* water, for here the canal emerges above ground, and is distributed through fields of wheat, barley, jagger, and cotton.

3. Kempyr-bulak to Kilif.

Kempyr-
bulak to
Kilif,
 $23\frac{1}{2}$ miles.

The road is level, as before, leading through a broad valley practicable for the movement of troops. 2 miles after leaving Kempyr-bulak the road reaches the camp of Alri, in the hills, and gradually approaches the Kuityn-tao mountains, whose outlines become more clear at every mile. At the point where the valley is apparently closed by the dark dome-shaped mass of the Karrag (a spur of the Kuityn-tao range), the road enters the defile of Kempyr-daghan. From the Kempyr-bulak camp to the mouth of this defile is a distance of 3 miles. At the entrance there flows a little stream which takes its rise in a spring near the camp of Kempyr-bulak, and waters the few pastures belonging to it.

The right side of the Kempyr-daghan defile is formed by the rocky ridge of the

Jumalak-tao, whilst on the left it is enclosed by some lower hills, a continuation of the Ak-tash range.

The defile of Kempyr-daghan is 4 miles long and perfectly practicable for troops. The soil is hard and sandy. There are no ravines or traces of land slips. From the further end of the Kempyr-daghan defile the distance to Kilif is reckoned at from $2\frac{1}{2}$ to 3 "tash," *i.e.*, from 13 to 16 miles, the latter being nearer the mark. The gorge leads into a level, sandy steppe which extends to the Oxus, and is enclosed on the west by the Kuityn-tao chain. $2\frac{2}{3}$ miles beyond the defile is the camp of Oguz-bulak, on the stream of the same name, which rises in the Kuityn-tao range, at a place called Khojakainar, $10\frac{2}{3}$ miles from the camp of Oguz.

The Oguz-bulak (stream) flows past this place in three branches; one of which waters the fields of the Oguz-bulak camp and continues uninterrupted as far as Kilif; another flows in a ravine and is lost in the steppe; and the third flows to the camp of Kalluk, in the Kuityn-tao mountains, and waters the fields belonging to it. At the camp of Oguz-bulak the road unites with that from Husar to Kilif, which goes from here to the camp of Kalluk. Beyond the camp of Oguz-bulak the road continues over the same smooth level steppe to the Oxus; it is flanked on the right by the low craggy range of the Kizil-khoras mountains, and on the left by the similarly low range of the Kulanatchkan mountains, an interrupted range, which in places is so low as not to be distinguished from the surrounding steppe. Further on, 10 miles from Oguz-kishlak, appears another low range, called Kara-ora. The road constantly follows the Oguz-bulak canal, which is fringed by high bushes of tamarisk. The steppe is one mass of green, with a thorn, which abounds all over it, and bushes of a peculiar sappy steppe shrub which requires no moisture.

Eight miles from the banks of the Oxus there commences an immense salt marsh, which extends uninterruptedly almost up to Kilif. It is only within $\frac{1}{3}$ mile of the river that the drift sand, which has evidently been washed up at some period by the water, begins. The salt marsh is also covered with green thorn, and it is only in the gaps in this verdure that the white efflorescence of the salt which covers the soil is visible. The salt marsh extends an immense distance in every direction, in fact as far as the eye can reach. On the banks of the Oxus it ends 2 miles from the Kara-ora chain.

Kilif is situated on the level right bank of the Oxus, at the point where the river, narrowed to a width of 390 yards, rushes with a confused roar. The current here is very rapid, the river being compressed by the Hadam-gatch ridge which rises on the left Afghan bank. At other points, for instance Chushka Husar, Kara Kamar, and Kirki, the width of the Oxus is not less than 1600 yards.

Kilif, though it has its own Beg, is in reality a place of very little importance, bearing more resemblance to a village than a town. In it there are neither mosques, bazaars, nor gardens. On the *urda* (mound) which has been erected on a little cape by the river bank, are the huts of the ferrymen. The Beg lives in a fort.

Kilif is only important because there numerous caravans cross the Oxus, there being two practicable roads to that river from Kilif and Karshi. On the Bokharian bank of the river there are three boats (the third in course of building).

Notwithstanding the rapidity of the current, the passage is made whether the water be high or low. The rapidity of the current even facilitates the crossing, rapidly sweeping the ferryboats to the Afghan shore. It similarly presents no obstacle to the floating down of boats or reed rafts from the upper part of the river to Charjoui and Khiva. The Kirki fishermen ascend the river to Kobadian, where they catch their fish, and then return to Kilif, keeping all the while near the Afghan bank, where the current is slower and there are no subaqueous rocks. Marten skins are sent from Hazret Imam, near Kuliaba, on rush rafts, down the river to Khiva. The native craft, which are heavy and clumsy, do not even descend the Oxus, much less ascend the river; but the fishermen in their light boats ascend and descend the river without difficulty.

On the opposite bank of the Oxus there are no camps, only a custom-house post (same as opposite Chushkar Husar), and three wretched mud hovels. On the very summit of the Hadam-gatch ridge a hut is visible, and some 27 miles beyond the ridge is situated the large Afghan town of Akeha. Masha-Khan, the governor of this place, commands 600 Sarbaz.

No large standing force is kept on the Afghan bank of the Oxus, but in consequence of the rumour of an advance from Tashkend, a force of from 1,500 to 2,000 men had been sent there from Maimene. This force had already crossed the mountains, and was to arrive at Mazar-i-Sherif, near Balkh, on $\frac{7}{15}$ th June, 1878. Afghan spies constantly cross to the Bokharian bank, and gather information.

With the exception of the already mentioned rapidity of the current of the Oxus,

where it is contracted at Kilif, the river presents no obstacles to navigation. Rapids undoubtedly exist at Kilif, but they are caused by huge reefs of rock, five in number, which project from the Bokharian bank, commencing at the rocky promontory on which stands the citadel of Kilif, and they only extend half way across the river. The reefs in the Oxus are therefore a direct continuation of the rocky ridges which rise here and there on the Bokharian bank. Besides the reefs opposite the citadel there is another ridge, some $2\frac{3}{4}$ miles from Kilif, but these are not nearly so extensive, and the water does not rage and foam round them with nearly the same violence. Both ridges may be avoided by keeping along the Afghan bank.

The depth of the Oxus is very considerable; the native ferrymen affirm that at the rapids it amounts to 40 fathoms, and in other places even exceeds 50 fathoms.

IV.

ROUTE FROM KILIF TO THE KARA-KAMAR FERRY (14 miles).

Kilif to
Kara-
kamar, 14
miles.

The road from Kilif to Kara-kamar, the nearest ferry in the Begship of Shir-abad proceeds due south, through the town or camp of Kilif which contains 190 houses. From Kilif there stretches along the banks of the Oxus an uninterrupted succession of fields, kitchen gardens, and little gardens, for $2\frac{3}{4}$ miles. The crops raised consist of melons, cucumbers, water melons, peas, and lucerne. Wheat, barley, and rice are not raised; these are obtained from Afghanistan in exchange for salt, which is found in the mountains of Kuitan. The inhabitants of Kilif send to Kuitan for the salt, and sell it at Akcha, after paying the following export dues:—

Per camel load	..	..	..	..	20 kopeks
„ horse „	..	..	..	..	10 „
„ mule „	..	..	..	..	5 „

$1\frac{1}{2}$ mile from Kilif the road passes the little ridge called Bish-bannak, and then enters a valley formed by the Karatch range on the left, and the Kulan-atchkan, near which it runs, on the right. From Kilif to the entrance to the mountains is from 6 to 7 miles. The road here crosses the Kulan-atchkan range of mountains, to avoid the long détour by the banks of the Oxus, which is here deflected sharply to the south. The Kulan-atchkan, a low limestone ridge, falls precipitately towards the west, in the direction of Kilif, but slopes gently down towards the east. The ascent to the saddle of the range is very arduous by a steep footpath along a ledge, overhanging a precipice. The soil at the saddle is strewn with huge boulders, but they are worn smooth by time, and consequently the passage over them presents no difficulty. The descent on the other side is, as I have already mentioned, gentle, and leads into the plain of the Oxus, which is level, impregnated with salt, and overgrown with low bushes of tamarisk and sappy steppe vegetation (unsuited for forage for horses, which in extreme cases even eat camel-thorn in preference). Near the Kulan-atchkan mountains, on the banks of the Oxus, is the Turkoman camp of Danadji, inhabited by some families belonging to the tribe of that name. The plain in which the road lies is bounded on the north by the chain of the Ak-tash mountains, running south-west and north-east; beyond this is seen the more elevated range of the Shir-abad mountains, which ends at its eastern extremity in the high Kizil-kulan peak. Yet further on are the blue summits of the Kuityn-tao. Ten miles from Kilif the road bifurcates, one branch leading to the ferry of Kara-kamar, and the other through the villages of Buz-rabat and Talashkan to Shir-abad.

Opposite the ferry of Kara-kamar, some 2 miles from the bank, rises the low, sandy ridge which itself is also known by the name of Kara-kamar (black belt). In the eastern side of this ridge are three caves, whose walls are covered with rough representations of men, horses, dogs, arms, and heads hewn out of the crumbling sandstone. The shepherds drive their flocks into these caves at night. At the ferry of Kara-kamar there is only one Bokhariot boat, and another on the other bank belonging to the Afghans.

The character of the Oxus in this part, *i.e.*, from the ferry at Kara-kamar to the Kulan-atchkan mountains is the same as in all its central course. The river here divides into arms, forming low islands, liable to inundation, and covered with rushes and sand banks. The bank is fringed by marshes covered with bushes of tamarisk and high grass. Along the bank are scattered in various parts Turkoman

tents, and at the ferry itself are some inextensive pasture lands belonging to the Turkoman ferrymen.

Thus, of the two roads leading from Shir-abad to Kilif, that *vid Talash-kan*, Buz-rabat, and over the Kulan-atchkan range, appears the better.

V.

ROUTE FROM KILIF TO HUSAR (110 miles).

(The direct Road).

<i>From Kilif to Kalluk</i>	..	..	..	..	18 miles.
„ <i>Kalluk to Khoja-kara</i>	..	..	..	..	14 „
„ <i>Khoja-kara to Kuitan</i>	..	..	..	..	13½ „
„ <i>Kuitan to Winter Camp of Karchak</i>	..	..	..	..	10 „
or to the <i>Ruins of the Rabat</i>	..	..	..	..	12⅔ „
„ <i>Karchak to Well of Batkak</i>	..	..	..	..	14 „
„ <i>Batkak Well to Taka-shur Well</i>	..	..	..	..	8 „
„ <i>Taka-shur Well to Husar</i>	..	..	..	..	22⅔ „

1. *From Kilif to Camp of Kalluk.*

The road proceeds in a northerly direction over a level salt plain, broken by low ridges running in a south-easterly direction. Almost immediately beyond Kara-ora (3¼ miles from Kilif) there commences a huge salt-marsh, here and there covered by the overflow of canals led to Kilif from the Oguz canal. 6⅔ miles after leaving Kilif, the road to the camp of Kalluk branches off from that leading to the Kempyr-daghan defile, and, beyond, through the valley of Karyz-atlyk, to Gaz-sai and Shir-abad. The direct road over the mountains from Kilif to Husar, after branching off at 6⅔ miles from the Oguz canal passes over a stony tract, ascends the low range of the Khója Sengil, and then continues along the broad level slope of its crest called Katai-sai. The general saline character of the banks of the Oxus is also noticeable here. The road continues amidst the Khója Sengil range, and on the Katai-sai slope for 3½ miles. After clearing the mountains it enters a wide valley, enclosed on the right by the Khója Sengil mountains and on the left by the low Kizyl-khoroz range. The distance to the first roadside camp, called Oguz-kishlak, and situated on the same canal which irrigates the fields of Kilif, is 10⅔ miles. From the highest points of the Kizyl Khoroz, the camp of Kalluk is already visible at an estimated distance of 7⅓ miles. At this point there branches off a road to the camp of Kundjak, situated more to the east at the foot of the Great Kuityn-tao mountains. The road to Husar passes the fields of Khoja-kainar, another camp at the foot of the mountains, and thence bends north-west, skirting the foot of the Kuityn-tao range to the camp of Kalluk or Khoja-kishlak. This large and comparatively prosperous camp is situated in a swampy locality, impregnated with salt.

Kilif to the camp of Kalluk, 18 miles.

2. *From Kalluk to the Camp of Khoja-kara.*

Before leaving the camp, the road crosses a deep canal, a branch of the Ak-aryk, which is drawn from a mountain stream, the Kuityn-daria. 4⅓ miles from Kalluk the road approaches the extremity of the Kuityn-tao range near the ruins of a *rabat*, erected by Abdulla Khan. Beyond this, it constantly follows the course of the Ak-aryk, and after a short time crosses the south-western spurs of the Kuityn-tao. The limestone range which the road now ascends is called Ak-djar. To the left of the road stands a solitary *mazar*, the tomb of Tshim-bey. After doubling the mountain mass of the Ak-djar, the road enters a valley enclosed by the Kuityn-tao range on the right, and on the left by a long range of mountains, which is known by various names in its different parts; thus the main chain is known as the Khója Shulluk and the Ak-djar, whilst its spurs in this direction, go by the name of Gaba. The Ak-aryk flows continually in a valley, irrigating the fields belonging to its camps, with the exception of the most distant ones at the foot of the mountains which are watered by springs. The road

Kalluk to the camp of Khoja-kara, 14 miles.

crosses the spurs of the Kuityn-tao range, but it is possible to avoid these by continuing a little longer in the valley. $12\frac{2}{3}$ miles from Kilif the road passes beside the tomb of the Saint Chil-gaz, an object of great veneration to the Mussulmans. All of them, whatever be their rank, dismount and pass it on foot. The distance from the camp of Khoja-kara, situated at the foot of the spurs of the Kuityn-tao to Kilif, is estimated at 14 miles.

In the Kuityn-tao mountains, $2\frac{2}{3}$ miles from Khoja-kara, are some lead mines, which supply the whole khanate. The amount of ore smelted depends on the demand; competent workmen are collected from the neighbouring camp for the purpose. The total output is from 6 to 20 *batmans** of lead. The road to the mines is a difficult mountain path. On the opposite side of the valley near the camp of Kizyl-kishlak are some celebrated quarries of rose-coloured salt. These mines are situated on the summit of a mountain of red sandstone.

3. Khoja-kara to the Camp of Kuitan.

Khoja-Kura to the camp of Kuitan, $13\frac{3}{4}$ miles.

The road keeps constantly in the valley, which is irrigated by the Ak-aryk. In its lateral glens are the pastures belonging to the camps of Altyn-tiube and Tash-kishlak. Both these camps are situated nearer to the opposite Kuityn-tao range. $2\frac{2}{3}$ miles from Khoja-kara is the camp of Tapur, on the Kairma canal, which is led off from the Ak-aryk. The road now approaches the Kuityn-tao mountains, and after $1\frac{1}{3}$ miles ascends the high stony At-gaz pass. The descent beyond is especially difficult, but this steep stony descent may be avoided by following a slope which starts from the very highest point. Down this the road is quite smooth, but more winding, and consequently longer. At the very foot of the At-gaz pass (8 miles from Khoja-kara) is the camp of Kara-aghatch in a narrow tortuous valley. Thence there stretches a continuous line of pastures shaded by trees, which give the whole valley a very fresh look. $2\frac{2}{3}$ miles beyond the little roadside camp of Patar, lies the huge and thickly inhabited camp of Kuitan, with its fields and fruit gardens. At Kuitan is the only bazaar met with on the whole road from Kilif to Husar.

The road in the stage from Khoja-kara to Kuitan requires reconstructing from the foot of the ascent to the At-gaz height. The difficult descent on the other side of this height can, as we have already said, be avoided by passing along the slope. But, beyond, where the road passes the camp, it requires reconstructing in many places, for it is confined by canals, and is in places a mere path leading over stony slopes. Here the road is only allowed such space as is absolutely necessary. Every spot that can be cultivated is ploughed or occupied by pastures and gardens.

The paths on the mountain slopes which lead past the fields of Kuitan are especially narrow.

4. From Kuitan to the Winter Quarters of Karchak.

Kuitan to Karchak, 10 miles.

At Kuitan the road crosses by a ford the Kuitan-daria, a rapid mountain stream, canals from which give life to the whole valley from the camp of Kuitan to Kalluk. The Kuitan-daria has its sources from two to three *tash*† to the east of the camp of Kalluk. One-third of a mile from the camp of Kuitan the road crosses the dry torrent bed Katta-djar, and thence continues west in a defile past rocks of red sandstone on the banks of a torrent bed, which unites with that of Katta-djar. The road is good and level, but very winding, following all the bends of the defile, which is called Begliar-kuduk from the well at its commencement ($4\frac{2}{3}$ miles from the camp at Kuitan). The water in this well is bitter-salt, and only fitted for watering sheep. About 6 miles from the camp of Kuitan the road crosses another, which leads from Karshi, by the camp of Khoja-inyl (4 miles above the camp of Kuitan, in the Kuitan defile) to Derbent, and Baisun. This road passes the source of the Shur-ob at the entrance of the defile of Derbent, and is, according to the account of the natives, very difficult, it being in many places almost impossible to lead a horse. Eight miles from the camp at Kuitan is the lofty Karchak-bil pass, which presents difficulties owing to its steepness. The descent from the pass is by a wide practicable valley to the mountain stream Karchak-daria. From Kalluk to the Karchak-daria, is 9 or 10 miles, and in the whole of this march (*e.g.*, from the Kuitan to the Karchak-daria, no good fresh water is met with. The Karchak-

* A batman = 8 Russian *poods*, or 288·6 lbs. avoirdupois.

† A *tash* = 8 versts = $5\frac{1}{2}$ miles English.

daria has its source some 16 miles from here in two springs in two mountains, Aka-bai and Ak-tash. Near the winter camp of Karchak it unites with a salt rivulet, and loses itself in the defile. At the point where the present road crosses the Karchak-daria, its water is good and fresh, but even $2\frac{3}{8}$ miles lower down near the winter camp of Karchak at the ruins of the rabat of Abdulla Khan, it begins to get brackish.

From the winter camp of Karchak there lead three roads: 1. To Karshi, distance 13 *tash* ($69\frac{1}{2}$ miles), at 3 *tash* (16 miles) good water is met with, but for the remaining 10 *tash* ($53\frac{1}{2}$ miles) the road is over mountains and steppe, with nothing but salt wells. 2. To Tenga-khoram, and 3. To Husar. This latter is the principal and most frequented one, but it presents difficulties. It leads from Husar to Kilif.

5. From the Winter Camp of Karchak to the Well of Batkak-djaryk.

From Karchak the road at first leads through the level grassy plain of Tulesh, at the foot of mountains of red sandstone. In the distance is visible the white limestone range of Ak-bash, where the Karchak-daria rises. 4 miles from Karchak is situated the bitter-salt well of Tulesh, which has lent its name to the entire valley. 1 mile beyond this, by the roadside, is a natural cistern with turbid rain-water which dries up at the end of summer. The cistern is covered in with stones. 6 miles from Karchak there commences a difficult ascent to the very steep and rugged height, Ak-tao. The road ascends zigzag by a path covered with sharp stones and overhanging a precipice. The descent is still more difficult, but part of it may be avoided by following the Tula-sai slope. 8 miles from Karchak commence fields of spring corn. The narrow valley leads into an extensive open tract in which is situated an *aul* round the three wells of Batkak-djaryk. Here is also the source of a small stream of the same name. This stage may be regarded as presenting great difficulties, owing to want of water and steep gradients.

Karchak to
Batkak-
djaryk,
14 miles.

6. From the Well of Batkak to that of Taka-shur.

The road at starting proceeds in a westerly direction, following the bed of the Gulbulak, a slightly brackish rivulet. Commencing from the immediate vicinity of the wells of Batkak the road leads over *débris* of rock and is difficult and stony, besides being frequently blocked by huge boulders. $1\frac{2}{3}$ miles from Batkak there are the four bitter-salt wells of Batkak (suitable for sheep), and $1\frac{1}{3}$ miles beyond more wells on the far side of the Tagai-tempir hollow.

Batkak to
Taka-shur,
8 miles.

Beyond the well the road again enters a difficult gorge enclosed by limestone rocks, and continues as a narrow pathway between piles of rocky boulders. The last part of the road winds among hills covered with scorched herbage, and lies in parts in a dry torrent bed. At Taka-shur are established some *auls* of Uzbeks belonging to the Kungrad tribe. The water in the wells is bad, but may be used in case of necessity.

From Taka-shur to Tenga-khoram is not more than $4\frac{2}{3}$ miles. The Kara-chash range is visible to the right of the road a few miles before reaching Taka-shur.

7. From the Winter Camp of Taka-shur to Husar.

Four miles from Taka-shur the road crosses a dry ravine and enters the difficult defile of Patalasai, which winds amongst the limestone masses of the Adamtash range, and at 6 miles it passes through the Djanovlak valley, which merges into the Patalasai defile. In front are seen the Tas mountains, which the road crosses after a very difficult ascent. 10 miles before reaching Husar the road passes beside the bitter-salt wells of Chirbutchu. Thence it continues in the bed of a brackish stream, frequently crossing from one of its stony banks to the other and dividing into numerous tracks. During the whole time the road continues in this river bed it is very difficult, especially in its passage through the San-bron defile, which commences at a spring by the roadside. 16 miles from Taka-shur there commences another steep ascent of a limestone mountain called Kyzyl-Yur. From this point, in clear weather, Husar is visible, to which place, after the ascent, the road lies over a plain, level and practicable for troops, past fields of wheat.

Taka-shur
to Husar,
 $22\frac{2}{3}$ miles.

The whole of this long march presents great difficulties: it is deficient in fresh

water, and the road requires complete reconstruction throughout, with the exception of the last 7 miles over the plain to Husar.

COMPARISON OF THE ADVANTAGES PRESENTED BY THE TWO ROADS FROM HUSAR TO THE OXUS.

From Husar to the Oxus there exist two principal roads: 1. That by Tengkhoram, Ser-ob, Lailakan, and Shir-abad; and 2. That by Taka-shur, Karchak, Kuitan, and Oguz-kishlak.

The distance by the former equals 142 miles, according to the topographer, Mr. Petrov's itinerary, and 153, according to Colonel Maeff's calculation. The distance by the latter is 97 miles. The latter road is therefore from 45 to 55 miles shorter. But this advantage is cancelled by the fact that for 45 miles (from Husar to the winter camp of Karchak) it leads over a tract devoid of fresh water. The few rivulets to be found in these parts are brackish, and the wells in the valleys contain bitter-salt water, only fit for sheep. The presence of wells along the whole of these 45 to 55 miles shows that the rivulets dry up towards the end of summer and that the flocks are unable to find water. From the Karchak-daria right up to Kilif water is abundant.

The country through which the other road passes is mountainous during 64 miles, and it is only during 33 miles that it passes over a level expanse of steppe which slopes down to the Oxus. Of these 64 miles almost a quarter require reconstruction to a greater or lesser extent. Especially laborious will be the reconstruction of the road in the pass across the At-gaz and the Ak-tao, and through the limestone gorges between Karchak and Kizyl Yur to the point where the road debouches from the mountains into the plain of Husar.

The first-named road will have to be reconstructed almost as far as the descent from the Ak-rabat pass. Important alterations are required, in the Tash-kalama gorge, the valley of Chakcha, and the defile of Derbent, in the last of which a descent must be made for crossing the Buz-gol ravine. In the remainder of the defile to the plain of Dak-kara-kent, a distance of about $4\frac{2}{3}$ miles, important alterations will also be necessary.

The difficult defile of Shir-abad can probably be avoided by some pass from the valley of Shir-abad into the wide and easy valley of Kariz-atlyk, which leads direct to Kilif. For this purpose there should be examined: 1. The road from the camp of Ser-ob to Gaz-daghan; 2. The valley of Igerch or Pandj, which also leads into the valley of Kariz-atlyk. In case, however, no practicable communication with the valley of the Shir-abad-daria can be found, then the road will require important alterations in the Shir-abad defile.

On comparing the quantity and difficulty of work required for rendering the two roads practicable for wheeled traffic there appears to be little to choose.

With regard to the supply of fuel and forage we may remark that the second (and shorter) road is infinitely the worse. It passes for 55 miles (from the camp of Kuitan to Husar) through a country which is completely uninhabited, with the exception of a few *yurts*. Wood is totally wanting the whole way from Husar to Kilif (97 miles), except in a few fruit-gardens between Kuitan and Oguz-kishlak. There are no pastures, and the low scorched grass, though fit for sheep, will not do for horses. Forage is difficult to obtain anywhere in the neighbourhood, as there are only two important permanent settlements along the road, Husar and Kuitan. The distance from Husar to Kuitan is 55 miles, and from Kuitan to Kilif 42 miles.

The first-named road (*via* Shir-abad) passes nearer to some permanent settlements (the Almiakdarship of Kalta-minar and Kara-khobal), whence forage may be procured during the march from Husar to Derbent. Fuel is plentiful along the road, for, commencing from the Ak-rabat pass, there are the mountain forests which supply Husar with juniper wood. On this road there are two large permanent settlements, Derbent and Ser-ob (whilst on the other there is only one), and at no great distance from it lies the Begship of Baisun, rich in cattle.

The Husar-Shir-abad-Kilif road therefore, though rather longer (by 45 miles) presents less difficulty in the way of fuel, forage, and transport; and what is most important of all, there is fresh spring water obtainable throughout its entire length.

The crossing at Kilif presents this undoubted advantage, that the river here contracts to 334 yards. Steamers can ascend as high as Kilif without encountering any obstacles, for the reefs lie to the east of the ferry (between Kara-kamar and Kilif). The rapidity of the stream does not prevent the passage of the clumsy Bokhariot boats, which are deficient both of sail and rudder, and have beams for oars. Lastly, Kilif,

though a wretched enough place for a permanent settlement, has its pastures and kitchen-gardens.

With Shir-abad, Kilif is connected with two practicable roads, both of which I have inspected.

The bank of the Oxus at Kilif is comparatively speaking high, and not liable to inundation, and there are no marshes, as elsewhere along the Oxus. Hence the climate is healthy, and there are few thrips, gaffies, cattle-flies, or mosquitos.

The direct line of advance to the Oxus passes through the three Begships of Chirakchi, Husar, and Shir-abad, and near the frontiers of two others, viz., Karshi and Baisun. A few words regarding the productiveness of these localities will therefore not be out of place.

The Begship of Chirakchi comprises the Jam range and the steppes adjoining it as far as the Kashka-daria. As these mountains are not high they do not contain rich mountain streams; and the few small ones which flow in the valleys are used up there for irrigating the pastures. The steppe to the south of the mountains is waterless, and possesses the same general characteristics as the hungry steppes of Turkestan. For this reason there are no important permanent settlements in the Jam mountains or the Chirakchi steppe, only winter camps (*kara-ui*) belonging to Uzbeks of the Sarai-kipchak tribe. Begship of Chirakchi.

These nomads wander in summer into the higher mountain valleys, where the grass is not yet parched, and in winter descend to their camping grounds in the steppe and in the lower valleys. Owing to the vicinity of the mountains, the steppes have a general slope towards the Kashka-daria, and for this reason canals cannot be led far into them towards the north, *i.e.*, towards the mountains.

Such are the topographical features of the Begship of Chirakchi, and its productiveness is in conformity with them. The principal article of produce in the Begship of Chirakchi is corn. Nearly all the sowing is done in autumn, when the crops require no artificial irrigation. The great part of the mountains to the south of Jam especially, commencing from Kara-kia, are sown with spring corn, so that the Aksakhalship of Kara-kia may be regarded as one of the richest in corn. The inhabitants export their corn for the most part to Samarcand and Katta-Kurgan, wherever the market prices are better, and very seldom to Chirakchi, although the distance of these three points from Kara-kia is almost the same. According to the account of the Amliakdar, there are sown in the Amliakdarship of Kara-kia alone 2,000 *batmans* of wheat and 1,000 *batmans* of barley.* The crops obtained are very good, especially in the present year (thirty fold). The prices last year (1877) reached: barley, 4 rbls. to 4 rbls. 40 kop. per *batman*; wheat, 5·20 to 5·80 rbls. per *batman* of 10 puds. Sheep at this season, when they are still lean, from 4 to 6 rbls. Horned cattle from 10 to 12 rbls. a head. The latter can only be obtained here in small batches of a few head.

The harvest had at the time Colonel Maëff passed through the country, May 28th,
June 10th, not yet been gathered; but in a month it was to have been collected, ground, paid as taxes, and carried to market.

The Begship of Husar is equally rich in corn, producing especially autumn wheat. The steppe round Husar is covered for a considerable distance with fields of spring corn. In 1878 the price of grain was as follows: wheat, 5 to 5·20 rbls. per *batman*; barley, 3 rbls. per *batman*. Begship of Husar.

Husar is the chief cattle market of all the neighbourhood, and buyers from Karshi and Bokhara attend the weekly sales on Thursdays. This is owing to the proximity of Husar to the mountains, where stock-breeding is extensively developed. Some 4,000 head of different beasts are driven to the weekly bazaars of Husar. The prices they fetch here are the same as in the neighbouring Begship of Chirakchi.

The Begship of Shir-abad is much less productive than those of Chirakchi and Husar, in which agriculture is developed as a necessity to supply the requirements of the two great adjacent centres, Karshi and Bokhara. To export corn from Shir-abad would be difficult, and therefore the inhabitants only sow sufficient for local consumption, and for sale to the inhabitants of the neighbouring mountains, which latter are for the most part nomad Uzbeks of the Kungrad tribe. The settled inhabitants of the valleys belonging to the Begship of Shir-abad, such as, for instance, the wide valley which lies between the Bash-Khurd and Kuityn-tao ranges, do not purchase corn at the Shir-abad bazaar, but sow their own, selling the surplus to corn buyers (*tiuyatchi*) who pass this Begship of Shir-abad.

* These numbers are not reliable, and probably exaggerated; but there is no doubt that a great deal of wheat is sown here, thanks to the possibility of disposing of it at a profit.

way every year on camels at the time of harvest. These *tiuyatchi* (camel drivers), Uzbeks of the Bakhtam-gal tribe, it is true pay the lowest possible prices for corn and other country produce, *e.g.*, for wheat 2 rbls. to 2.30 kop.; barley, 1 rbl. 60 kop.; cotton, 5 to 6 rbls. per *batman*. At Shir-abad the prices in 1878 were as follows:—Wheat, 6 rbls. 40 kop. to 7 rbls. 20 kop. per *batman*, according to quality; barley, 2 rbls. 80 kop., and even as low as 1 rbl. 60 kop.; flour, 7 rbls. 60 kop. and 6 rbls. 40 kop. per *batman*, according to kind.

In the neighbouring Begship of Kobadian, there is also but little corn sown; here silk is the staple produce.

Begship of
Kilif.

Kilif, *i.e.*, the settlement of that name on the Oxus, as has been said before, does not produce corn. Its inhabitants as has been said before fetch salt from the mines in the Kuityn-tao mountains and carry it to Afghanistan, principally to Balkh and Akcha, where they exchange it for barley, wheat, and rice. Near Kilif only vegetables and lucerne are raised. But agriculture is widely developed in the mountain valleys which belong to the Kilif Begship, *e.g.*, in the valley watered by the mountain stream Kikuityn-daria, and at all the camps at the foot of the mountains. The inhabitants of these take some corn to Shir-abad, but for the most part they sell it to the buyers (the *tiuyachi*). The crops, for the most part spring corn, are grown on the soft slopes of the hills. In the richest and principal of the Aksakalships of Kilif as much as 700 *batmans* of corn are gathered. The prices generally are low; wheat, 4 rbls. 20 kop.; barley, 3 rbls. 20 to 4.40 per *batman*. These corn-producing valleys, however, lie far from the line of advance or the locality where a post could be established; consequently, we are not justified in taking their productiveness into account.

Begship of
Baisun.

The Begship of Baisun, which comprises the two principal permanent settlements of Baisun and Derbent, is almost entirely peopled by nomads. Baisun is eminently an Uzbek town (*Baishin*, *i.e.*, the settlement of the beys, the rich); whilst Derbent, Ser-ob, and the surrounding camps are inhabited exclusively by Tadjiks. Agriculture is not widely developed here for lack of export trade, and is only carried on in the mountain valleys round Baisun, Derbent, and Ser-ob. The chief wealth of the inhabitants of the Begship of Baisun consists in stock, which is collected in immense numbers on the high mountains where there is fresh grass. This is the cattle which is driven to the Husar market. In winter a great part of the Baisun nomads descend to the steppe between Karshi and Husar. In summer this steppe is generally uninhabited, as the nomads are off to the mountains again with the advent of spring. More productive than any of the above-named Begships (with the exception of those of Chirakchi and Husar), are those which contain the upper valleys of the Surkhan and Kafirnahan, *i.e.*, the Begships of Denao, Iurchi, and Husar. Owing to the abundance of water, there is here produced a quantity of rice, barley, maize, garden fruits, and vegetables.

Begships of
Shaar and
Kitab.

The same may be said of Shahrissabz (Begships of Shaar and Kitab), where the streams collect as in a basin from all the mountains which surround it on three of its sides.

Begship of
Karshi.

The Begship of Karshi, though it also produces considerable quantities of corn, autumn sown crops of Indian millet, is principally important, owing to the transit trade which passes that way from India to Bokhara, and as a commercial centre of the whole surrounding steppe on the banks of the Oxus. For this reason the Turkoman and Uzbek nomads bring here all their manufactures (carpets, swords, and saddles), and drive in a large number of horses. Pack-horses for caravans are generally hired at Karshi. The cost of their hire is 1 tenga (20 kopeks) per tash ($5\frac{1}{2}$ miles) a load, no matter what be the road. Karshi *krokeshi* (carriers, horse leaders), are met with all over the Khanate of Bokhara.

