

FROM
LONDON TO BOKHARA

AND

A RIDE THROUGH PERSIA

By

BY

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'KANDAHAR IN 1879,' 'THE GAME, SHORE AND WATER BIRDS OF INDIA'



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TO
LIEUTENANT-GENERAL ANNENKOFF,
UNDER WHOSE DIRECTION
THE TRANSCASPIAN RAILWAY WAS CONSTRUCTED,
THIS BOOK IS INSCRIBED.



P R E F A C E.

THE journey terminated at Bombay on December 9, 1887, and by the end of that year my notes were printed and placed at the disposal of the Viceroy. Lord Dufferin, a few days before he left India, granted me permission to publish my narrative, and so it happens that much of my story relates to events which now are a year old.

I have endeavoured to follow the excellent advice given years ago by Mountstuart Elphinstone when criticising the manuscript of Burnes's travels, 'that a narrative of this kind should be in the highest degree plain and simple.'

In referring so constantly to the writings of others, it is as much for the purpose of expressing my own delight in their labours, as of recalling the authors and their works to notice.

In dwelling so long on the particulars of places

visited, it is to endorse the fact that there is an interest and a knowledge beyond the mere entry of a name in a map which a traveller only can realize.

The maps and sections have been reproduced by Colonel Waterhouse, of the Survey of India; and the sketches have been redrawn by Mr. Jobbings, the Superintendent of the School of Art, Calcutta.

A. LE MESSURIER.

CALCUTTA,

December 31, 1888.

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FROM LONDON TO BOKHARA.



PART I.

FROM ENGLAND TO THE CAUCASUS.

‘Even as it is no ease unto him that prepareth a banquet, and seeketh the benefit of others : yet for the pleasuring of many we will gladly undertake this great pains ; . . . Here then will we begin the story : only adding thus much to that which hath been said, that it is a foolish thing to make a long prologue, and to be short in the story itself.’



CHAPTER I.

PRELIMINARY, OUTFIT, ETC.

Object of Journey—The Season—Preliminary Inquiry—Baggage
—Clothes — Saddlery — Provisions — Money — Advice — The
Start.

IN returning to India, after two years' furlough, the opportunity was taken of journeying *viâ* the Caucasus and Persia, with an off-chance of getting a peep at the Russian railway beyond the Caspian.

The trip was undertaken in the autumn of 1887. The grand tour 'de luxe' to the East from Paris to Samarcand and back by Constantinople had not then been organized by the International Sleeping-Car Company.

Before entering on any expedition, a certain amount of consideration must be given to the localities to be visited, and to the duration of the trip. In this case the range was from London to Bombay, an 'eastings' from 0° to 73°, or 5,048

miles ; and 'southing' from $51\frac{1}{2}^{\circ}$ to 19° , or 2,342 miles ; for the most part overland, and through countries which I had not previously seen. The time available—two or three months from the middle of September.

If a traveller knows what is before him, there is no difficulty in deciding what to get and what to do before making a start ; otherwise, he must take his chance and learn accordingly. Fortunately, I had travelled in Austria and Turkey, and so framed an idea of what might be required in West and South Russia. Turkey in Asia was taken as a clue to the Caucasus, Central Asia like Egypt, Sind, and the Punjab, while Persia was pictured as a mixture of Palestine, Syria, and Afghanistan.

As regards kit, the less taken the better. The easiest way to solve all doubt and remove all hesitation at the time of packing is to decide what bags shall be taken, and so limit the amount of necessaries. My baggage consisted of the clothes in wear when leaving England on September 14 ; two Gladstone bags, together weighing, with contents, 70 lb. ; a hand-bag, 3 lb. ; a canvas sack, containing saddle and bridle, 30 lb. ; a bundle of rugs, 18 lb. ; or a total for the five articles of 121 lb. all told ; and

if to these is added a light silk feather pillow bought at Kiev, a pair of Kurjins and some light clothes at Tiflis, with extra provisions at Teheran, the total weight will be 140 lb. This was quite sufficient for 85 days, and contained all the appliances for a bath or a meal, whenever there was leisure to indulge in them. The principle followed was, that there should be suitable clothes for different occasions.

In the first place, a dress suit is necessary everywhere ; to this, as occasion demands, may be added the medals ; a good suit for visiting during the day, an ordinary touring suit, a properly-made riding suit, and some lighter clothes for warm weather.

Apart from individual fancy, a few useful hints on dress most suitable for the varying conditions of such a long journey may be appropriately offered. A detailed list is given in Appendix A. First comes an ulster, specially made of strong broadcloth, with soft cap, silk scarf, and warm gloves in the pockets. The leather waistcoat is an old friend—its worth was fully acknowledged in 'Kandahar in 1879'—large, covering the hips and loins, spacious armholes, and the leather carried right round the back. With such a waistcoat, one hardly ever experiences cold in the body.

As regards boots. After considerable misgivings,

the list was cut down to one pair, with a pair of patent leather Oxford shoes and a pair of slippers. To meet all wants, the pair were ankle boots, with spring sides, spur boxes, and single soles. They answered very well, the only objection to the pattern being the difficulty in pulling them on in the cold mornings. If one has to depend on a single pair, this style still seems to me to have the least defects, but in Russia excellent long boots for general wear can be secured almost anywhere. A Terai hat, with a double top and single brim, was quite sufficient for all purposes, supplemented at times with two silk handkerchiefs in the crown, and a pagri outside. Note-books may be small and thin (say 6 in. \times 3 in.), with about forty sheets each, all lined and crossed into small squares. Large loose sleeping-socks made like bags should be taken as a protection from fleas; plenty of insect-powder. The wickered flask for cold tea was useless. The veil was not used. A sketch-book with A B C sketching-frame, and with this simple arrangement I experienced no difficulty in making accurate outlines of anything I wished to draw.

The revolver was never fired, and although only worn once because of a 'lion in the path' at Pirizan

Kotal, in Persia, it is, however, an essential accessory. The derringer, likewise, was only carried in the pocket once on a morning's ride through Bokhara City, and it was only fired once, at Poozeh, near Persepolis, to amuse the guide. The filter was only once used, at Khoja Daulat, east of the shifting sands, and then there was no time to wait for the result.

Fraser's Etna is small and very good ; it carries a case for methylated spirits, and will cook a cup of soup or tea in a few minutes. A cone of menthol was useful for natives who demanded cures ; the effect in a few seconds after application was quite 'charming.'

The saddle should be of full size, with plenty of D's and coupling-strap to each. Holsters (not the present pattern, but the old pattern saddle-bags of 1855) all of flexible leather, and without the circular pieces at the top and bottom. The bed-sack (a hint from Dr. Bruce), worth ten times its weight in gold, is a bag of brown holland $6\frac{1}{2}$ feet long, $2\frac{1}{2}$ wide, opening at the foot, with a small bag $1\frac{1}{4}$ feet long opening at the side, sewn on to the top for a pillow. In Persia chopped straw is given as forage for horses, and can be obtained everywhere. The bag is stuffed with this provender, the pillow-piece is folded over, and the mattress is ready.

Provisions consisted of 2 lb. of soups, in sausage form, two boxes of meat-lozenges, and six ($\frac{1}{4}$ lb.) packets of compressed tea, with the addition at Teheran of some sardines, biscuits, and cocoa; fowls and bread, with an occasional cabbage, being obtainable on the road. If books are to be taken, a dozen volumes of some pocket edition should suffice, and these can be given away when read. A Bible—there is far more reading in it than most people imagine; it is the best guide for Eastern countries, while Tobit is quite a story of Persian domestic life. The sun-dried bricks at Rhages, in Media (Tobit i. 14), are as good as on the day they were moulded in the time of Shalmaneser.

As regards money. Cook's coupons can be taken as far as Berlin. Fifteen circular notes at £10 each, seventy sovereigns, and two cheque-books (one on England and the other on India) should provide for all contingencies. It would be better on entering Russia to exchange all notes and gold at once for rouble paper. At one place there is 'no deal in gold,' at another 'sovereigns are not wanted,' elsewhere 'circular notes are novelties,' and at Bokhara Russian paper commands the higher rate.

As soon as permission had been obtained early in

August to return to duty, I rode at single anchor, free to start. My children, however, wanted their holidays at the seaside, and more leisure for preliminary inquiry thus became available.

The proposed route was discussed with Sir F. Goldsmid, Dr. Bruce, Clements Markham, and Colonel Stewart, from all of whom I received many valuable suggestions; but when the chance of a diversion into Central Asia was even hinted at, the answer invariably came, 'No one is allowed to cross the Caspian on any pretence whatever.' I therefore proceeded to get a string to my bow according to my own devices.

Ship's-a-sailin'! and the Blue Peter is at the fore! By the group of friends who saw me off from Victoria, I was supposed to be starting for Persia, though they could not understand why I should curtail my leave, and choose a route which was 'neither the shortest nor the cheapest.' However, my secret went with me in the shape of a letter of introduction from a Russian gentleman in London to General Shepeleff. It was to this letter I trusted for a brighter prospect, on its presentation at Tiflis, of realizing my wish to see the Transcaspian Railway than my advisers had led me to anticipate.

CHAPTER II.

LONDON TO VLADIKAVKAS.

The Channel—The Netherlands—Berlin—Warsaw—Russian Money—Kiev—Trotting-races—Charkof—Mr. Hughes—Artels—Taganrog—Cossacks—Rostov—Elchtovo—The Russian Language.

FROM Victoria by Queensborough to Flushing, and thence by Breda, Oberhausen, and Hanover to Berlin, the distance 666 miles, is accomplished in $25\frac{1}{4}$ hours.

The Channel crossing is 115 miles, and occupies 8 hours: of this $1\frac{1}{2}$ hours are counted to the mouth of the Thames— $4\frac{1}{2}$ hours at sea, and 2 hours in the Scheldt under the banks of the Belgian coast. Baggage is examined at Flushing in the morning. (Seven thousand English troops died here of fever in the Walcheren Campaign, 1809.) A telegram to England costs 3d. a word.

A restaurant car is attached to the train as far as

Venlo, and a through first-class for Berlin. The Dutch express trains run at 33 miles an hour, including stoppages, and charge about $1\frac{3}{4}$ d., $1\frac{1}{4}$ d. and $\frac{3}{4}$ d. per English mile (1 Dutch mile = 4 English miles) in the three classes.

The country is very flat—wide meadows reclaimed from the sea and banked in, where canals form the roads, and where pumping, to a great extent, is done by windmills. The land is cultivated apparently by hand, in small allotments near villages. A few sand-hills near Gennep, and good-bye to the Netherlands. The south of Holland is more densely populated than any other part of Europe, having 754 per square mile.

The silver gulden, or guilder, or florin = 100 centimes = 1s. $7\frac{3}{4}$ d. The stiver, the extent of one's youthful recklessness, and now nearly obsolete = 1d. Baggage is again examined at Goch, the first station within the German frontier. A number of smart soldiers about. A glance at the fortifications round Wesel on the Rhine; dinner in the carriage on portable tables between Dortmund (Prussia) and Hamm, with Mr. Roskell, from New Zealand, bound for St. Petersburg, and the train runs into the Prussian capital at an indefinite hour, as time

here is $53\frac{1}{2}$ minutes earlier than London, the difference being at the rate of $\left(\frac{24 \text{ hours} \times 60 \text{ minutes}}{360 \text{ degrees}}\right)$ four minutes for every degree of longitude.

A day can be spent at Berlin, on the Spree, with its $1\frac{1}{3}$ millions of inhabitants. There is a nice market in the morning, where fish—eels, pike, sandre, all alive in tanks—are sold by weight. A stroll down Unter den Linden to the Royal Palace, and a peep at the Emperor's window; a visit to the Victory Monument, with its incidents from Danish, Austrian, and French wars in bold relief; a ride on a tramcar through the Thiergarten to the Zoo; and the opera in the evening. Telegrams to London 2d. a word, and 4d. tax. As exchange was given at par, 1s. = 1 mark = 100 pfennings; 3 marks silver = 1 thaler.

The run from Berlin to Warsaw is 393 miles in 15 hours, and this section is worked from Berlin under one management.

The price of the ticket is 55 marks, and of this Germany apparently gets 38·10 marks up to Alexandrovo on the border of Poland, and Russia receives 9 roubles 10 kopecks. The charge for a sleeping couch is 10·55 marks extra.

The ordinary mile in Germany = $4\frac{2}{3}$ English

miles ; but the German railway mile = kilometer = 1,093 yards = $\frac{5}{8}$ English mile. The express rate of travelling is, including stoppages, about 30 miles an hour, with fares at $1\frac{3}{4}$ d., $1\frac{1}{3}$ d., and $\frac{9}{16}$ of a penny for three classes. Country still very open and flat.

Warsaw (400,000) is nothing more than a huge entrenched camp, with an old and a new town. Its citadel, with barracks, and prisons for Nihilists. Roads roughly cobbled, and in some parts paved with iron gratings unevenly set. The noise of the carriages rattling over the rough stones is so great that foot passengers can hardly hear themselves speak.

There are numerous churches, a Roman Catholic cathedral, and a synagogue, where you keep your hat on. The best view of the town is from across the river towards Prague. The suspension-bridge built by Vignolles is 6,775 feet long, and cost £360,000. The Saxony gardens were illuminated for a fête in the evening, at which lotteries were held in aid of sick soldiers. The Jews number about 300,000, and their quarter comprises no less than twenty-four streets, and there they are, of all classes, denominations, and colour, decidedly cleaner and busier than their brethren who dwell in the

Holy City itself. The Poles are mostly Roman Catholics, and it is said that there are 7 millions of them in Poland. The population of Poland is about 8 millions, and there are only about 9 millions of Roman Catholics in Russia altogether. Circassian, Cossack, and Uhlan soldiers everywhere. Newspapers from England examined, and objectionable parts blacked out before issue.

100 kopecks = 1 rouble silver = 3s. 2d., but as there are no silver roubles current, the rouble is of paper, and not worth 2s. The rate of exchange here being £1 = 10 roubles 75 kopecks. The kopeck is really, then, not quite worth a farthing, but for ready calculation it may be so taken; and this gives the 10, 15, and 20 kopeck pieces in ordinary payments values of 2½d., 3¾d., and 5d. Telegrams to England, 26 kopecks (say 6d.) a word. Letters to England 2½d. per half-ounce, and post-cards 1d. A Russian verst = $\frac{2}{3}$ of an English mile.

The Roman Catholic cathedral so full as to have scarcely standing room. General Gourko, the Governor, now resides at Belvedere (in winter he lives in the old citadel). The park of King Ponia-towski is laid out in public drives. Lazienki, the day palace of the Czar (he sleeps at Belvedere), with

its nice gardens and ornamental waters, is the resort of Warsaw on Sundays. A picturesque theatre in the grounds has its stage and orchestra embowered in trees on an island, and its stalls, dress-circle, and gallery in the open air on the mainland opposite. The Polish coin of 10 groszy is very like the 10 kopeck piece, but it is only worth 5 kopecks, and on the railway is only accepted between Alexandrovo and Brest Litewski. Warsaw earlier than London by 1 hour and 24 minutes.

From Warsaw to Kiev, 538 miles, in 29 $\frac{1}{2}$ hours. The Moscow train leaves Warsaw at 3.55 p.m., and Kiev passengers go by it as far as Brest Litewski, in West Russia, where they change at 10.30 p.m. into sleeping coupés. Train very full, five out of six beds being occupied. Coffee in early morning at Rowno, and breakfast at Scheptowka. A plate of fish for 50 kopecks, and a cup of coffee for 20 kopecks. All refreshment arrangements seem very good. Country still very flat, but rather more wooded; little, however, seems to be done towards replanting. Engines fitted with steam-brakes, and burning wood. Dinner at Kasjatin : Soup, beef, pastry, and waiter for 1 rouble. White frost last (Sunday) night; air fresh, and wonderfully starlight.

Kiev is one of the principal towns in Little Russia. (Population 130,000.) Large wide cobbled roads, with drains running in centre. At morning market there were fantails and jack snipe, peewits and sand-plovers. Variety of colour everywhere; boots, turbans, felt coats, and such sausages! Kiev, the Jerusalem of Russia, stands on the heights overlooking the Dnieper (*Borysthene*s), said to have been founded A.D. 430. Church of St. Sophia so crowded could not get in. Thousands of pilgrims everywhere, said to be returning from Palestine *viâ* Odessa to their homes in the north; probably the return of the annual migration from all parts of Russia to Jerusalem for Easter. From the terrace of the Church of Vladimir there is an excellent view of the river and old town; the bright colouring of the zinc roofs and of the houses, the gilded domes breaking all lines and brightening up the picture. St. Michael's, etc., etc., etc.; in fact, the place seems to be built of churches. Catacombs of St. Anthony cut in the chalk, altogether inferior in size to those under St. Sebastian in Rome. Eighty bodies of saints, completely swathed in open coffins, are exposed to view in different cells and niches. The more devout kiss every winding-sheet in turn.

Races. Trotting in drotschkies. Two miles = 3 versts in 5' 32" and 4 versts in 7' 15". Many horses broke in their stride ; partly owing to their drivers shouting at them. A steeplechase with three horses over three jumps, three times round. Blue cantered past an hour before the race, got off, walked about, and gave his horse half a bucket of water. He wore gray trousers with a black stripe. Yellow then appeared ; he had real breeches, but they were misfits ; his horse refused preliminary jump, so Blue returned and gave him a lead over. Finally Tartan ; then bells began to ring, and in a most affable way the start was given, 'go as you please.' One jump was knocked over, one horse cut it altogether, and Yellow won, Blue pulling up dead lame. At the close the race-cups were presented to the winning horses with some ceremony.

The next run was from Kief to Rostov, on the Don, at the head of the Sea of Azov, 699 miles in 42 $\frac{3}{4}$ hours. No sleeping carriage, and as there were only ordinary first-class seats, secured the second-class ladies' compartment. Changed carriage at Voroshba at 9 a.m. ; a branch line then passes by Lubotin to Charkof. Country a little more undulating, but still very open. Harvest all gathered, corn - fields

principally. Many windmills. Black soil and roads not metalled. Houses thatched and walls white-washed. Villages generally situated in hollows and at some distance from the line. Graveyards with rough wooden crosses. Many drotschkies with one or two horses and waggons with oxen.

Halt at Charkof (population 140,000) for two hours. Good dinner at station; ladies smoking at table. A long saloon carriage with couches at either end, with retiring and washing room in two corners; thirteen beds in all, viz., the two end couches, four chairs on one side and three on the other, and four chairs down centre. The back of a chair let down behind the seat reversed; and when extended the bed so made was fairly comfortable, but a little too short. Ladies and gentlemen all together. Ladies smoking in the carriage.

From Kiev, if time permits, a pleasant change might be had by taking steamer down the Dnieper River to Ekaterinoslav, and thence by train to Taganrog and Rostov. Mr. Hughes, the son of the large manufacturer of rails at Hughesovna, in the Donetz Valley, and a Belgian, who were out prospecting, took this route.

The porters in this part at stations form 'artels' or

small communities ; they take care of your baggage at station, take your tickets, and put you in the train. If anything is lost, the amount is made good by the society. The combination exists also in the trades with labour, banks, etc.

The train reaches Kramatorowka at 7.30 a.m. Gendarmes at all stations in uniform with Cossack cap, blue coat and trousers, high boots and spurs. The sword hangs on left side from a cross belt, while the pistol with red cord on right side hangs from waist-belt. Ladies smoking in the train and on platforms. One young lady with fair hair and blue eyes, whose father and mother were in the carriage, offered me a cigarette. She was much interested in my knick-knacks of travel, and thought that the derring, with its snapping barrel, was an article *pour couper les cigares*.

Melons abound. Taganrog nicely situated on the Sea of Azov. It is now the country of the Cossacks of the Don, with their Kalmuk neighbours. The Don Cossack country (70,000 square miles) is complete in itself. It is free, the territory belongs to the commune, and the use of the land and pasture is open to all. In lieu of taxes it merely supplies a contingent of so many soldiers, mounted

and fully equipped, in time of war. Every Cossack is obliged to equip, clothe, and arm himself at his own expense, and to keep a horse. While on service beyond the frontiers of his own country, he receives rations and provender and a small amount of pay. On the occasion of the coming of age of the Czarevitch, who is commandant of the Cossacks by right, 1,000 youths were lately enrolled with the greatest enthusiasm by their parents in a new regiment to receive him. The traditional right to a grant of land in support of each officer has only lately, I believe, been rescinded. The war strength of the Cossacks of the Don is about 50,000. There are also others, viz., of the Black Sea, of the Kuban, and of the Terek along the northern slopes of the Caucasus, numbering probably another 50,000. Those of Astrakhan, of Orenburg, of the Ural, of Siberia, of Semirechensk, of Transbaikal and of the Amur aggregate some 50,000 more. The total Cossack war strength is about 10,000 infantry, 120,000 cavalry, 38 batteries of artillery, and 228 guns. The only divisions not free men are those of Transbaikal and of the Amur, who are Crown serfs, and muster something less than 12,000 together.

At Rostov (population 300,000) the exchange was

£1 = 11·18 roubles. One bank declined business *as it did not deal in gold*. At another the gold was weighed, and reference made to numerous tables with no satisfactory results. Market filled with tomatoes, melons, etc., for sale by the cartload. Curious carriages drawn by three horses with cross-seats in front, and two long ones behind. Flies getting troublesome. Heavy rain at night.

From Rostov to Vladikavkas, 435 miles, in 27½ hours. Train left at 1.25 p.m. St. Petersburg time, or 2 p.m. local time. The railway runs over some heavy bridging in the estuary of the Don, and shortly after enters the country of the Caucasus. Houses all detached. Engine burning coal. Sleeping arrangements in the train not good. The country may be said to be all open or flat to Savorowskaja, when a hill or two appears. Circassia is to the south, and the Caucasian Mountains are visible in the distance beyond, crowned with clouds. Turkeys in the fields feeding. A drove of dirty sheep and a herd of cattle scampering along with a drover in full career on horseback endeavouring to stop them. As many as twelve hawks (kestrel) in the air together, probably migrating. Vast plains to the foot of the hills evidently

grown with corn, the chief objects in the landscape being straw and wheat-cocks. Such heavy clouds were hanging about that Elburz (18,524 feet high) was covered. The best view generally is from Mineralynja Wady.

At Elchtovo there is a Circassian village under the hills, and a gentleman in the train told me that he always came to shoot and fish here, getting bears, pigs, roedeer, stags, snipe, hares, partridges, pheasants, besides large trout weighing 30 lb. apiece. Near Vladikavkas granite boulders crop out in the plain. Saw two jays and four more hawks.

The Russian language is said to be hard to speak and difficult to understand, but the character is so easy that anyone can read the names of stations, sign-boards, time-tables, ordinary print, etc., with facility in four or five days.

CHAPTER III.

VLADIKAVKAS.

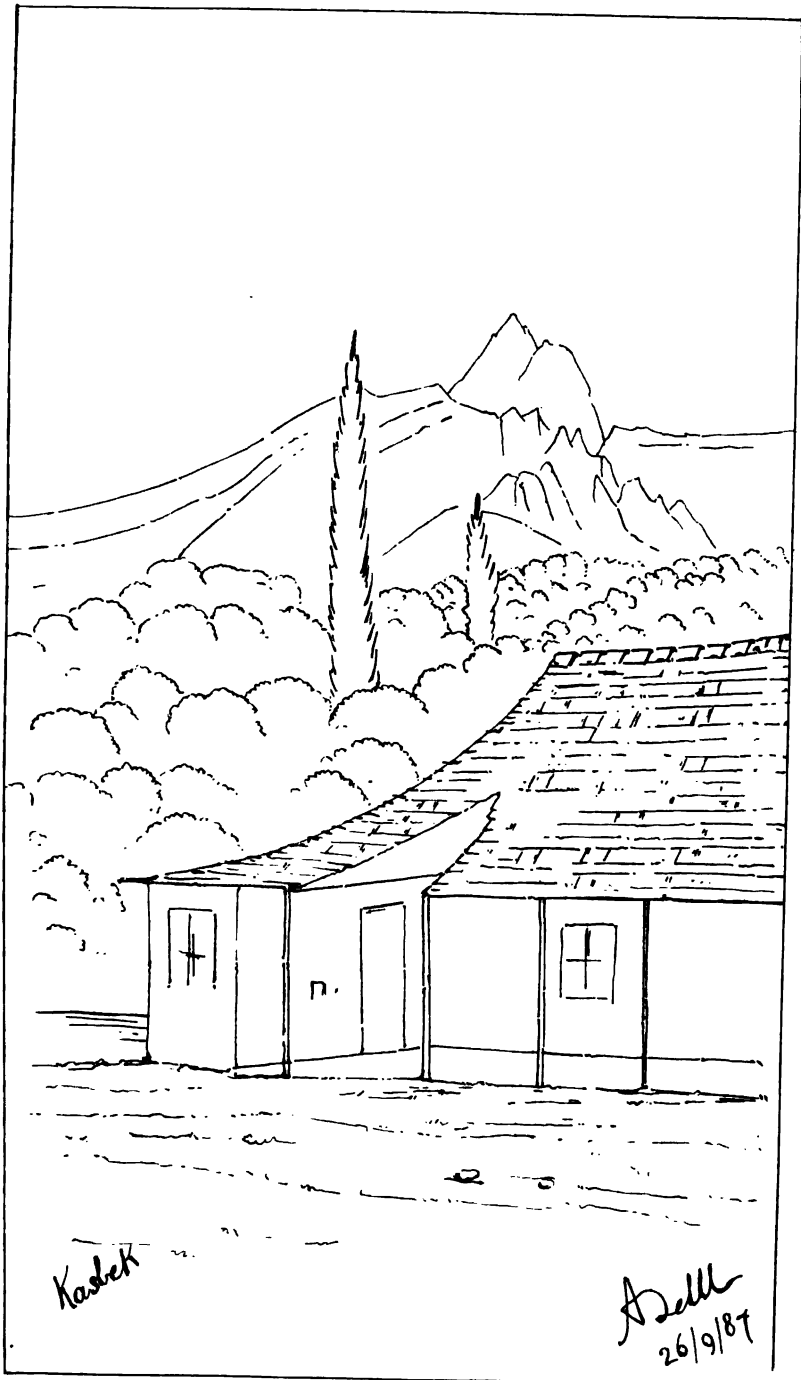
Old Style—Vladikavkas—Railway Construction—Level Crossings—Stations—Postal Vans—Railway Fares—State Control—Exports—Railway Debt—Gross Receipts—Gross Earnings—Cost of Lines—Areas—Population—Strength of Armies—Abstract of Stages, Time, and Cost—Fellow-travellers.

AT the terminus, Vladikavkas, there was a rush for beds. Hôtel de France was full, so was the Hôtel d'Europe ; but, with a little persuasion, the landlord gave me his own room. The posting office was crowded with applicants. Private carriages had been all engaged for some days, so I secured a seat in the cabriolet of the diligence for Monday morning, the 26th ; the date, however, on the ticket was 14th, the entry being according to old style, which is twelve days earlier than in England. Telegram to England 26 kopecks a word, the service being conducted entirely by females.

The delay of a day is so far fortunate, for

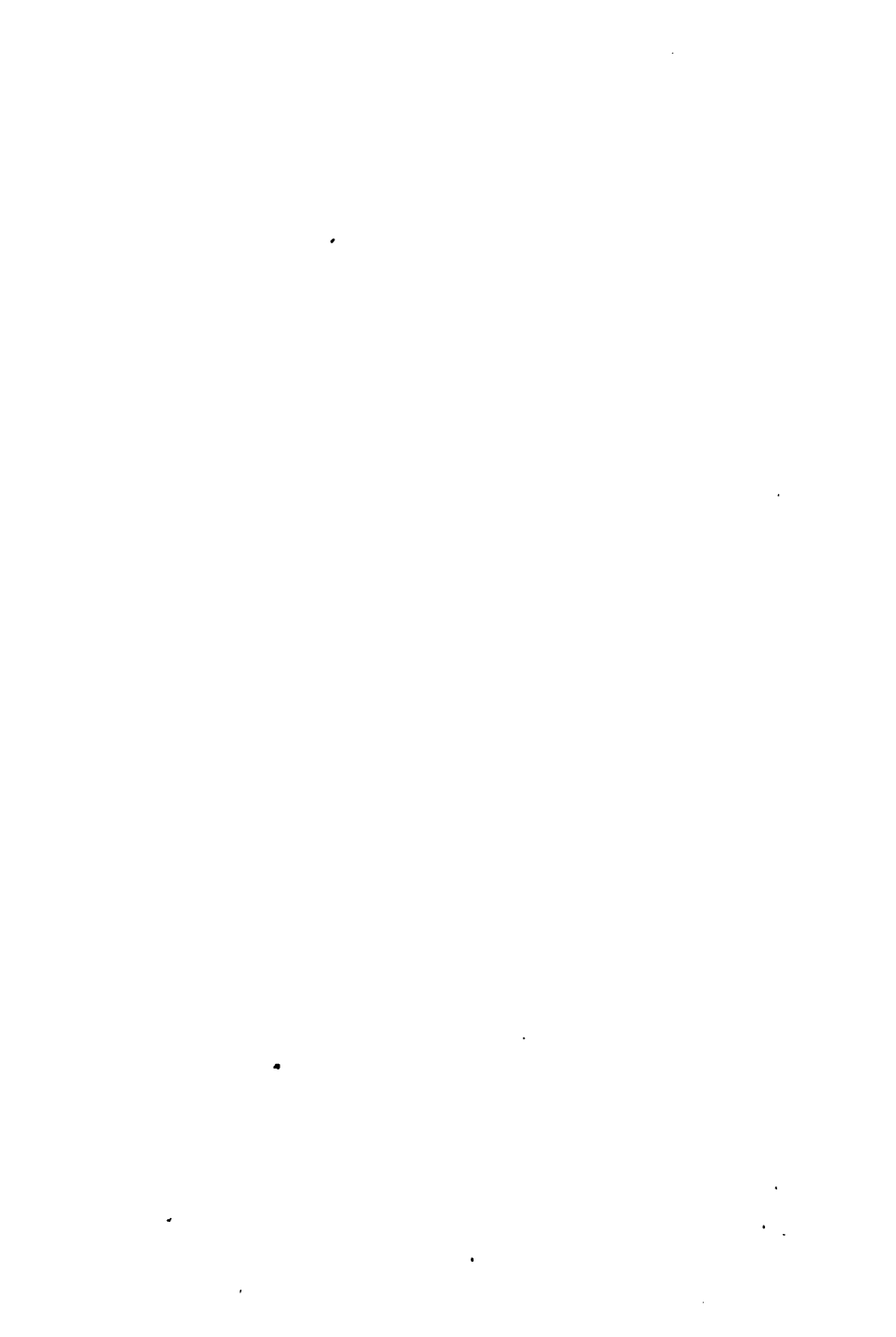
travellers in such weather can see nothing. Vladikavkas (34,000 inhabitants), formerly nothing but a small fort at the head of the pass which leads from Europe into Georgia, is now the principal town of Cis-Caucasus, with shops, cafés, barracks, hotels, travelling circus, etc. The change in people is most noticeable, and one feels he is approaching the East, for here are Persian vendors of fruit and sweets in their little wooden shops under the lime and acacia trees on the raised walks of the principal thoroughfares. The grand feature of the landscape is naturally the snows, with Kasbek standing out boldly from the rest. The town stands on the only carriage-road which crosses the Caucasian range, and as soon as the railway is completed to Petrofsk on the Caspian, it will be on the direct line which is to connect Europe with Asia. The Ingouches, a tribe living near here, have the worst reputation of any living in the Caucasus.

On the Russian railway, just passed over, one uniform width of land is apparently taken up throughout the length of the line, whether it is in bank or cutting. The extreme land width is marked out with small mounds and a white stone. Side-excavations are neatly taken out, and the spoil



Kasbek

A. Zell
26/9/87



is deposited in a shapely way. The outer strip of land is sometimes cultivated. The telegraph-posts are of wood, and generally numbered. The banks are grassed, and the distances are given in tenths of a mile on small stones set dry at the edge of the bank ; even miles are given on larger stones. Wooden steps lead down the banks on down-stream side, to facilitate the inspection of bridges and culverts.

Level crossings are paved and barred by posts and beams coloured black and white, the bar being slipped back through a post into a trough. Small semaphores are usually fixed at each crossing, and in many places women are in attendance with flag. The grades and curves are given on arms attached to a standard pole on the edge of formation. Ballast is either of sand or gravel ; wooden sleepers, single-headed rails, spiked and fished. There is no fencing along the line, but wooden railings are run up at the stations. The gauge is 5 feet. There is a platform signal, and the distant signals are at least 500 yards off, the wire being carried on iron links suspended from posts.

All stations are named, with mileage. All have clocks visible from the train, with a notice showing how long the train will stop. The bell is generally

rung three times ; the first time ending with a single clap ; the second time with two claps at the end, when all go to their seats ; the third time with three claps, when train starts.

The subsidiary houses are chiefly wooden. Soldiers are on duty at every station, and receive the train. Long boots are worn by all. Bearded men meet and kiss on both cheeks in the most matter-of-fact way ; servants kiss the hands of their masters on leaving, etc. Towards the south, hurdles may be seen stacked for use during the winter against snowdrifts. In most of these drift regions trees might be advantageously planted.

Between Brest Litewski and Kiev the soil is black, the ballast is sand, and in places this sand is covered with broken metal, probably to keep the dust down, or to prevent its being blown away entirely by the wind. Villages rather distant from the line, which apparently follows the watershed.

When postal vans are not run on the train, there is a small compartment in third-class reserved for the post-office. The carriages are, as a rule, good, and the accommodation is fair. Double windows, double doors, thermometers, hot pipes, etc., all indicate severe and inclement weather during winter.

Retiring rooms for first and second class passengers are generally placed at larger stations at corners of the dining-hall. The arrangements for the third-class are in detached buildings at the end of the platform, and are in as filthy a condition as it is possible to imagine anything to be. They are worse than the Egyptian shanties at Alexandria thirty years ago.

Most of the arrangements for one's personal comfort are supposed to be carried out in the carriage. It is not a nice plan, especially where ladies and gentlemen travel for days and nights together, and where, from through communication in the train, passengers in the lower classes use without hesitation the accommodation intended for the higher.

The mass of dirt and poverty one sees huddled up in the third-class waiting-rooms is quite appalling. Bundles of men with their limbs swathed in clothes, pilgrims, women with babies, all upon the floor together, many asleep, and many taking their meal of dried bread and drier fish.

The railway-fare for the poorer classes, considering their habit of travel, is very high, say three farthings a mile. The charge for extra baggage is 6 roubles for 40 livres from St. Petersburg to

Vladikavkas. Grain is carried for $\frac{1}{16}$ kopeck per verst per pood (a half penny a ton a mile).

The State control is as in India. His Excellency Mons. Saloff, the Director-General of Railways, was at Vladikavkas, on his way to Batoum and Baku on inspection. The cost of the Rostov line is said to be 50,000 roubles a verst (£6,875 per mile). The cost naturally depends on the length of lead, and on the rate which is fixed by Government for the yearly supply of rails from the several manufacturing establishments. Formerly rails were obtained from England and Belgium ; now Russia supplies herself.

Mr. Hughes has a large establishment near Rostov, and there are others in the north, nearer Moscow and St. Petersburg. Good locomotives are now made in the country, and there is nothing to show why, as far as her railways are concerned, Russia should not be entirely self-supporting.

During the first half of 1888 her exports were greater than the imports by 204,000,000 roubles, a thing which has never before happened in Russia's commercial history. In the imports, tobacco has decreased one half, and salt, fish and fruits of all kinds are very much less. Coal and coke are less, while pig-iron is only $\frac{1}{16}$ th of what it was in 1887.

Her railway debt is quoted at 163,000,000 sterling. The averages for 1873-82 were per English mile as under: viz., gross receipts, £1,429; working, £962; net receipts, £467; the transport of passengers giving 21 to 27 per cent. of gross receipts. On January 1, 1883, the cost of Russian railways had been £15,073 per English mile, and 90 per cent. of all the railway capital (bonds and shares) was held by the Government or guaranteed by it.

A few particulars regarding the countries traversed are added, taken chiefly from the 'Statesman's Year-Book' and Whitaker, viz.:

Country.	Area in square miles.	Population in millions.	£ MILLIONS.			ARMY.	
			Revenue.	Imports and Exports.	Public Debt.	Peace.	War.
Great Britain and Ireland	121,000	38	90	620	740	138,000 227,000 Vol.	
Netherlands	13,000	4½	10	163	90½	...	{ 65,000 114,000 Mila. 1,492,000 to 3,500,000
Germany .	209,000	47	37	328	30	490,000	
Russia in Europe.	2,081,000	87½	139	119	743	419,000	{ 1,120,000 to 5,500,000
Indian Possessions	1,585,000	263	75	157	175	74,000 Eur. 135,000 Nat.	

The following is an abstract of the stages, time, cost, etc. :

Date.	STAGES.		Miles.	Hours.	Tickets.	Expenses.
	From	To				
From 8 p.m. on 14th to 5 p.m. on 24th Sep- tember	London	Berlin . . .	666	26	£ 5 2 11	£ 0 16 6
	Berlin	Warsaw . . .	393	15	3 15 6	1 0 0
	Warsaw	Kiev . . .	538	29	3 1 0	2 16 0
	Kiev	Rostov . . .	699	42½	3 16 0	2 10 0
	Rostov	Vladikavkas	435	27¼	2 8 0	2 0 0
	Total		2,731	140	18 3 5	9 2 6

The trip, so far, was accomplished in five stages, so that in ten days one can travel from England to the Caucasus, spending 140 hours in transit and 97 in resting and looking about. The distance is 2,731 miles, and the price of the tickets (1st class) is £18 3s. 5d., and this, with expenses for eleven days at £9 2s. 6d., will bring the total to, say, £28.

These results are fairly good, if judged by an Indian standard, for the distance from Bombay to Calcutta and back is 2,800 miles, the ticket £16, and the time in transit 120 hours by the mail.

For the ordinary traveller there is but little to see on this route from the train. To all intents a level country, where as you go east and south the plains widen into steppes (not deserts), over which the wind and storm must rage in pitiless fury. The signs of

busy life are few. The interest lies chiefly in one's fellow-travellers and in the characteristic groups that strike the eye near the larger centres.

Railway travelling in Russia can never be tedious, as passengers are very vivacious and agreeable. I still retain the most pleasant recollections of those with whom I journeyed ; and, in mentioning names, I trust that some day these good folk may learn I have not forgotten the many kindnesses they bestowed on a stranger : Colonel de Klupffel, with his shooting stories ; Gospodin Andreev, the Procureur in the Court at Tiflis, who was so minute in his instructions for my trip across the mountains ; the naval officer on his way to Odessa, Mr. Hughes, jun., and last, but not least, the Rosebud of Taganrog —*pour couper les cigares !*

PART II.

CAUCASIA.

‘There, at least, our efforts will be attended with definite results ; we shall deprive Russia of a portion of her empire equal in extent to Prussia ; we shall render her further aggression upon Persia and Turkey impossible ; we shall utterly destroy her prestige throughout Asia, save our own transit trade, and be entirely relieved of apprehension with regard to India. We shall free an oppressed and an enslaved people, in all probability capable themselves of guarding their own frontier, but with whom, if it is necessary to leave a small force, they will be well cared for in a healthy climate and fertile country ; and ultimately, by means of a rigorous and *bonâ-fide* blockade of her whole maritime provinces, and the adoption of such other measures as may effectually destroy her commerce, frame a basis for negotiation, very different in its character from that which has been so scornfully rejected, and of which a “fifth point” should be : that, between the Black Sea and the Caspian, the Terek and the Kuban do henceforth form the frontier of Russia.’



CHAPTER IV.

THE GEORGIAN MILITARY ROAD.

Russian Conquest—Kars—General Williams—Omar Pasha—
 Military Boundaries—Russian Frontier—Area—Darial Pass—
 Diligence—Private Carriages—Balta—Lars—Queen Tamara
 —Kasbek—Avalanches—Lermontoff's 'Demon'—Ossétes—
 Kobi—Mountain of the Cross—Hessours—Gudaour—Mlete—
 Tunnels—Hill Railway in India—Ananour—Duschetz—
 Tsilkaneh—Mtszkhet—The Koura—Time.

UNTIL the siege of Kars most people were ignorant that Russia had any territory in the Caucasus at all, although in 1828 a Russian army in one campaign secured Anapa, Poti, Ardahan, Toprakale, and Bayazid for the Czar. Had the proposal of the Turkish Government for an expedition by Kutais, in Georgia, been entertained at the time it was made, early in July, 1855, Kars would never have been taken. General (Sir Fenwick) Williams wrote on September 1 that his soldiers were on half-rations, and that the Mussulman population were on the

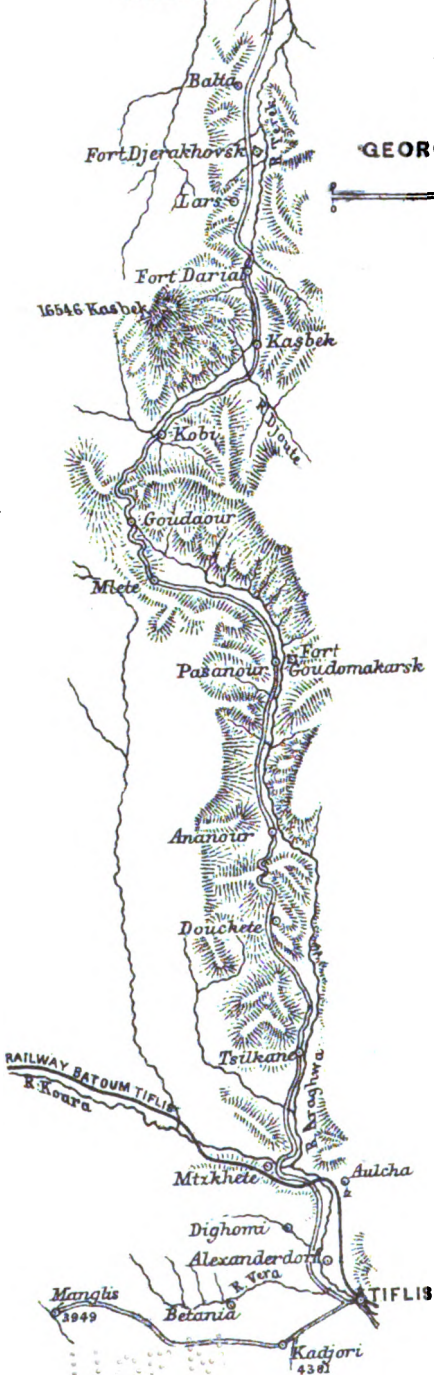
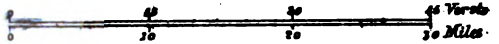
verge of starvation. Pelissier, however, would not consent to the departure of any Ottoman troops from the Crimea till September 29, some three weeks after Sebastopol had fallen. Omar Pasha did not land at Soukhoum Kale till October 3, and Kars capitulated on November 26.

It was also at the time believed that if the troops under Omar Pasha had started three weeks earlier, the Turkish army would have been in possession of the Pass of Surame, with the cities of Gori and Tiflis, in the Valley of the Kur. An account of 'The Trans-Caucasian Campaign, under Omar Pasha,' was written by Lawrence Oliphant. Colonel (Sir Lintorn) Simmons, Cadell, McIntyre, Hind and Ballard (Bombay Engineers) were with the force, and remained in Mingrelia till the end of the year.

The Caucasian military boundary consists of two lines—the outer line of fortresses built by Peter the Great on the Terek, and continued by Catherine II. along the Kuban. The inner line passes through Vladikavkas. The fortresses on the Black Sea were erected between 1836 and 1842.

In 1888 the frontier of Russia is consolidated along a line which includes the Provinces of Batoum

GEORGIAN MILITARY ROAD



Done
Sept. 1887

and Kars, touches Mount Ararat, follows the Arax, and includes a piece of the Caspian littoral as far south as Astara.

The country of the Caucasus extends over 180,000 square miles, and contains about $6\frac{1}{2}$ millions of people. It is divided into Cis-Caucasus and Trans-Caucasus by a range of mountains which runs for 700 miles, from Anapa at the mouth of the Sea of Azov in a south-easterly direction, to Baku on the Caspian.

This range of mountains is divided into two parts by what is known as the Darial Pass or 'Narrow Road,' through which the Georgian Military Road runs, the only route available for carriages, and which, on account of its strategic importance as leading through the 'Gate of the Caucasus,' naturally elicits a considerable amount of attention. (See plan and section.)

As the crow flies, the distance between Vladikavkas and Tiflis is 100 miles; by the road it is 134, with a rise of 5,589 feet and a fall of 6,462 feet in this distance. (For the time-table, see Appendix B.)

The passenger communication is kept up by diligence or coach, omnibus, and also by private

carriages with Government horses. From June 1 to October 1 the coach starts at 8 a.m., and reaches Tiflis at 8 p.m. next day, the time being 36 hours 6 minutes. In this there are halts amounting to 11 hours 14 minutes, and the time in actual passage is 24 hours 52 minutes, or up from Vladikavkas to Mlete (where the halt is for 8 hours), 61 miles in 12 hours 26 minutes, and from Mlete down to Tiflis, 72½ miles, in 12 hours 26 minutes. The fares by coach are 18 and 12 roubles.

There is also a coach running through without stopping, doing the distance for the same money in $27\frac{3}{4}$ hours. The stoppages aggregate 2 hours 5½ minutes, which makes the driving time 24 hours 52 minutes, at a rate of nearly $5\frac{1}{2}$ miles an hour.

From October 1 to June 1 the coach runs an hour later from each terminus. An omnibus also runs at 11 and 5 roubles fares.

Carriages can be privately hired, and Government post-horses taken, doing the distance in $15\frac{1}{2}$ hours; the charge for four horses, conductor, grooms, coachman, etc., coming to about 50 roubles. A special permit to proceed by private carriage is requisite. There is, of course, the traffic by country carts.

After an early breakfast, a short drive from the hotel takes you to the diligence-office. The baggage is weighed, and without any delay each passenger mounts to the place assigned to him on his ticket. The coach is a heavy machine, undoubtedly. Fortunately I had secured the single seat of the cabriolet, open in front, behind the driver and conductor, with a Russian officer from Odessa and a merchant from Baku on my right. Inside there are two females and two children. The baggage is on the roof. Four gray horses are put in as the first team. The fare outside is 12 roubles, and the price inside is 18. The outside place is the better in every way.

The start is at 7.15, and after a halt on the bridge for a few minutes in full view of the snows, the coach proceeds.

The first stage is $8\frac{1}{2}$ miles, following the Valley of the Terek, and rising about 500 feet. Balta is reached at the opening of the gorge, where the four grays are changed. All descend for tea. A private carriage with four horses draws up, and then the omnibus with four more horses arrives. Then a second private carriage with four horses, and the place is busy. The staging-house is

commodious and fairly clean. The stables, holding ninety horses, round the sides of the open square are large and roomy, and very little time is wasted in harnessing and putting together. The driver receives his *pourboire*, the conductor reascends, and the journey continues—this time with six horses, four abreast in the wheel, and two in front, with a postboy on a very high saddle, well clear of the horse's back, riding the near leader.

The next stage is Lars, $11\frac{1}{2}$ miles in the gorge, a second rise of about 500 feet; carts of all descriptions have been passed *en route*; men on horseback in skin coats and high caps. The hills abound in granite, slate, limestone, sandstone, etc. A large square barrack like a serai forms the Cossack post or barrack (Fort Djerakhovsk). Pigs in plenty wander about. The rooms are ornamented with horns and stuffed heads of the brown ibex (*Toor*). A Cossack officer who is quartered here told me that in the winter the ibex come quite close to the outpost. The boulders of absolute *débris* in the bed of the river clearly show the nature and extent of the heavy floods which rush down the valley at different times.

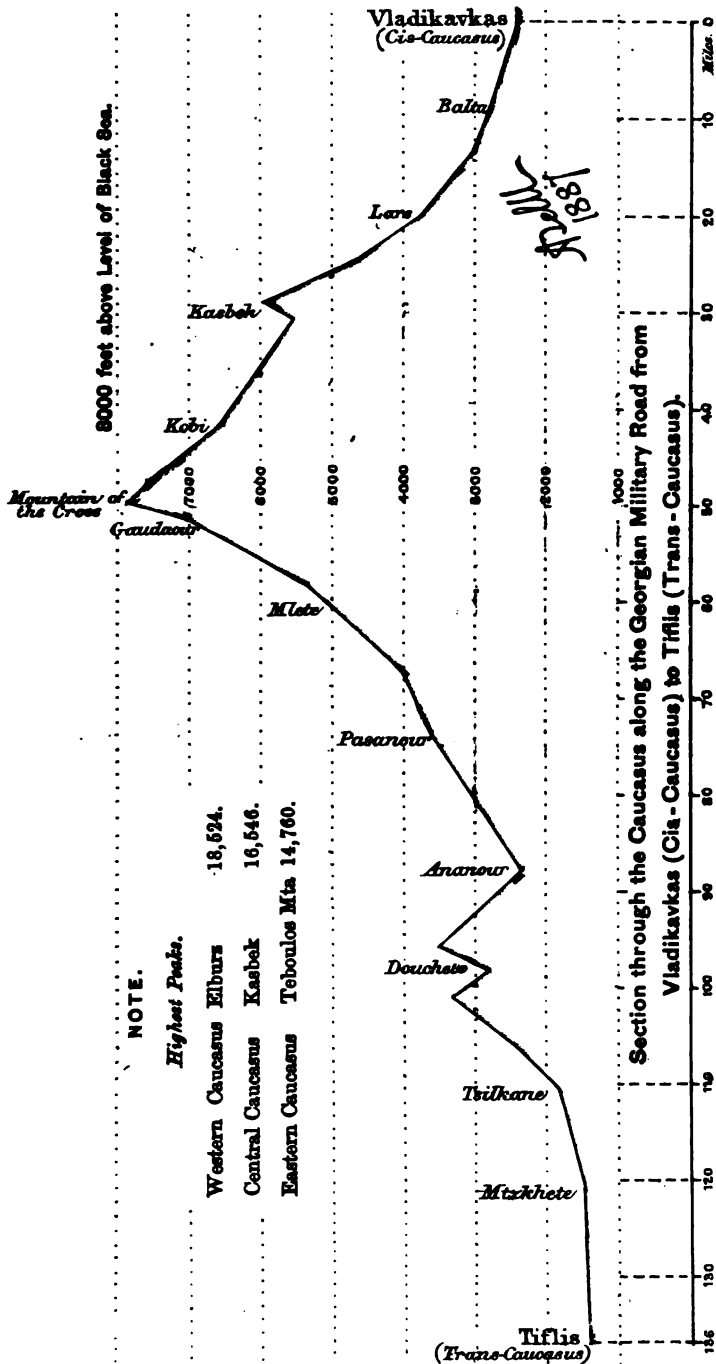
The start from Lars towards Kasbek is made with

8000 feet above Level of Black Sea.

NOTE.

Highest Peaks.

- Western Caucasus Elburus 16,524.
- Central Caucasus Kasbek 16,546.
- Eastern Caucasus Teboulos Mta 14,760.



Section through the Caucasus along the Georgian Military Road from Vladikavkas (Cis-Caucasus) to Tiflis (Trans-Caucasus).

Miles. 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 156

1000

four horses in the wheel and three in the lead abreast, with the postboy on the off leader. The road is still in the gorge, which narrows rapidly until it becomes a mere passage between high hills. The road hugs the sides, first on one bank, then on the other, and in many places it is cut out of rock where the strata are contorted in all directions, while mountains of débris block the river-bed. It is from this part that the pass has been named 'Darial,' or 'Narrow,' and here tradition has placed the fortress from which Queen Tamara used to cast her lovers into the torrent below. Here also stood the *Castellum Cumania* which, according to Pliny and Strabo, defended the 'gates,' and on this spot the Russians have erected their own fort, and called it Darial.

Beyond the fort the gorge again narrows ; the formation of the rocks is very curious, columns of basalt rising in different thicknesses, some perpendicular, some inclined, some nearly horizontal ; while there is plain evidence that the road has been cut through débris which must have been brought down from the upper valleys years ago.

Further on the valley again opens. On crossing a ridge 6,000 feet above the sea, and approaching

Kasbek, the leading nags (three) are taken off, as the road is here down-hill. The village church appears ; a second village on the hill opposite, and open fields with corn and haycocks standing. Above all this is the magnificent Kasbek, with its horseshoe crater, 16,546 feet above the sea. Some meteorologists are said to be up the hill now, waiting and watching for an avalanche which is hourly expected to break away and detach itself from the grand pile.

These avalanches are apparently the sights of the locality, and parties ascend to look at them, very much as in other places one goes for a stray shot at a stag. A big one is reported to have occurred in 1832, when it was calculated that about twenty-one million cube yards of material 'slid,' and blocked up the valley of the Terek in a mass about $1\frac{1}{4}$ miles broad and over 300 feet high.

Kasbek also is the chief scene of Lermontoff's 'Demon,' the Russian Faust, a mixture of 'Paradise Lost' and the Book of Job, a beautiful poem ending, as with Marguerite, in the apotheosis of Tamara, the heroine.

Kasbek is inhabited by Georgians chiefly and some Ossétes. Its church is built in the Byzantine style. The staging-house is well built, the rooms

are large and clean, the refreshments are good, and as the halt is for fifty minutes, there is leisure to examine the brown ibex (*T'oor*) horns, and the specimens of minerals and crystals which are offered for sale.

The start from Kasbek is with six horses, four abreast in the wheel and two in front, with postboy on off leader. The valley continues to open out, corn-fields abound, and the flat-roofed villages of the Ossétes are visible up the hillsides, where flocks of fat-tailed sheep are placidly grazing. The road winds further from and higher above the right bank of stream. Passing the river Djoute, the valley narrows again, and certain tunnels have been made to protect the road in winter from snowdrift and falling débris.

At Kobi the sleighs for use in the winter were all ready stacked under sheds, a silent witness of one of the difficulties in the traffic of this road.

From Kobi, the last station on the northern slope of the Caucasus, there are seven horses, four in the wheel and three in the lead, with the postboy on the off leader ; the gorge runs out, the main drainage is on the left, and the summit, 7,957 feet above the sea, is gained—the 'Mountain of the Cross,' so called

from a cross planted here in 1824 by General Yermontof, 'in token of the domination of Holy Russia.' The three leaders and two of the wheelers are taken off before the descent to Gudaour.

One may pause here for a moment. It is probably the point where the traveller leaves Europe and enters Asia. 'Probably,' because most atlases give on one page the Caucasus country as connected with Russia *in Europe*, and on another the same province as combined with Turkey *in Asia*.

The Hessours, a tribe of about 7,000 strong, dwell on the two slopes of these mountains near the Pass. They say they are 'descendants of the Cross;' although Christians by profession, they eschew fowls and pork, they offer sacrifices, like the people in Coorg, to the spirits, and they observe Friday. They wear coats of mail, and their robes are covered with either black or red crosses.

The descent from Gudaour to Mlete (about 3,000 feet in 11 miles) is without doubt admirably accomplished, and it is this piece of engineering particularly which it is said has gained for this road the credit of being the finest work of its sort in the world. The road is carried on high masonry revetments in long lengths along the steep mountain-side, which has

almost a perpendicular fall into the ravine below. The work is undoubtedly good ; but as an engineer by profession, and as a traveller on opportunity, I do not think the Georgian military road is superior (certainly not as far as its 'up-keep' goes) to the existing road made by the French from Beyrout across the Lebanons to Damascus, or to the old road across the St. Gothard, or, nearer to us here, to Chapman's (Bombay Engineers) roads up the Bhore and Tul Ghâts in Western India. The scenery of the Darial route is also slightly disappointing.

A project for a tunnel about eight miles long somewhere to the east of Kasbek was spoken of ; but any such work means the expenditure of a sum far beyond what the present 'isolation' of the Caucasus might even justify.

It might be easier to use the present road for a narrow-gauge railway. In India, on the Darjeeling road, a two-feet railway has been laid with curves of 70' and loops of 60 feet radius on a maximum grade of 1 in 28, at a cost of £3,750 a mile. The rise from Sukna to Ghoom is 6,921 feet in 40 miles, and up this the small 12-ton engines take their load of eleven vehicles, weighing 14 tons, at 15 miles an

hour. The rise from Vladikavkas to the summit is 5,589 feet in 50 miles, and the descent to Ananour is 5,622 feet in 40 miles.

The halt usually is at Mlete for the night of seven or eight hours. The premises, however, were under repair, so the journey had to be continued for another stage. It was now past nine, and the road, as far as it could be seen, runs down a fine gorge along the right bank of the Araghva as far as Passanaour, which is reached at 11 p.m. After a bowl of greasy soup and water, a bed was secured on one of the four couches in the public room, preparatory to an early start next morning. Here there is another outpost, Fort Gondoumakarsk.

The road to Ananour (about the same altitude as Vladikavkas) follows an ordinary mountain valley, wooded in parts, and more or less open, the road at times approaching and receding from the river-bed.

Ananour is a Georgian village, from which a mule-road leads off to the Kahétie district. It contains one of the archæological curiosities of the Caucasus, viz., the fortified monastery of St. Khitobel. The monastery, raised in the fifteenth century, is surrounded by a stone wall, battlemented and flanked with round towers. At the centre of the enclosure

there is a church, built on the plan of the Georgian and Armenian churches. Outside, the walls are decorated with crosses, animals, and birds, artistically chiselled in stone. The interior, in ruins, offers nothing remarkable ; in the vestry there are some old missals with beautiful, but much damaged, enamels.

The start was with four horses, then two more were added on the road for the pull uphill ; as soon as this is overcome, the two leaders are again cast off. On this section of the road many of the carts were being drawn by the ordinary hairless buffalo.

Duschetz, inhabited by Armenians, was for a long time the capital of the princes of Araghva ; it is situated in a fine open and well-cultivated glade. The team consists of six horses, as there is a bit of uphill, but the road to Tsilkaneh is, for the most part, straight, and nearly level, along a wide valley.

From Tsilkaneh the road is straight and good, running through a wooded valley to Mtszkhet, at the junction of the Araghva with the Koura. The solitude of the mountains has merged into the busier life of the plains. On the river, huge rafts of twenty big trees are being floated off ; beyond runs the railway, with the three wires of the Anglo-Indian

telegraph on iron standards alongside. The conductor immediately relates that the church possesses rare relics, notably a shirt worn by Noah, and our Saviour's seamless robe, and that the crown of thorns had been taken from here to Moscow. The legend is that at the casting of the lots the garment came to the share of one of the princes of Iberia, who was at Jerusalem at the time in command of one of the Roman legions. The prince finally brought it to his home, left the service, and built the church at this spot to receive it.

Mtszkhet (pronounced Muschait), the ancient capital of Georgia, was founded by Mtszkhos, son of Kartlos (fifth generation after Noah), and said to be the oldest town in the world, Damascus not excepted. Its importance began to decline in the fifth century, when the seat of Government was transferred to Tiflis.

The highroad crosses the river Koura on a stone bridge erected in 1841 on the foundations of an earlier bridge attributed to Pompey. The tamarisk grows freely in the river-bed, and the castor-oil-plant upon the banks. Following along the right bank some very curious openings in the rocks overhead are clearly visible from the road ; they were

said not to be Troglodytes, or cliff-dwellings of any sort. Shortly afterwards, in mounting a rise, Tiflis is seen nine miles off, situated at the foot of some hills, and the whole landscape is not unlike what one might expect to see in the Deccan in the hot weather if the trees were removed. A large military camp of exercise is pitched on the outskirts of the city, and the diligence office is finally reached at a quarter to 5 p.m. Hôtel Caucase full; secured a room at Hôtel Imperial, and finally changed to Hotel London.

The time actually occupied on the journey of 134 miles was $33\frac{1}{2}$ hours; of this $11\frac{1}{8}$ hours were consumed on halting, so that for $22\frac{3}{8}$ hours the average rate of progress was about six miles an hour.

CHAPTER V.

TIFLIS.

M. Roggét—General Sheremetieff—Railway Depôt—M. Berezowski—‘ Le Caucase et la Perse ’—Railway interrupted—‘ English John ’—Bazaars—Mr. Orr—Sulphur Baths—Botanical Gardens—Naraclea—Tiflis—Avlabar—Floating Mills—Museum—Dr. Teláfus — Lieutenant Tamamsheff — Prince Dundakoff — Mtszkhet Gardens—Dr. Rédde.

ON presenting my letter of introduction at the palace, I learnt from M. Roggét, an under-secretary, that General Shepeleff had lost his life while bathing at Baku four days previously. I left the letter, stated my desire to obtain permission to visit the Trans-Caspian Railway, and made an appointment to call later in the day on General Sheremetieff, General-Adjutant at Tiflis (Shepeleff's successor). Punctually at 1 p.m. I reached the palace again, and was then shown into a large anteroom on the first floor, to wait with others till General Sheremetieff could see me. In a few minutes a door

opened, some words were passed to the Circassian soldier on duty, and it was conveyed to me that my presence was desired. The announcement came sooner than I had expected, and I felt like a man at the dentist's whose turn has come. On passing the guard and entering an inner room, the General rose and advanced to receive me. He was in uniform, slightly lame, and walking with a stick. In a moment, by his gentle manner, all strangeness was removed. He asked me my name, and after a few remarks about my journey, I expressed a hope that I might be permitted to visit Trans-Caspia. It was then explained to me that this railway was a military undertaking and not open to the public, and that reference to higher authority was necessary before anyone could cross the Caspian. M. Roggét and a civilian were also present. The conversation was all noted down, and in less than ten minutes the interview was at an end. Notwithstanding the business-like manner in which my application had been treated, and the gratifying evidences of my personal reception, I still felt my chance of visiting Trans-Caspia so small that I telegraphed to Major Wells to expect me at Teheran in a few days.

As I was anxious to learn some particulars of the Trans-Caucasus Railway and its working for the information of Sir A. M. Rendel, in connection with the equipment of our Indian frontier inclines, I drove to the railway works north of the town. M. Saloff, the Director-General of Railways in Russia, was there on inspection. M. Kasbek, the manager of the railway, introduced me to his assistant, M. Berezowski, a Pole, who conducted me all over the depôt.

I was able to buy a fairly good map of Central Asia and one of Trans-Caspia in the town—a Russian 'Bradshaw' giving details as to fares and distances of the steamboat service on the Caspian, and of the times and fares on the Trans-Caspian Railway—also a very nice book by M. E. Orsolle, 'Le Caucase et la Perse.' There is no Baedekker or Murray for the district. Exchange at Tiflis was 11·23 roubles per £1 for circular notes. Telegrams to England 26 kopecks, and to Teheran 24 kopecks a word.

News arrived that the Tiflis-Baku line was broken, and impassable between Karasu and Navagui for 41 versts. As this was on my proposed route to India (whether I crossed the Caspian or not), it was

necessary to inquire how long the interruption would be likely to last. With the assistance of M. Pierre Crimoff, a merchant whom I had met at the station, it was ascertained that in a few days horses would be available for crossing the gap at the regular staging charge of 3 kopecks a verst a horse ; but if I wanted to start at once, the regular posting road to Persia through Elizabetopol to the Arax at Nakitchevan, and thence to Tabriz and Kasvin, was open to me. An Armenian who called himself 'English John' found me at the hotel ; he said he had been in Persia, and had known many Engineer officers, Champain, St. John, Lovett, Pierson, etc. He was quite ready to act as guide, so we drove off to the Maidan, or Armenian bazaar, where furriers, potters, metal-workers, dealers in old armour, carpet-sellers, etc., ply their trade.

In the silk and cloth bazaar there are brocades from Noukha and Shemakha ; ivory inlaid with gold from Kasi Koumouk ; damascened swords from Kabatschi ; guns and pistols, silver-mounted, from Schoura ; Daghestan scimitars ; cloths worked by the Kurdish women of Erivan, to say nothing of the varieties from Persia, Turkey, Turkestan,

Bokhara and Herat. In the streets the mixture is complete: Russian officers in uniform; Tartars with shaggy sheepskin head-gear, Armenians in flat caps; Wurtembergers in Suabian dress; Albanians, Greek beggars, Turks, Ossètes in black felt skull-caps, Persians 'in Astrakhan hats; Lezghiens with sharp profiles; Turkomans, Georgians, etc., on camels; arbahs, or high-wheeled carts, filled with huge bullock-skins of Kahétie wine; horses carrying leathern water-skins, etc.

The Tartar and Persian bazaar is just what one has so often seen—vaulted corridors, and the vendors sitting smoking as if the last thing to be thought of on this earth was a bargain or a deal. In the evening 'English John' took me to the Public Garden, and there introduced me to Mr. Giffen and the officers of the Anglo-Indian Telegraph Department.

On the third day of my stay in Tiflis, General Sheremetieff's secretary, Mr. Orr, called and informed me, with the General's compliments, that permission had been received for my visit to the Trans-Caspian Railway, and that the necessary arrangements would soon be perfected. This was good news indeed. The latest maps were shown to me, the nature of

my proposed visit was discussed, and it was mutually understood that I should follow the line of railway both in going to and returning from Bokhara, that I would abandon the idea of entering Persia from Merv towards Meshed, and, finally, that I would make no attempt to cross the frontier into Afghanistan, in the interests of all concerned.

My start for Teheran being therefore deferred, I wired a message, 'Railway interrupted; let servant wait at Enselli,' and then devoted the afternoon to sight-seeing with Mr. Conway. Visited the hot sulphur baths. It is from these 'Tbilis Kalaki,' the hot town, that Tiflis derives its name, the water coming from the rock boiling hot (37° Reamur), 115° Fahr.; the temperature of the inner chamber was 100° , and that of the outer chamber 75° . The floors were all paved with marble, the attendants were clean and civil, enveloping one in soap bubbles of a most delicious fragrance. A walk through the Botanical Gardens and up the slopes of Naraclea to a gateway in the wall to see a lovely panorama of the whole city, with its gardens, boulevards, bridges, churches, bazaars, and mosques.

Called at the steamboat office, where the agent knew very little of his business, and finally had an

early and very dirty dinner at some underground vaults styled 'Asiatic Chambers.'

Tiflis, the capital of the Caucasus, has probably 120,000 inhabitants. It is prettily situated on the Koura in an amphitheatre of hills, with the river dividing it into two parts. Many of the boulevards are quite European; that is to say, with large, handsome buildings, certain spaces being left for fresh air and recreation. Other streets, again, are quite Oriental, narrow, tortuous and confined, with the ordinary appearances of an Eastern market, and more like Smyrna than Constantinople. In the Russian quarter there are hotels, shops, theatres, studios, clubs, cafés, libraries, museums, etc., with carriages plying for hire; while in the native quarter there is every kind of shop, and apparently every kind of man, with animals and beasts-of-burden of every sort blocking the road until a clearance is made for the drotsckhies which carry the rich about either on business or pleasure. The hotels are in the centre of the town, not far from the Governor's palace. One is on the Koura, and close to the bridge Woronzov.

The old Georgian town of Avlabar is on the left bank, with its fortress in ruin and its interesting old

church of Metheki-Sagdari, founded with Tiflis in the fifth century. A bridge connects Avlabar with the Armenian and Persian quarters, on the slopes of the old Persian citadel of Naraclea. Prominent among the features of Tiflis are the many floating mills for grinding corn. One improvement might with advantage be carried out, viz., to the island in the river, just below the Woronzov Bridge. It is now occupied with timber and spars, but the whole area should be bought up by the municipality and converted into a public garden, where, from its position and natural advantages both by day and night, it would soon become one of the most lovely resorts that could be devised.

On thanking General Sheremetieff for his kind assistance, he said that it had now been decided to send a Russian officer with me, and that everything in connection with my proposed trip would shortly be ready. Visited an artist's studio; saw some excellent paintings of the Caucasus, and also one or two of Verestchagin's pictures. Visited the Museum by private ticket with a fellow-traveller in the hotel, who was taking impressions of some Cufic inscriptions. Dined with Dr. Teláfus, a hydropathist.

Mr. Orr called and introduced Lieutenant Tamamsheff. He is Prince Dundakoff's A.D.C., and is as much delighted at the prospect of visiting Bokhara as I am. Vasillii Michailovich Tamamsheff is an Armenian, a fine-looking young man with black hair and black eyes. He belongs to the Mingrelsky regiment, and wears a medal for the last Turkish campaign. The official instructions for our journey are nearly ready. Took tea with M. Berezowski and his bride.

Next morning I called at 7 a.m. by appointment on Prince Dundakoff Korsakoff, the Governor-General of the Caucasus and of Trans-Caspia. He was dressed in uniform, and at work in a very large room in the palace, very prettily furnished. There was a stuffed tiger in the corner in the act of springing, just as he had been shot in the forests of Lenkoran. The Prince received me most kindly; he spoke of many things, and amongst others of the scheme for piping the naphtha from Baku to Batoum, which had been abandoned owing to the great expense. On taking leave I acknowledged the very high honour that was accorded to me in being permitted to cross the Caspian to see the railway.

Called again on General Sheremetieff to take

leave ; visited the Mtszkhet Gardens ; bought some photographs of the Caucasus, and with Mr. Orr visited the Museum, where Dr. Reddé, the curator, showed us round.

CHAPTER VI.

CAUCASIA.

Museum—Caucasus Range—Mountain Ascents—Forest Vegetation—Fauna—Cis-Caucasus—Anti-Caucasus—Trans-Caucasus—Population—‘Mountain of Tongues’—Caucasus Army—Circassians — Abkhazes — Kabardins — Georgians — Svanes — Pchaves—Lezghiens—Avars—Schamyl—Gounib—Daghestan—Tchetchenes — Slavs — Ossétes — Armenians — Persians — Tartars—Dress.

THIS visit to the Museum was most instructive ; there were beautiful models of the country ; the sections were arranged by divisions, and in each division were full-sized figures of the different races clothed in tribal dress ; the geology and fauna were arranged in the same way ; and, judging by the specimens and the description, there is not a mineral that does not exist in fair profusion in this favoured spot.

To anyone sitting in the Museum, book in hand for an hour, a multitude of wonderful novelties will disclose themselves ; and as any descriptions of such

a country must be interesting, I venture to insert a few notes which, to a very great extent, are compiled from M. Orsolle's book.

First, as to the models. It has been said, in the earlier part of these notes, that the Caucasus range is divided into two parts by a depression through which the Georgian military road runs. The breadth at this point is between 60 and 70 miles, while the width of the mountains to the west of the pass is double, and of those to the east is treble this distance. The mean height of the western section, with Elburz (18,524), Kochtu-tan (17,092), and Kasbek (16,546), is greater than that of the eastern section, where the highest point (Tebulos Mta) does not exceed 14,760 feet, and the mean elevation is about 11,000 feet. Elburz was first ascended by Messrs. Freshfield, Moore, and Tucker on June 30, 1868, with the assistance of a Chamounix guide; and now, at the end of 1888, news arrives that both Elburz and Kasbek have been ascended by two Russian gentlemen and the Swiss guide, Müller Gsteigwiller, of Interlaken.

Parallel to this chain is another between the valley of the Koura and the Arax, known as Anti-Caucasus, with a mean height not exceeding 10,000

feet, but having two mountains, Alagoz and Ararat, which rise to 13,735 and 16,925 feet respectively. Little Ararat is 11,797.

In spite of the height of its mountains, the snowy peaks of the Caucasus are relatively less than in the Alps, while the limit of perpetual snow is nearly 2,000 feet higher than in the Pyrenees, in the same latitude. The forest vegetation ascends to about the 7,000 feet level. Box, wild-vine, fruit-trees of all sorts growing in abundance on the lower slopes serve as an introduction to forests of walnut, maple, lime, ash, beech, and chestnut trees, beyond which comes the birch, and, finally, azaleas, rhododendrons, and spurge laurels.

The Caucasian fauna is very rich. Chamois and ibex in the hills ; bison (*aïrochs*) in the Elburz forests ; bears, wolves, wild boars, stags, etc., on the lower slopes ; gazelles, hyænas, jackals, and leopards in the plains of the Lower Koura ; eagles, vultures, and other birds of prey on the higher plateaux. Pheasants, originally of the Caucasus, are still plentiful in the coppices, with water-fowl in profusion on the wet lands ; while of reptiles, serpents and scorpions are the most prominent representatives.

So that for a rough general description we have a

great chain of mountains (Caucasus) running for 700 miles in a south-easterly direction, from one inland sea to another. To the north of this chain are the lands (Cis-Caucasus) drained by the Terek and the Kuma, to the east, into the Caspian, and by the Kuban, to the west, into the Black Sea. To the south of this great chain, about 150 miles off, is another range (Anti - Caucasus), whose southern slopes are drained into the same inland seas by the Arax to the east, and by the Tschorok to the west, while the valley between the ranges (Trans-Caucasus), intercepted only by the easy passes of the Surame, is drained west and east by the Rion and the Koura, two rivers by which intercourse between Europe and Central Asia was formerly maintained. The Rion has seven feet on the bar, and admits boats of light draught for 60 miles to Mehranie.

Next as to the people. The number, according to Whitaker, is 6,534,853, and, as far as possible, this total will be worked out in detail.

There is not another country in the world which presents such a collection of races and people. They are all subject to Russia, apparently without a murmur. The Arabs call it the 'Mountain of

Tongues.' Pliny gives 130, while Strabo fixes at 70 the tongues and dialects of these districts.

The distribution may be taken approximately as among the three aboriginal races, viz., Adighes, 202,000; Kaztevels, 1,150,000; Lezghiens, 1,050,000, to which may be added Indo-Europeans, 1,500,000; Iranians, 105,000; Turco-Tartars, 1,330,000, making in all some 6,282,000. The balance, 252,853, may be taken to represent the army and other Russian residents. The army of the Caucasus on a war footing is estimated at 250,000 men and 300 guns.

The most celebrated of the Adighes are the Circassians. They are dying out, and soon will have completely disappeared. They inhabit the Western Caucasus, in the higher valley of the Kuban. Prior to 1864, Circassia was in a perpetual state of siege, and only nominally under Russian dominion. They were finally conquered in 1864, and in obedience to a summons to quit their valleys 'within one month under penalty of being treated as prisoners-of-war,' four-fifths of the population, or more than 400,000 people, endured expatriation, while the remainder turned to robbery and murder across the Turkish border.

Belonging to the same race, and dwelling to the

south of Circassia, in the wooded mountains which stretch along the Black Sea, are the Abkhazes, or Absouas, to the number of 70,000; they also, like the Circassians, profess a Mohammedanism strongly tinged with Christian and heathen practices. They have the reputation of being cheats and thieves.

The third group of the same race are the Kabardins, who live, to the number of 32,000, upon the northern slopes of the Central Caucasus range, between Elburz and Kasbek. Here land, woods, and pasture are common, and several of the nobles are of high rank in the Russian army.

Of the Kaztevel race the principal people are the Georgians, or Grousiens, some 1,150,000, descendants of the ancient Iberians, and divided into several groups, speaking the same language with numerous different dialects, viz., Georgians, Imèrètes, Mingrelians, Souanes, Gouriens, Pchaves, Touches, Hessours or Chevsours, etc.

The Georgians attained their zenith in the twelfth century, under Queen Tamara. Internal dissensions, wars with the Turks and Persians, brought them down, and their continual struggles only ended when Russia took possession of their country, at the beginning of the century. Georgia placed itself

under Russian protection in 1783. It was ceded to Russia by its last prince in 1799, and declared a province of the Empire in 1802.

The Svanes, to the number of 12,000, inhabit the high valleys of the Ingour. Some are still idolaters, and Russia apparently does not meddle with their affairs beyond levying a capitation tax of 50 kopecks.

The Pchaves (8,000) dwell in towns, and others, such as the Touches (5,000), the Hessours (7,000), etc., are 'the people of the gorges.'

The third aboriginal family is the Lezghien. The Lezghiens proper, to the number of 560,000, frequent the south of Daghestan, the valleys of the Alazan and of the Lower Koura, professing Sunnite Mohammedanism, and are to be compared with the Wahabis of Central Arabia.

Then come the Avars, 340,000, originally the terror of Italy and Byzantium. They dwell to the north of Daghestan, and to this tribe did Schamyl belong. Has no one even written the story of this hero's life? If we had sent an army into the Caucasus at the fall of Sebastopol, Schamyl was counted on as our ally. Schamyl the Avar! After resisting for twenty-five years the inroads into his

highlands, he is at last driven, early in 1859, to his stronghold of Gounib with but a remnant of his tribe. After a blockade of some months the fortress, on the night of September 6, is carried by escalade, and the chief, feeling all was lost, accepted his destiny, and took the oath of allegiance to the Czar. Some of his relatives and people took service with Russia, but the old man, after detention at Kalouga, retired to Mecca, where he died, blind, at eighty years of age. One still finds in Daghestan villages and hamlets the inhabitants of which have a distinct appearance, and speak a language unknown to their nearest neighbours. Such are the Kabatschi, who pretend to be descended from the Franks ; the Oubi, whose dialect offers some analogies with the ancient Egyptian, and many others besides. The difficulty that the mountaineers of some distant districts have in understanding one another has caused them to adopt the Turkish - Arabic of Azerbeidjan as a common language.

The third group of the Lezghiens, the Tchetchenes, numbering 150,000, live in Western Daghestan.

The Indo-Europeans, $1\frac{1}{2}$ millions, classed as conquering Slavs, are represented by certain colonies of Greeks, Bulgarians, and Germans.

Of the Iranian stock, first come the Ossétes (110,000), living in the central part of the Grand Caucasus, and remarkable for the facility with which they change their religion. They are polygamous, and make offerings upon rude-stone altars ; some are Mussulmans, others are fire-worshippers. Accustomed to act as mercenaries at different periods, they have readily accepted Russian rule. Their language contains a number of words which are found in the German ; they brew beer from burnt barley.

Next come the Armenians or Haskans (720,000), a people well instructed, steadfast in religion, and strong in the memory of national traditions.

Thirdly, are the Persians (120,000), distributed as Tates, Tatches, Tajiks, Taliches; etc., annexed in 1828 ; they people the Provinces of Astara and Lenkoran.

Fourthly, the Kurds (10,000), nomads, living about Erivan and the slopes of Ararat, worshipping the devil more than God, and sacking the Armenian and Persian villages beyond the frontier.

There still remains the Turco-Tartar race, which does not number less than 1,330,000 individuals, dwelling principally by the Koura and the Arax. Some Tartar nomad tribes wander also in the

Moghan steppes ; others are in Daghestan, upon the shores of the Caspian, and in the valleys of Elburz. They speak the Turkish dialect of Azerbeidjan, and are mostly work-people, poor, sober, and forbearing. Sunnis and Shias live together with a good understanding, the reverse of that which obtains in Persia.

Lastly, as regards dress, this naturally varies with the class ; the Georgians, Circassians, and the Lezghiens all wear the sheepskin cap, the long coat tight to the figure, with belt, sword, and pistol, and the cartouche-case sewn on to the breast flaps, with blue pantaloons and long boots. The women also wear round or flat velvet hats, ornamented, and a white veil behind, their hair in long curls enclosing the face ; a short open jacket covering an embroidered waistcoat, and a skirt of either blue or violet stuff over a crinoline. Their features are prominent, and the far-famed beauty of Circassia lacks the softness and delicacy which one has always fancied it to possess.

The Armenians for the most part wear a blue blouse, not unlike a butcher's at home, loose trousers, and an ordinary schoolboy's cap made of silk.

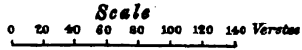
The poor labourers among the Tartar class are swathed and tied up in clothes of coarser material, and generally wear the round felt skull-cap of the Persians.

The Persians remain as they were, with hair and fingers dyed deep red with the leaves of henna.

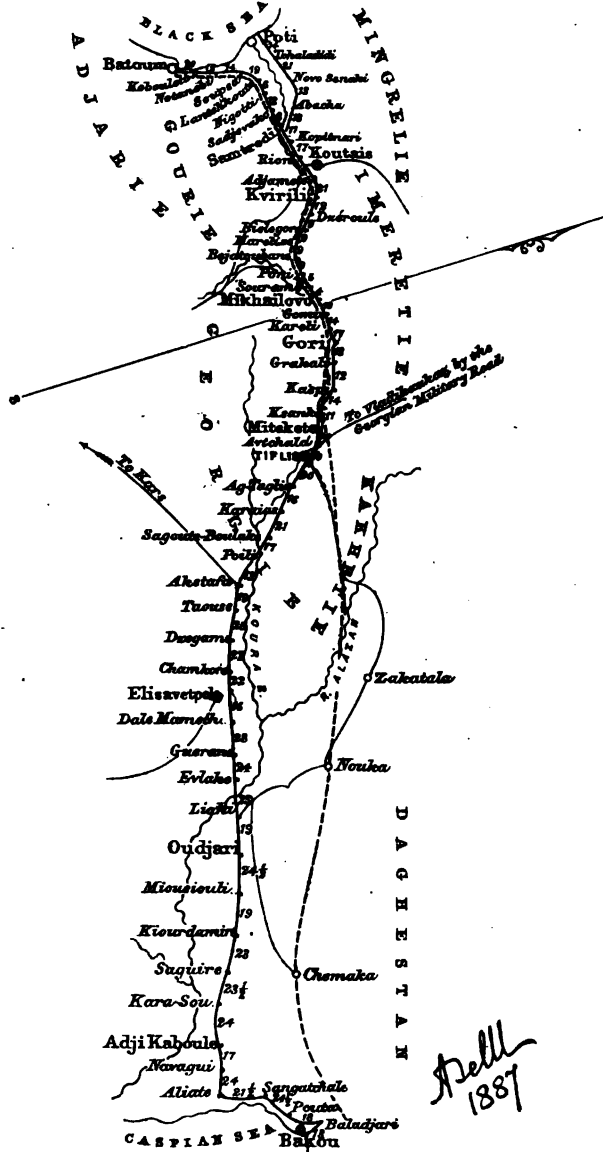
The Russian officers are all clad in cloth ; they are always in uniform, apparently ride everywhere in carriages, and never cease to wear their huge military cloaks even in the hottest weather.



TRANS-CAUCASUS RAILWAY.



Railway —————; Roads —————; Proposed Petroleum Pipe line - - - - -



CHAPTER VII.

THE TRANS-CAUCASUS RAILWAY.

Water - supply—Mtszkhet Churches—Kasin Vines—Wrong Boundary—Cost of Railway—Mountain of Surame—Fairlie Engines—Inclines—Tsepa Tunnel—Oil-pipe Scheme—Naphtha Residue—Fuel Consumption—Chatelier Brake—Speed—Fares—Astatki—Madame Tamamsheff.

HAVING a day to spare, I started by train for Poni Ghat to inspect the working of the Surame inclines by Fairlie engines. The water-supply for Tiflis is brought from Artschali, the first station, 10 versts off. Beyond Artschali is Mtszkhet, and as the history of its church is the history of the town, it is here given from M. Orsolle's version.

A Jew, who was at Jerusalem at the time of the Crucifixion, brought the seamless coat as a present to his sister, who used it as a shroud. This vesture was refound in 318, when the grave of St. Sidonie was opened, and thereon the Sassanide

King, Miram, erected a wooden church, the first in the town and also of his kingdom. This edifice was replaced in 378 by King Mithridates by one in stone dedicated to the twelve Apostles, and here the Georgian kings were crowned and buried, even after the seat of Government had been transferred to Tiflis. In 1318 the church was destroyed by an earthquake, but rebuilt again in the same year. The hordes of Tamerlane sacked it, and it was reconstructed at the end of the fifteenth century. One hundred years after, a second earthquake upset the dome. At that time Georgian independence was on the decline. King Waktang and Queen Marianna repaired the old cathedral for the last time. The interior of the cupola was riddled with arrows by the soldiers of Nadir Shah.

In the vestry are sacred goblets artistically wrought ; some very old manuscripts, and a small crucifix from the wood of the true cross. When Georgia was annexed, the Russians sent this precious relic to Moscow ; but in one night it returned by itself to Mtszkhet. There is also the church of Samthravo, the chapel of Antioch, a chapel cut in the rock, an exact reproduction of the grotto at Bethlehem, an Armenian church dedicated to the

Virgin, and the ruins of the castle of Natstkhavi, the residence of the first Kings of Georgia.

The vicinity of Kasin and Grakal, the fourth and fifth stations, about 40 miles from Tiflis, is noted for its fruit; in fact, vines are to be seen growing like hops, with pendent bunches.

The railway between Poti and Tiflis was begun in 1867, and finished in 1872. Poti, with its unhealthy roadstead, was originally chosen through an orthographical blunder as the terminus. By the Treaty of Adrianople the Russian and Turkish territories were delimited at the Tschorok, a small stream south of Batoum. The copyists wrote Tscholok, another watercourse north of Batoum, which thus belonged to Turkey. The stipulations of the Treaty of Berlin remedied the error, and Batoum now belongs to Russia. Poti will soon be abandoned.

The main line ($562\frac{1}{2}$ miles) runs from Batoum on the Black Sea through Tiflis to Baku on the Caspian Sea, crossing the watershed (3,027' above the Black Sea) at Poni, 106 miles from Batoum. There are branches to Poti (41 miles), Kutais (5 miles), Sabuntschi (8 miles), and Suraghani (10 miles).

The Trans-Caucasus Railway is said to have cost £9,000,000, or, say, £16,000 a mile.

The railway may be considered as in three sections :

(I.) $416\frac{1}{2}$ miles from Baku on the Caspian, rising up the Koura Valley to Mikhailowo ;

(II.) $6\frac{2}{3}$ miies' rise from Mikhailowo to Poni, and $6\frac{1}{3}$ miles' fall from Poni to Bejatoubane ; and

(III.) 133 miles from Bejatoubane, falling down the Poti Valley to Batoum on the Black Sea.

I. and III. are ordinary sections, and II. a special section, known as the mountain of Surame in Georgia.

The gauge is 5 feet. Shingle ballast. Rails flat-footed and spiked to fir and oak sleepers (seven and nine to the rail). Distant signals worked from points. Sidings blocked with wooden guards. Tank-houses wooded in. No fencing. Indo-European Telegraph (three wires) runs along one side on iron posts for part of the way, and local telegraph on the other (six wires) on wooden posts topping old rails.

Traffic is worked over sections I. and III. in an ordinary way by engines made in Russia. The price of a six-wheeled engine is, say, £2,727 (at

11 roubles = £1), and of an eight-wheeled = £3,454. One engine in steam at Tiflis was marked 'Yorkshire Engineering Company, Limited, No. 102, Meadow Hall Works, 1869, Sheffield,' its two leading and two driving wheels equal and about 5' in diameter, the tender being on a pony or bogie. An ordinary train consists of engine, tender, and twenty-two waggons, with four hand-brakemen.

On section II., traffic is worked in a special manner, and at Mikhailowo the ordinary engine is replaced by two double Fairlies (=four single Fairlies), both working in front for three miles as far as Surame, the foot of the steep incline, where one double Fairlie unhooks and works behind. The ascent from Surame to Poni is $3\frac{2}{3}$ miles, and the descent from Poni to Bejatoubane is $6\frac{1}{3}$ miles, and the grade of these inclines was given as 0.045, which probably means 45 per 1,000, or 4.5 per 100, or, say, 1 in 22. The sharpest curve on the incline is 160 metres radius (525 feet).

The inclines are not continuous, for between Surame and Poni there is a bit of level breaking the grade, and between Poni and Bejatoubane is the station 'Tsepa,' with its level-siding, a double re-

verse in fact, which does not require the engines to unhook, as on the Bhor Ghát.

The result of working with two double Fairlies is said to be better than all other 'systems' put together. A special train on the steep inclines of section II. consists of two double Fairlies and thirteen goods-waggons, or 17/18 passenger vehicles, with a hand-brakesman on *every* waggon or vehicle.

A double Fairlie has brakes on two wheels, but they are never used ; one boiler (partitioned inside in centre), which rides on pivot or bogie cylinders ; wood-burning chimneys—but whether this is an original construction for wood fuel, or whether it is to suit a spot on the line where wood is 'very cheap,' was not ascertained. However, the form is not required for liquid fuel.

The work of laying out the inclines did not seem to be one of any great engineering difficulty, as the railway follows up one side of the valley to the watershed, without bridges, banks, or cuttings of any importance.

At Tsepa a tunnel of 1,857 sajénes (4,333 yards) is being made ; 320 sajénes are done, and the work of excavation progresses at the rate of 3 sajénes (21') per day by means of rotatory drills (not per-

cussion). The time for completion of this work is three years, and when done the working will be so far improved that instead of two double engines taking thirteen waggons, one will take twenty-eight waggons. When this tunnel is done, the oil could be carried in the cylinder trucks to Mikhailowo, $416\frac{1}{2}$ miles, and there discharged, and then allowed to gravitate to Batoum for the remaining 146 miles, without difficulty and without much expense.

The scheme for 'piping' petroleum from Baku to Batoum is for the present laid aside as being too costly. The direction will be from near Baladjari through Shemakha, Noukha to Ksankha, west of Tiflis, and then along the line of railway to Batoum. An article on the 'Transport of Petroleum in Russia' is given in *Engineering* for February, 1888. The pipe-line from Baku to Batoum, as surveyed, is 497 miles. There are twenty-four pumping stations, with four engines of 150 horse-power each. The total annual flow through the conduit is put at 1,311,000 tons oil. The pipes are to be of wrought iron, 8 inches internal diameter, and $\frac{1}{8}$ of an inch thick. Where the temperature never descends below freezing, the pipes will be laid on the ground; but, to prevent breakage from expansion in the sun,

they will be laid in an undulating line. Where the temperature falls below freezing, the pipes are to be buried from 1 to 5 feet in the ground.

As regards the effective power of two double Fairlies. The special trains have been shown to consist of two double Fairlies, thirteen goods-waggons (or 17/18 passenger carriages), with a hand-brakesman on every vehicle. The weight of a double Fairlie empty is $55\frac{1}{2}$ tons, and when full up ready for work, *i.e.*, firebox and coal-boxes full of coal, boilers and tanks full of water, the weight is 77 tons. The engines are the same as the Mexican ; in fact, heavier, with an inch more diameter of cylinder, and 2,075 feet of heating surface. The weight of a goods-waggon = 370 poods = 6 tons, to carry a load of 700 poods = $11\frac{1}{4}$ tons.

So that for a train over the inclines the two double Fairlie engines will weigh 150 tons, and the thirteen loaded waggons will weigh 224 tons, with a speed for passengers of 8 miles an hour, and 7 for goods.

It is said that two double Fairlies can 'control' fourteen loaded waggons, and that they can only manage fifteen if 'wind and weather is favourable.' From this it would appear that the full load of

thirteen is within two waggons of extreme limit of safety. This was thought to be too little, but M. Berezowski said it was sufficient.

In a trial made on the Mexican Railway, the Fairlie there with four cylinders, 16 in. \times 22 in., with 42 in. wheels (twelve of them in all), took 153 tons gross besides herself (say 70 tons) up $12\frac{1}{2}$ miles of 1 in 25, and a continuous succession of 330 feet curves, in 73 minutes, exclusive of stoppages.

The *ordinary* consumption of petroleum, or, more correctly speaking, 'naphtha residue' (see explanation, page 89), was put at 30 livres russes per verst for an ordinary goods-train of twenty-two waggons, and 20 livres for an ordinary passenger train. *On the inclines this would be quadrupled.*

So that *ordinary* consumption of liquid fuel will be :

For goods (twenty-two waggons), = 30 livres \times $\frac{1}{16}$ lb., = $\frac{3}{8}$ versts, = $40\frac{1}{2}$ lb. per *mile*; and for passengers, 27 lb. per *mile*; and four times these totals for a special train of thirteen waggons on the 10 miles of the Surame incline out of the whole distance of $562\frac{1}{2}$ miles between Caspian and Black Sea.

As regards brake powers on engines, there is

none, as we understand the expression—that is to say, that although brakes are not used on the engine, yet a power is applied by the engine itself on the wheels by means of the steam in the cylinder '*avec les apparatus de Chatelier*'—Chatelier being the name of the inventor, and the apparatus a jetcock (*robinet*) in the boiler, by which the steam is pumped into the cylinder. For example, when the leading double engine tops the ascent, and the train has got well on to the descending incline, the speed is controlled by the engine retarding (not reversing) the revolutions of its wheels, by forcing the steam into the cylinders through the '*robinet*' aforesaid. It is said that very rarely has the retarding pressure to be applied to both front and rear double engines at one and the same time.

There are no loaded brake-vans such as we use in India, and the brakemen sit or stand at the end and top of each waggon, and turn their handles from this position. No shelter-box of any sort, but simply a cast-iron seat on the waggon-top.

The time occupied in running 220 miles between Batoum and Tiflis is $14\frac{1}{2}$ hours, giving a through rate of $15\frac{1}{2}$ miles an hour. The stoppages amount to $2\frac{1}{2}$ hours, thus giving a running rate of 19 miles

an hour. From Tiflis to Baku the distance, 342 miles, is accomplished in 17 hours at a through rate of 20 miles an hour. Stoppages occupy $2\frac{1}{2}$ hours, and the running speed on this section is at a rate of $23\frac{1}{2}$ miles an hour.

The fares are 47 roubles 43 kopecks first class ; 35 roubles 56 kopecks second class ; and 18 roubles 18 kopecks third class for the whole distance of $562\frac{1}{2}$ miles. The ticket-agent (a female) at Tiflis said return tickets were ' not possible.'

'Astatki,' the local name for 'naphtha residue,' is carried on the tender in a cistern. A pipe below leads it into a small disc in the front of the fire-box, and into this disc a steam-pipe is also led. The 'residue' being above and the steam below, a thin plate of perforated copper forming the division, the residue is injected from the disc into the furnace *with the steam* in minute particles. This is different from Tarbut's system, lately working in England, and which injects the residue with common air. At Tiflis the injection by steam is found the best with locomotives, but the injection with air is used for smelting.

During this railway trip I met a lady and her grandson in the train. After some conversation,

she asked if I was not an English officer bound for Bokhara. I replied that I wished to see the Trans-Caspian Railway, whereon she added : ' The officer who is to accompany you is my son, and this boy is his nephew.' The lady then told me that her grandson had been educated by an English governess. I was told afterwards that many of the children of the rich in Russia are taught English, and that is the only language they are allowed to speak till they are ten or eleven years of age. The meeting, to say the least of it, was singular, and on taking leave I assured Madame Tamamsheff that I would take care of her son during our travels.

CHAPTER VIII.

BAKU—NAPHTHA-SPRINGS.

Adji Kaboule—Naphthar or Nephi—Suraghani—Naphtha-gas—Sabuntschi—Balakhaneh—Oil-pumps—The Fountain—Boring and sinking Wells—Eruption—Tchornigorod—Nobel's Works—Distillat—Huiles de Grisage—Tank steamers—Kerosine—Oil transport—Circular Notes—M. Georges—Abstract of Time, Route, and Cost.

ON September 28, 1887, owing to heavy rain, the line was washed away at Adji Kaboule, and all traffic was suspended between Karasou and Navagui, the length of the break being about 27 miles. Traffic was resumed on October 4. The damage had been caused by flood-waters rushing through the gorge which is formed near Adji Kaboule by the hills on both sides of the line suddenly approaching one another. The depth of flood was said to have been only 5', but the water had cut behind the banks and bridges, and carried away the line in great lengths. Diversions were laid in, and the

train of October 5 had to go dead slow for some distance, arriving finally four hours late. Hôtel d'Europe was full, and we managed to secure bedrooms at Hôtel Grand. The place is very dirty. Baku has 60,000 inhabitants, possesses 150 refineries, and manufactures 200,000,000 gallons of lamp-oil yearly.

The naphtha-springs are at Sabuntschi and Balakhaneh, and can be reached in a drive from Baku. The roads are bad, or, perhaps more correctly, they do not exist, but carriages, arbahs (high-wheel carts), and ordinary carts are constantly passing along. The scenery is not unlike that of Ghizri, near Karáchi, but lined all over with pipes carrying the naphtha to Baku.

There is an account given in Maccabees of an inquiry by the King of Persia from the priests regarding the fire that was hid in the pit, and which was no fire, but thick water. Neemias, the envoy, called this thing 'naphthar,' while others called it 'nephi.'

At Suraghani, about midway, lime-burning by naphtha-gas was going on by the track-side, mere heaps of limestone calcining by the gas from the ground lighted with an ordinary match. Having selected a spot at some little distance for experiment,

the lime-burners scraped a few holes, smelt a little, and then, when satisfied, applied a match, and the flames burst forth.

On leaving Suraghani and nearing Sabuntschi, the springs of Balakhaneh are plainly visible on the rising ground in front; a forest of tall wooden sheds covering the pumping-gear on the numerous claims.

In one shed the pump consisted of a cylinder (jalinka) 22' long and 9" diameter, which was lowered and raised by machinery.

It took 30 seconds going down 125 sajenes (875 feet), and 50 seconds coming up, when it discharged its volume of crude oil to be led away in wooden troughs.

In another shed boring with the usual apparatus was going on, lifting the new length rods, $1\frac{1}{2}$ " square and 28' long, by machinery, and then fixing and lowering. The owner had had 'a fountain' at 100 sajenes, and worked it out. He was boring deeper, and hoped to strike oil again in 30 feet.

Then, in the midst of all these pumps, revelling, spurting, and grunting in the destruction it had caused, was '*the fountain*,' which had burst forth fifty-five days previously in some boring at 800'.

Crude oil was being belched forth in pulsations by the escaping gas with a noise like a heavy steamer's screw working in shallow water, and scattering the dirty spray up and around to a distance of 30'.

'Boring and sinking wells' is given in *Engineering* for August, September, and October, 1888.

The three methods most in use for sinking are :

1. The sinking of wells in shafts by hand, such as is now in practice in the Roumanian oil-field, where petroleum-pits, four feet in diameter, have been sunk by hand 600 feet deep at an average speed of one foot a day ;

2. The boring of wells by the pole-tool system, adopted in England and France;

3. The American system of drilling with smaller holes, 12 to 24 inches in diameter, carried to a depth of 1,000 feet at a rate of 20 to 30 feet daily.

The 'eruption' was now nearly controlled and partly shut off by heavy mantlets, such oil as was running off being taken by the neighbours in consideration of the losses they had sustained. Besides the oil (some extraordinary quantity, 150,000 tons), which had been lost, about 1,500 tons of sand had been thrown up, smothering adjacent sheds, engines, works, etc., to a depth of 15 feet. Many roofs were

off, and the whole place and population reeked of the oily pungent liquid.

Apparently in Baku neither the production nor the price can compare with that of some American springs, where the clearances from one town alone vary, it is reported, from 6,000,000 to 13,000,000 barrels a week at about 60 cents a barrel. The *Times of India* of December 29, 1887, says that to-day Baku produces more crude oil than all the American wells put together.

Balakhaneh is about 100 feet above Tchorngorod, where Nobel's large factory and some smaller ones are located. The distance is about six miles, and the naphtha, after being lifted at Balakhaneh, has to be pumped this distance through iron pipes following the surface undulation into the large reservoirs at the factories.

Official permission is necessary to visit Nobel's works, then follows the introduction to the manager, and finally the transfer to a subordinate, who shows and explains the several sections. Unfortunately, Tamamsheff could not accompany me. He was confined to bed with a severe bilious attack, so I physicked him, while Osip, his servant, bathed his head with vinegar.

A large factory covering a very considerable area. Rows and rows of huge boilers with liquid fuel fires in full blaze; cooling-tanks fed from the sea, and conduit pipes, all duly numbered, leading to subsidiary buildings, where the results of each boiler's work in the first process are gathered or reserved for further manipulation; laboratories in which Persian subordinates are at work testing, etc.; huge reservoirs, pumping-houses, etc. In fact, a succession of buildings of the same type, inasmuch as the different results (of higher distillation) are obtained by entirely the same system.

First the 'naphtha,' or crude oil, is run from the reservoirs into rows of huge boilers. The gas evolved ascends in pipes and, after condensation in the cooling-tanks overhead, runs off to the collecting-room. Each pipe being numbered enables the working of each particular boiler to be accurately tested. The liquid so obtained is then called 'distillat,' and from this the several oils of commerce are obtained in the following order, namely, benzin, kerosine, petroleum, gas-oil, spindle-oil, machine-oil, cylinder-oil (the last three being termed 'huiles de grisage'); that is to say, liquids of different colour and increasing *sp. gr.* at a uniform

temperature. There are other oils also, such as paraffin, astroline, etc., which, with those already named, are sent in special vessels as far as London and Antwerp. Then, after all these processes or refinements, there remains the 'residue,' which is used as liquid fuel. $3\frac{1}{2}$ poods of naphtha gives 1 pood kerosine or petroleum, and $2\frac{1}{2}$ poods 'residue.'

Russia is, however, not able at present to use up all the residue as liquid fuel, and much runs to waste in the Caspian. A process has lately been discovered by which petroleum can be used as a combustible. A small quantity of soap is added. The mixture is heated, and then allowed to cool, giving a product which can be cut into cubes like briquettes of compressed charcoal.

On the Black Sea twelve tank-steamers are constantly running with oil. The journal of the Russian Minister of Finance contains a report stating that during the last few months twelve English steamers conveyed $8\frac{1}{4}$ million gallons of oil to India. This quantity passes over 560 miles of railway, charging $22\frac{1}{2}$ shillings per ton, and then by steamer, paying freight and Suez Canal dues. There are 100 tank-steamers on the Caspian.

'Distillat' is refined into kerosine by being pumped into a big reservoir, into which, when full, sulphuric acid is admitted through leaden pipes from above. The whole is then agitated by means of compressed air forced in from the bottom by a pump [made in England: system Schramms (?)]. The out-turn of Nobel's factory was given at 14 million poods per year (225,000 tons), with a capacity of working up to 75,000 poods (1,205 tons) a day, or say, roughly, 120 special railway waggon-loads per day.

'Naphtha' and 'kerosine' are delivered in bulk into special iron cylinder railway-waggons by means of pipes which are ranged along the sidings. There are a long pattern and a high pattern waggon. The tare of each was 6·2 and 6·34 tons, and their loads 9·8 and 9·64 tons respectively, giving a total of 16 tons for the gross weight of a loaded waggon. There is one special rate for its carriage right through from Baku to Batoum, namely, 20 kopecks per pood, say 4½ pence per 36 lbs., for 560 miles. The special cylinder or tank-cars number 7,000 or 8,000.

At Batoum naphtha and kerosine are simply pumped from the cylinder waggons into steamers,

which carry it in bulk in large cisterns constructed for the purpose. Nobel's fleet on the Caspian is the largest, and his trade is with Astrakhan, and thence by barges up the Volga.

The price at Baku of 'naphtha,' or the crude oil as it comes from the ground, is variable, and ranges from $1\frac{1}{2}$ kopecks (say $1\frac{1}{3}$ d. for 36 lbs.) to 4 and 5 kopecks per pood. The price of kerosine at Baku is 15 to 20 kopecks a pood, and at Batoum 42 to 45, where it is usually cased in tin and wooden boxes, and delivered f.o.b. at (?) 2 roubles, 10 or 20 kopecks per two boxes of 70 lbs.

Upwards of 8 millions sterling have been sunk in developing this oil industry, of which Nobel has 3 millions, and Rothschild 2 millions.

It was strange in such a busy place as Baku that I should have experienced difficulty in getting circular notes exchanged, as the 'correspondent' in the 'lettre d'indication' at Baku assured me *he did not know 'Coultts and Co.,'* nor had his house had any dealings with that firm. Eventually business was transacted, but twenty-five golden sovereigns were left in deposit as 'margin,' before I received Russian rouble paper for English circular notes at the rate which had been given to me in

Tiflis, Purchased some photographs of the Trans-Caspian Railway from M. Georges, and left them, with others of the Caucasus, in his keeping till my return. Took tickets and arranged everything for departure by steamer in the evening across the Caspian.

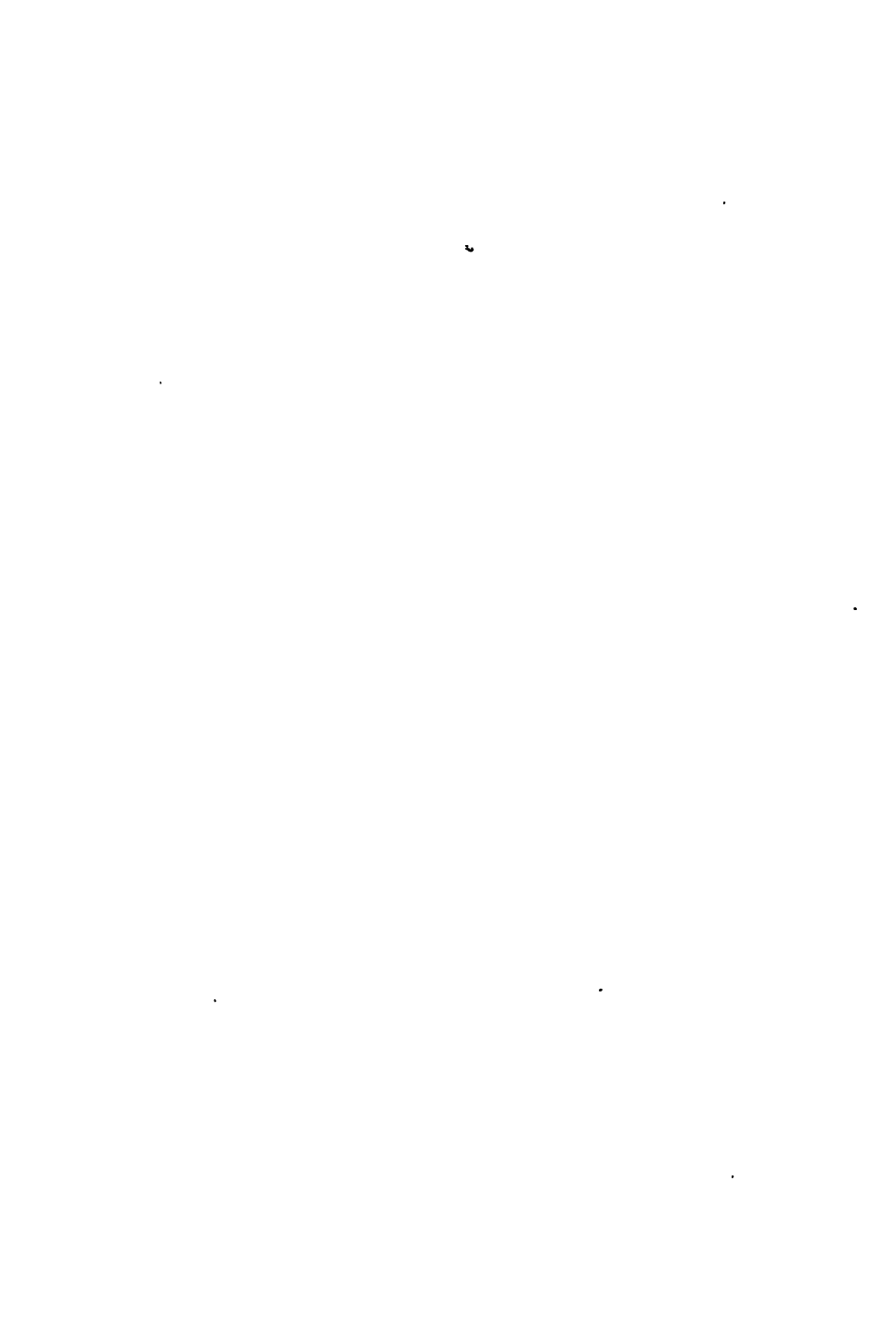
The following is an abstract of the route, time, and cost :

Date.	ROUTE.		Miles.	Hours.	Tickets.			Expenses.		
	From	To			£	s.	d.	£	s.	d.
From 7.15 a.m. on September 26 to 5 p.m. on October 7.	Vladikavkas	Tiflis . . .	134	33½	1	2	0	0	18	0
	Tiflis . . .	Surame and back . . .	175	14½	1	8	0	7	0	0
	Tiflis . . .	Baku . . .	342	17½	2	13	0	4	5	0
		Total .	651	65½	5	3	0	22	1	0

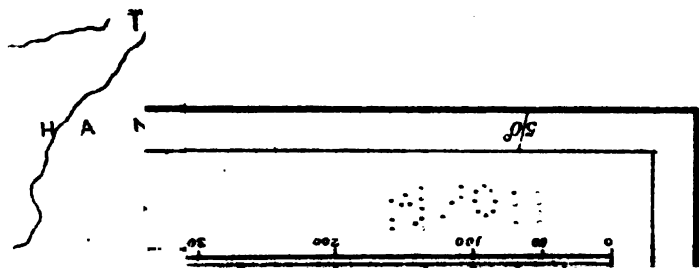
so that from the above one may travel comfortably from Vladikavkas to Baku, and see as much as he can in eleven and a half days for about £27.

The price of the direct ticket from Vladikavkas to Baku is £3 15s. od., and the distance 476 miles. The time occupied in the journey would be 33½ hours for the Georgian Road, 6 hours' detention in Tiflis till the train starts, and 17½ hours by rail, or 57 hours in all.

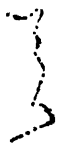
The trip so far has been a success. Twenty-three days have passed since I left England, out of which twelve were spent in the Caucasus. I have obtained what I wanted within three days of asking for it, and now I am about to start across the Caspian with a young Russian officer as a companion to smooth the way. As far as I can learn, permission to visit the Trans-Caspian Railway has never before been granted to any Englishman, official or otherwise, and naturally I am pleased in being the recipient of such friendly treatment.







Khotan



PART III.

TRANSCASPIA.

‘ Chiefs of the Uzbeg race,
Waving their heron crests with martial grace
Turkomans countless as their flocks led forth
From the aromatic pastures of the north ;
Wild warriors of the turquoise hills, and those
Who dwell beyond the everlasting snows
Of Hindoo Kosh, in stormy freedom bred,
Their fort the rock, their camp the torrent’s bed.’

CHAPTER IX.

BAKU TO ASUNADA.

Steamboat Service—Baku—Steamship *Karatinsky*—British and Foreign Bible Society—Soundings—Asunada—Michailovsk—Tchikislar—Krasnovodsk.

AT present Baku is the principal port of the Caspian Sea, for not only is it the eastern terminus of the Trans-Caucasus Railway and in direct communication with Asunada, the western terminus of the Trans-Caspian Railway, but it is also a calling station for all trading steamers. A submarine cable is laid from Cape Apsheron to Fort Krasnovodsk.

The largest steamboat company, *Caucase-Mercurie*, maintains a regular postal service between Astrakhan, Enselli, and Meshedessa, and receives a subsidy of $1\frac{1}{2}$ roubles for every mile it carries the mails. It works the following lines (see Appendix C.), viz. :

I.—Meshedessa Line.

A weekly service leaving Astrakhan every Friday morning, calling at Petrofsk (223), Derbent (294), and arriving at Baku (476 miles) on Sunday evening. Leaving Baku again on Monday afternoon, calling at Asunada (672), Tchikislar (849), Astrabad (897), and arriving at Meshedessa (977 geographical miles) on Thursday morning. After a halt of five hours the steamer starts on its return by the same route, calling at Baku on Sunday, and arriving at Astrakhan on Wednesday afternoon—a coasting trip of 1,954 miles in about $12\frac{1}{4}$ days.

II.—Krasnovodsk-Michailovsk Line.

A bi-weekly service, leaving Astrakhan on Tuesday and Friday morning, calling at Petrofsk, Derbent, Baku, Asunada, and then making Fort Krasnovodsk (718 miles) on Saturday and Tuesday evening. The return trip starts at midnight on Monday and Friday over the same route, and arrives at Astrakhan during the afternoon of Saturday and Wednesday—a coasting trip of 1,436 miles in $11\frac{1}{4}$ days.

III.—Enselli Line.

A weekly service, leaving Astrakhan on Friday morning, calling at Petrofsk, Derbent, Baku, Len-

koran (597), Astara (617), and arriving at Enselli (680 miles) on Tuesday morning. The steamer starts again on its homeward journey on Tuesday night, and reaches Astrakhan on Monday afternoon—a coasting trip of 1,360 miles in $10\frac{1}{4}$ days.

IV.—Baku Line.

A service with four departures a week—on Sunday, Tuesday, Thursday and Friday morning through Petrofsk and Derbent, arriving at Baku on Tuesday, Thursday, Saturday and Sunday afternoon. The return trip begins on Thursday, Friday, Sunday and Wednesday afternoon, and ends at Astrakhan on Sunday, Monday, Wednesday and Saturday afternoon—a coasting trip of 952 miles, occupying $9\frac{1}{4}$ days.

V.—Alexandrofsk Line.

A weekly service, leaving Astrakhan every Wednesday morning, reaching Fort Alexander (200) on Thursday at noon, and arriving at Petrofsk on Friday evening. The return boat starts on Sunday night, reaches Fort Alexander on Monday afternoon, and Astrakhan on Wednesday morning—a journey of 760 miles in about 7 days.

In connection with their Caspian Sea service, the

Caucase-Mercurie maintains a regular service on the Volga. The despatches are tri-weekly, on Thursday, Sunday and Tuesday from Nijni Novgorod through Kasan, Simbirsk, Samara, Wolgsk, Saratov, Kamischin, Tsaritzin to Astrakhan (1,143 miles) — the return boats starting upstream on Wednesday, Saturday and Monday, the time for the journey with the stream being given at 5 days, and against stream at 6½ days.

Steamers of other companies also are running on the routes above indicated, and some of the boats of smaller tonnage, which work southwards from Baku, are under Persian commanders. A very considerable trade is maintained by sailing vessels, which carry cargo from port to port in every direction. Nobel has a fleet of his own for the transport of naphtha, and his steamers are the largest of all.

The number of steamers plying is about 72, one third of which represent the better class, and average 450 tons each. If, in calculation, 1 ton is allowed for a man, 5 for a horse, and 2½ per gun or vehicle, the transport of an army corps will require 124,000 tons.

Baku has a good harbour, with a good depth of water, and steamers lie alongside the piers and wharfs close by the Custom-house. Luggage is weighed on shore, and tickets are taken before going on board. Just before the steamer starts, an officer comes on board to inspect passports, and also to scrutinize the special permission which must be secured before anyone can cross the sea to Trans-Caspia. The fares from Baku to Asunada are 12 roubles, 9 roubles, and $4\frac{1}{2}$ roubles for first, second, and third class respectively. All refreshments are paid for extra.

On October 7 the paddle-steamer *Karatinsky* left Baku at 5 p.m., carrying the mails. She is an old boat of 300 tons, drawing seven feet of water, with low-pressure engines, two boilers and six fires burning 36 poods (1,296 lbs.) of astatki per hour. This was said to be high, as some of the steamers of later construction with compound engines burnt only 15 poods, or $2\frac{1}{2}$ poods (90 lbs.) per fire per hour. She carried a general cargo from Astrakhan, and expected a return cargo, from Persia, of silk, cotton and fruits. It was said that the working of the Caucase-Mercurie Company was economical, and that good dividends were always realized. The engineer was

a German ; the captain and one of the officers were Finns.

Among the passengers was a Russian officer, his wife and five children, bound for Askhabad ; four or five other officers for Chardjui and beyond ; a merchant from Moscow going to plant cotton at Merv ; and a sub-agent of the Foreign Missionary Society going to Tashkend : he had the New Testament, in Slav and Russian, for sale for 20 kopecks, and a revised (Dr. Bruce's) edition of the same in Persian for 40 kopecks.

Wolff, when at Cawnpore, after his first trip to Bokhara, in 1831, speaks of the immense utility of the British and Foreign Bible Society, through whose 'instrumentality copies of the Bible were in the hands of Moollahs of all denominations, not only in Asia, but even in the deserts of Turkistan.' Tashkend was conquered in 1865, Khodsand fell in 1867, and Samarcand in 1868.

Many of the third-class passengers were bound for Bokhara and Khokand—a motley crowd of Armenians, Tartars, Cossacks, Persians, Uzbegs, Tajiks, Hajis, Moollahs, etc., many with their wives and families, and all with bundles of merchandise and eatables.

The course from Baku to the lightship off the Krasnovodsk spit may be said to be 160 geographical miles (60=1 degree) a little to the south of east ; and, judging from the chart, the soundings on the west coast rapidly run from 6, 12, and 20 feet to depths in fathoms varying through 60, 150, 93, 66, 48, 32, 28, 22, etc., till the shoaling of the eastern shore reduces the depth to 17, 12, and 8 feet. Along this eastern shore also there would appear to be large banks of sand, from 30 to 40 miles wide, which have only six, seven, eight, and nine feet of water covering them. The crew of the lightship are changed every three months, and they receive their mails, provisions, and water from the passing steamers.

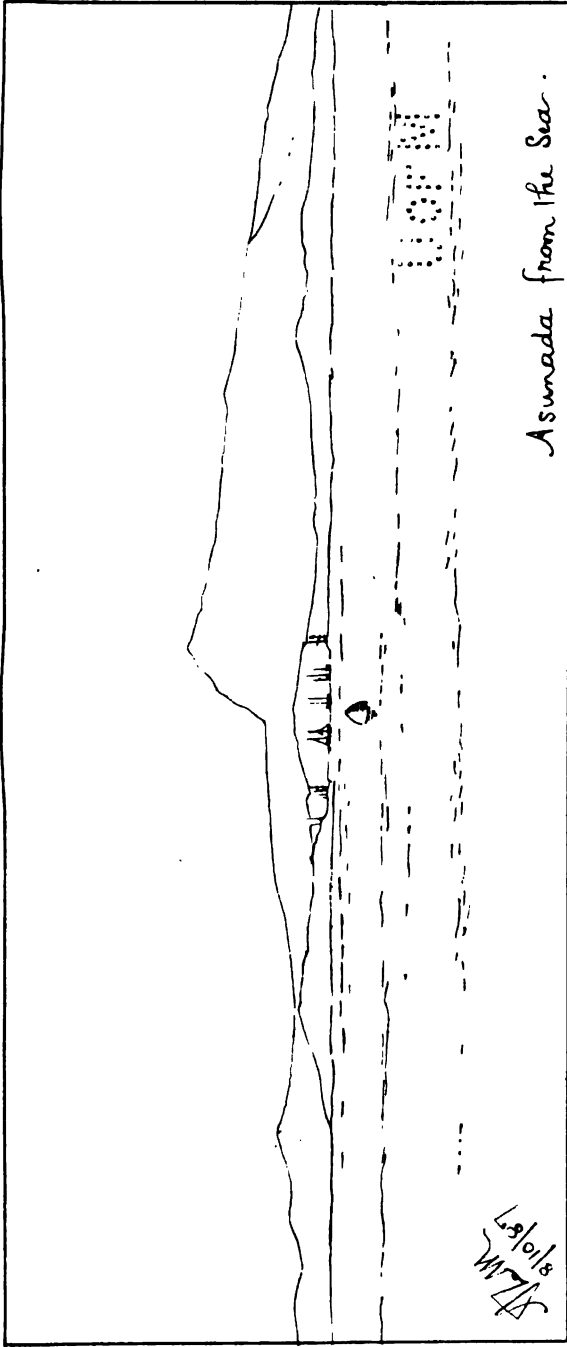
Wood mentions that, at about this very line of crossing, between the latitudes of 40° and 41° , the Caspian could anciently be crossed dry - shod, its water surface being at least 700 feet below sea-level, owing to the flow of the Volga into the Sea of Azov, and the change in flow of the Oxus into Lake Aral.

From the lightship to Asunada the distance is 36 miles, a winding track plainly defined with red and white buoys, past low sandy islands. The bottom can be seen through the clear water ; there is

no seaweed, and not a bird visible anywhere. The colouring is very fine, eau de Nil water with deep ultramarine fringing ; rich ochre-coloured sand-hills and a clear sky, with rose-tinged clouds ; a misty haze blending the sky, the islands, and the water all in one ; the surface only broken here and there by the wind-ripples and the trail of the steamer.

Asunada harbour is fairly well sheltered. It was selected from surveys made in 1885, and on May 10, 1886, the station and harbour were opened after six months' work. In the seven months 167 steamers and 190 sailing vessels called. The chief landing-place is at two large barges moored at the end of a wooden pier. Four or five other piers were in use. Six steamers, 20 fore and aft schooners, and 10 or 12 barges, with some small boats, completed the shipping. The Caspian has no ebb and flow ; its level varies about $1\frac{1}{2}$ feet, according to the wind. The depth of water varies from 8, 10, 12 to 13 feet, and the harbour is liable to be frozen over. In 1885-86, when the temperature fell to 13° below zero (Fahr.), communication between Baku and Krasnovodsk was stopped for a week, and between Krasnovodsk and Michailovsk for a fortnight.

Michailovsk, the first terminus, was found un-



Asumada from the Sea.

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suitable, as the Caspian steamers of 9' draught were unable to enter the bay, and had to break bulk at Krasnovodsk into smaller vessels. The railway extension to Krasnovodsk was set aside for want of funds in favour of Asunada, which gave 12' of water at less expense.

Tchikislar, near the mouth of the Atrek, was the base of operations for the campaigns under Lazareff, Lomakin, and Tergusakoff. It also was unsuitable as a railway terminus, having an open roadstead exposed to storms, and so shallow that steamers could not approach within 5 miles. It was also a full day's steam further south.

The passage across from Baku to the Krasnovodsk lightship occupied from 5 p.m. on the 7th till 9 a.m. on the 8th, or 16 hours for 160 miles. The passage through the channels from the lightship to Asunada took till 2 p.m., or about 5 hours for 36 miles. The Caspian Sea is 86 feet below the level of the Black Sea. It can be very rough at times, especially when the wind blows from the north. There are only two winds, north and south-east. Owing to shallow water along the shores of the Caspian and at the mouths of the Volga the draught of the steamers is limited to 9 feet, with a

result that, as soon as the wind freshens, the sea gets up and the steamer rolls excessively, no counter-floats at water-line, such as are used in the Channel Islands steamers, or other expedients, being resorted to. My companion continued to be very ill, and had to keep his bed throughout the voyage.

Fort Krasnovodsk is 25 miles north of the lightship, and has a better harbour than Asunada, with 10, 15, and 21 feet of water ; it is also well protected, and within the lightship there is calm water, owing to the spit and Chelikan Island. The full advantage of this harbour may be secured by extending the Trans-Caspian Railway some 80 miles westward, at a cost of about $\frac{3}{4}$ million sterling, through three lines of hills, and this will probably be done when the Russian railway in Europe is opened from Vladikavkas to Petrofsk (see map No. 1). Then, with a deep harbour at Petrofsk and another at Krasnovodsk, large and swift-running steamers would be built to improve and accelerate the connection of Trans-Caspia with Europe. The borings for fresh water have been successful. In 1868 Colonel Stolietoff, with a detachment from Daghestan, fortified Krasnovodsk, founded Michailovsk, and held the Balkans for the purpose of pro-

tecting the Yomuds against the Turkomans. In 1870 the Tekes attacked Michailovsk, but were driven back, and shortly afterwards the whole district was declared part of, and placed under the jurisdiction of, the Caucasus.

CHAPTER X.

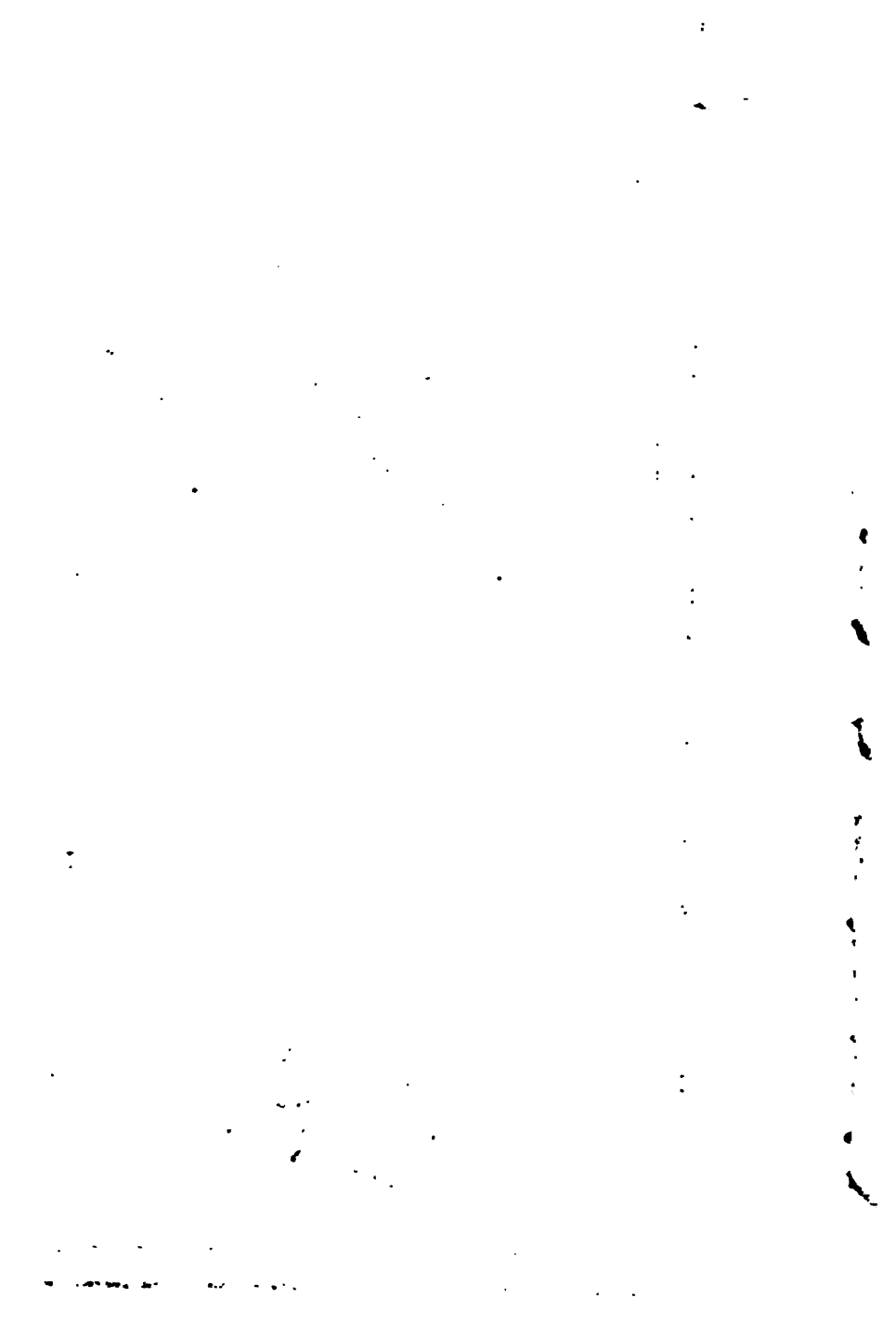
FROM ASUNADA TO THE OXUS.

Asunada Terminus—Railway Alignment—Turkomans—Timetable—Railway Fares—Earthwork—Permanent Way—Stations—Sweet Water—Petroleum—Rolling Stock—Military Management—Cost—Kizil Arvat—Rainfall—Kodg—Bami—Towers—Geok Tepe—Turkoman Barrier—Askhabad—Captain Komaroff—General Komaroff—Russian Breakfast—Military Railway Battalions—Penjdeh Boils—Merv Fly—Troops—Tejend Bridge—Dort-Kouyu—Dushak—Merv—Café-chantant—Alikanoff—Khiva—Assimilation—Murghab Bridge—Fertility of Soil—Irrigation—Camel Thorn—Merv Fort—Engineer Borganovich—Old Merv—Saxawol—Shifting Sands—Engineer Jugovitch—Amu Daria—General Annenkoff.

AT Asunada lines of rails lead from the piers to the different store-yards of the railway, with covered goods-waggons visible everywhere. Detachments of Cossacks are scattered about, horses and geldings being picketed together in groups of four. Fresh-water vats filled from Kasandjik. Rows of shops, small hotels with signboards complete. A large station and platform, refreshment-room, where a

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dish of soup, a portion of roast pheasant, tea and bread are procurable for 80 kopecks (say 1s. 6d.). Post-office, shipping agencies, bank, etc., all of wood, and officers' houses also of wood, landed in pieces complete from the shores of the Volga at 700 roubles apiece. Amidst all these, officers are walking and riding about, passengers are passing to and fro, soldiers are lolling about or asleep on the bare sand, strong-limbed Tartars and Persians are carrying goods to the waggons, and animals of sorts—donkeys, piebald pigs, and pariah dogs—are sniffing and searching about for a stray morsel. The general trade seems to be in wool. It is said that last year the railway carried 4 million poods of goods, and that this amount will be doubled during the current year.

The railway is open for traffic to the banks of the Amu Daria, 665½ miles. It runs from Asunada in a south-easterly direction along the foot of the northern slopes of the Little Balkan to Kasandjik (116 miles), of the Kuren Dagh to Kizil Arvat (162 miles), and of the Kopet Dagh to Geok Tepe (271 miles) and Askhabad (299 miles). It then follows along the foot of Daragez to Dushak (405 miles), when the direction is altered to a little north

of east across the Tejend and the Murgháb to Merv (513 miles)—shown on some maps as Kala Kaushid Khan—and Bairam Ali (Old Merv). The direction then turns to the north-east, and continues south of an old track through Repetek and Chardjui to the left bank of the Amu Daria (665½ miles). (See map No. 2.)

From the sea to Kizil Arvat the people are Yomut Turkomans; then come the Akhal Tekes, extending as far as Dushak; then the Merv Tekes, to Karaoul Kouyu, the boundary of Bokhara, 24 miles west of Chardjui. Boulangier gives the number of these tribes at 550,000, distributed as follows: Along the Caspian shore, 50,000; Akhal Tekes, 150,000; Atek Tekes, 50,000; Merv Tekes, 250,000; and Pendeh, 50,000. Whitaker gives the area of Trans-Caspia as 206,000 square miles, and the population at 710,000.

The journey of 665½ miles takes 53½ hours. The stoppages amount to 11.04 hours, and the running speed is 15.68 miles per hour.

In India, from Bombay to Jubbulpore, it is 616 miles. The time occupied by the mail is 27½ hours, which, with stoppages amounting to 4½ hours, gives

a running time of $23\frac{1}{8}$ hours at an average rate of 26·6 miles an hour.

A time-table of one of the trains (see Appendix D) is given in detail. This train carries the mails and also passengers, and is arranged to cross twenty other trains during its passage from one terminus to the other. The maximum distance between stations is 21 miles, the minimum 10 miles, and the average is 15 miles; steepest grade between Caspian and Mulla Kara, 1 in 100; Mulla Kara and the Oxus, 1 in 166; the Oxus and Samarcand, 1 in 83. The curves are not worth mentioning; they may be 3,000 feet in radius. The engine-changing stations are at Michailovsk, Kizil Arvat, Askhabad, Merv and Amu Daria.

The second-class fare (no first-class charge) is 28 roubles 10 kopecks, and the third-class 14 roubles 36 kopecks; if the rouble is taken at $\frac{1}{11}$ of £1 sterling, the second-class fare will be at the rate of 0·923d., or about $3\frac{2}{3}$ farthings per mile, and the third-class fare will be very nearly $\frac{1}{2}$ d. per mile. The through fares by the Bombay Calcutta mail are 1·36d., 0·68d. and 0·34d. for first, second, and third class; the third-class ordinary train being 0·236d. on the Jubbulpore extension for a speed of

nearly 21 miles an hour. The temporary terminus on the bank of the Amu Daria is about 5 miles east of Chardjui.

The traffic is worked by regular time-tables. The train on October 19, from Amu Daria, was run by time-table No. 104 as far as Merv, and then by time-table No. 4 to Asunada.

The banks are for single line 14 feet wide at formation, with 21 feet in cuttings. Sufficient land has been taken up for a double line with a 14 foot roadway on each side. Formation is placed at 3 feet above flood-level. For waterway, up to Askhabad, about $4\frac{1}{2}$ openings are given per mile.

The whole of the earth-work of the railway may be defined as sand, varying from the salt moist particles near Asunada, through the pulverised dust of the oases, to the fine dry shifting sands of Repetek. From this it is not to be understood that the whole area traversed is profitless, for it is more than probable that as the water-supply is developed in the hills the country between Kasandjik and Ravnina, extending over 450 miles, will be brought under cultivation on both sides of the line.

No fencing. Telegraph (two wires) carried on poles regularly numbered.

The gauge is 5 feet. The rails are of steel, flat-footed, weighing about 60 lbs. to the yard, and spiked to half-round and squared sleepers of fir and oak. The materials are all from Russia. The large fir half-round sleepers cost in the Volga districts 60 kopecks each : here they cost 1'05 rouble each. There are but few bridges ; those existing are well constructed of spars from the Volga.

The stations are good. These and the subsidiary buildings are substantially built in brick or stone. Reversing is done by triangles, and at every station the sidings are sufficiently long to allow trains of fifty waggons to pass each other. Many smaller barracks for platelayers and watchmen are built of sleepers partly below ground-level. A unit of twenty Cossacks can, if rails and sleepers are at hand, hut themselves in 20 minutes, and be fairly well protected against heat or cold. Some of the tank-houses are finished and roofed in.

The first sweet water met with is at Kasandjik, 116 miles from Asunada. Many of the stations eastwards have fountains playing, and the supply can be increased. The question of water-supply has been satisfactorily settled, and General Annenkoff told me that in most cases he had led water from the

hills in open drains. Between Kizil Arvat and Bagharden, the water is led from the mountains for 5 or 6 miles in pipes.

Petroleum from Baku is at present used as fuel. There is a branch line from Balla Ishem southwards to some naphtha-springs, where the yield is about 63 tons a day, and the supply in Chelikan Island has not yet been developed. Liquid fuel reservoirs are under erection at certain stations, the largest, to contain 1,600 tons apiece, being at Asunada and Askabad; others, to hold 800 tons each, at Merv and Chardjui; the smaller ones, at intermediate stations, contain 160 tons.

Of rolling-stock there is an abundance. The passenger vehicles are inferior (some are upper-storied). Several spare waggons were seen standing on the sidings at many of the stations. Covered goods, capable of carrying 40 soldiers, or 8 horses each, were quoted at 3,000 in number, and platform-trucks, to carry guns, or 60 bales of wool each, were given at 500. These figures cannot be very much exaggerated, for a great quantity of rolling-stock ready built was being landed in pieces from steamers (tops, sides, ends, underframes, and fittings of covered goods waggons, etc.).

Some of the engines were old, some were decidedly good. Report said that many new engines were about to arrive, and at Bagharden (236 from Asunada) four new ones of Russian manufacture (six-wheeled coupled, outside cylinders) were on the siding. The engines available may be guessed at 50 (there may be more, not less), and of different classes. Of the existing stock, the passenger engines will take from 12 to 18 loaded vehicles in winter, and from 18 to 23 in summer; goods engines will take from 18 to 25 in winter, and from 23 to 32 in summer; and tank engines from three to five in winter, and from five to eight in summer.

The management is entirely military. Officers are in charge of the stations. An officer examines your ticket in the train; the driver, guards, brakemen, pointsmen, telegraphists, watchmen, gangers, etc., etc., are of the railway battalions, and a military officer (Lieutenant-General Annenkoff) has supreme control. Each chief-engineer has about 300 miles of line, with district engineers (both civil and military) under him. An individual charge varies from 17 to 33 miles under construction, and from 33 to 70 miles on open line. On each charge there are from five to eight inspectors. Everything is made

in or produced from Russia. Economy is studied in every particular, and there is a particularly close audit. The cost, in the words of General Annenkoff, is given at '20,000 roubles per verst, without the waggons and rails.' This, however, cannot include all the preliminary expenses, the transport of materials, or loss due to the positive haste with which the railway was constructed. One account puts the cost at 30,000 roubles a mile, without plant, and 55,000 with it. Another estimate gives £4,800 a mile, of which £2,700 are for rails, sleepers and carriages, and £2,100 for labour, bridges and establishment. Roughly, I should rate the outlay at £6,000 a mile; and, considering the circumstances of its initiation and construction, it is cheap at the price, and well worth the money. Many lines in European Russia have cost £10,000 a mile. The Vilna Rosno is entered at £5,700, and the Ekaterino Slav at £13,450, while the St. Petersburg-Moscow line cost £40,000.

From Asunada the line winds through hills, from which the sand blows about and drifts over the line, judging by the sand-screens, etc., which were half buried in places. We travelled in the lower compartment of an upper-storied carriage, very uncomfortably, as the seats were arranged in pairs, and far

too short to lie down on. No accommodation reserved for ladies and children. At Kasandjik, where the first sweet water is obtained, a few willow and poplar slips had been planted, and were growing well.

At Kizil Arvat, fountains were playing, and the electric light was in use all over the yard. As this is an engine-changing station, there are many sidings, numerous buildings, and a great number of covered and platform waggons. The country about here would form a grand breeding and grazing ground for camels. The plain, covered with a stunted bush, stretches away to the north as far as the eye can reach. The rainfall is given at $10\frac{1}{2}$ inches. The line is close under the hills, of which it is said there are four ranges, the Russian frontier being on the fourth and most distant. The possession by Russia of hills flanking the railway for about 250 miles, between Kizil Arvat and Dushak, is a wise precaution, for it reduces to a minimum the chance of the railway being cut by any hostile operation. Moreover, Russia, in addition, has secured the right to enter Persian territory whenever necessary.

At Kodg there is plenty of good sandstone, and a great deal of tamarisk-root firewood ; also a great quantity of boulders collected for bottoming culverts.

At Bami the first Turkoman village is seen—an enclosed fort, with 50 or 60 circular huts thatched in, fields of *bájrí* and *jowári*, and a few horses heavily jhooled picketed about. Considerable acreage of the plain has very lately been under cultivation. Some of the villagers, ugly, flat-featured, and wrinkled, were at the train selling melons. All wore the large sheepskin hats. A running stream, a well, fountains, and more building-stone. From Bami a branch line leads to the naphtha-springs.

Beyond Bami more Turkoman forts are to be seen, more water, and a few houses and towers scattered about. One very large encampment with camels, sheep, etc. The plain here has all been under cultivation.

At Bagharden (236 miles) there is good water from the hills; the bush thickens and becomes more green. A number of little towers were seen, in which it was said the Turkomans used to defend themselves against the Persians, running from one to the other when hard pressed. Each tower was big enough to hold one man, and looked more suitable for a watchman over the crops at night. A big mound of earth has been raised here to some Turkoman chief by his followers. These large

masses of earth are curious. Plutarch, in his 'Lives,' says that the army of Alexander, on the death of Demaratus the Corinthian, threw up, at or near Persepolis, a monument of earth of great extent and four score cubits (140') high.

At Geok Tepe there is plenty of water, and just at this point the mountains increase in height, the forts multiply, and verdure abounds—grass, running water, gardens, and fields under irrigation. Another large mound of earth raised here to some hero. Flushed a bustard (houbara) from the train; also three wild ducks. I must here plead guilty, and apologize for taking rather a liberty with the traffic. The halt was curtailed to 10 minutes, and knowing this, I scrambled off to see the fort. When time was up, the driver whistled and passengers waved handkerchiefs to warn me, but I continued my exploration in sight of the train, till an officer marched over to inform me I should be left behind. This I pretended not to understand, and after having interested him in my researches, and got him to assist me in pacing certain measurements, we returned together, he very good-naturedly seeing me into the train, and wishing me a speedy return.

The fort of Geok Tepe is in ruins, irregular in

shape, and about four miles in circuit. Mudworks with a profile 18 feet thick, 10 feet high in rear, with a wall 12 to 18 feet in front, including the parapet and a ditch 9 feet wide and 4 feet deep. The whole area is now overgrown with camel thorn. The fort is close to the line ; and standing on the walls it is not possible to realize that here 14,000 fighting Turkomans, with their matchlocks and swords and with one old gun (taken from the Persians), opposed the Russians and 70 pieces of artillery for at least a month. Forty thousand, including families, were encamped within the fort.

The Turkomans made three sallies, always between the setting sun and the rising moon, when darkness was most intense. In one sortie they were successful, but abandoned their advantage for the tinpots and loot of the Russian lines. In all hand-to-hand encounters the Turkomans had the best of it, and at last the Cossacks scarcely liked to face them. However, the big guns and rifles did their work. The mines were exploded, assaults were made at several points at once, and the defenders fled. Seven thousand bodies were found in the fort, and the fugitives who were not caught and massacred made their way to Tejend. The ' Turkoman barrier '





CENTRAL ASIAN INHABITANTS.

was entirely removed and swept away. The Russian force was small, and split up into detachments. One thousand were left at Bami, 1,000 were sick, and not more than 4,000 were actually engaged. The lines of attack extended for five miles.

The train arrived at Askhabad to time, at 5.30 p.m., on October 9. Tamamsheff had continued to be so poorly, that I thought he would have to remain at Askhabad. Some friends took charge of him, and I went home with Captain Komaroff. He had been on the Boundary Commission, and was again under orders to fix the boundary as soon as the English officers should arrive. His house was of one story, built with mud bricks, whitewashed, and paved with tiles; the rooms were hung with carpets from Bokhara. After supper, at nine, a bed was made on a large settee covered with carpets. Early breakfast in the garden. The service of the house and cooking was apparently done by two Cossack soldier-servants. They were not 'smart' men; for one gave me water, and then produced two old tooth-brushes and some toothpaste, and on leaving in the morning, the other gave me his master's shirts, etc., open in the carriage, just as they came from the wash days before. Majors Peacocke and Yate did not

travel by the railway to their boundary work, but went through Persia *viâ* Astrabad and Meshed.

Captain Komaroff considered that the Russian soldiers are well disciplined ; that the further they march from the base of operations, the more they depend on their officers ; that they would always maintain their discipline, and that they can march and fight comparatively without food. A comparison was also drawn between the Cossack and the Sepoy, the argument in favour of the Cossack being his supposed superior discipline and greater powers of endurance.

Askhabad, with its dusty roads, mud walls, white-washed houses, and native bázár, may be called an up-country station. Water runs by the roadsides, but at present it is not fully utilized either in preparing the roads or in making gardens. The water-supply from the hills is said to suffice for the present population of about 8,000 people. Sulphur has been found in the vicinity, and there are sulphur-springs near Kelat.

In the morning called on General Komaroff (the Lieutenant-Governor of Trans-Caspia) at eleven, and spent some hours with him, his daughter and son ; Madame Komaroff and two daughters had gone to Merv the previous night. The General lives in the

fort or walled enclosure put up in 1883. Breakfast was served at noon; Colonel Andrejeff, in command of the railway battalion, and Captain Komaroff (no relation to the General) were also of the party. The usual 'zacouska' consisted of tongue, sardines, anchovies, etc., and eau de vie, to be followed by 'borschi,' a thick Russian soup, beef, potatoes and brinjalls, fowl and grapes, cauliflower and cheese, fruit and water-melons, Kahétie wine, Russian beer, and Nalifka liqueur with coffee. The afternoon was spent in examining collections of bronzes, coins, old ornaments, photographs, etc. The General said Russia had no friends: all people were Russophobes. He told me that when he was at Derbent there were 300,000 people in Daghestan, and they talked thirty different languages; there were clans or families who lived in the same valley two miles apart, and each talked a language the other could not understand.

He also explained that in the construction of this railway the earthwork, etc., up to formation-level, was done by the inhabitants and imported labour, but that the actual laying of the sleepers and rails, spiking, gauging, etc., was done by two companies of soldiers — 300 men in all. The maximum rate achieved was 6 kilometres ($3\frac{3}{4}$ miles) per day, and

the minimum 3 kilometres. The gangs muster about 30,000. They are divided into working parties of from 50 to 100, under military supervision. The soldiers worked from a train which contained their beds, mess, kitchen, hospital, workshop, etc. The military battalions employed on railway work receive fifty per cent. over ordinary pay. The General explained how troops got the Penjdeh boil, which affected the young more than the old soldier, and that once having had it, there was no second attack. The model of a soldier's foot showed a nasty red spot. Askhabad was not now unhealthy, though at first it was so, and there were certain localities, viz., Krasnovodsk, Tchikislar, and Sarrakhs, where good health prevailed. The Russians did not care for ice; they think it unhealthy, and that it induces fever. The General had been here for five years. Merv has a bad fly, and camels cannot stay there in winter. (Captain Yate says: 'During summer there is a fly in the desert whose bite is fatal to camels, and at that time they keep all the camels at Penjdeh, only grazing them in the cool hours,' etc.—*Vide* Despatch No. 13 of 'Blue-Book' No. 4 of 1885.) Snow falls in Askhabad for two months in the year, when sledges have to be used.

There may be 400 or 500 troops in Askhabad, with detachments at Sarrakhs and Kaaghka. The bulk of the troops are up in the hills somewhere, probably at work on the road which is said to be in progress towards Kuchan. Kuchan is near the head of the Atrek Valley, about 60 miles south of Askhabad. Early in 1886 Russia desired the construction of a line to Meshed, and in 1887 work for a road was begun by the Russians from Askhabad southward, while the Shah was to make the part from Meshed to meet it. The present project is for a tramway along the existing road. The 'gup' of the station is that Ayub's cause is gaining ground, and that shortly there will be trouble in Afghanistan.

Tamamsheff is, I am glad to say, all right again, and can go on. At one time it was thought that he would have to remain behind at the hospital here.

The departure from Askhabad is timed for the evening, and the arrival at Dushak is at about two in the morning. Here the line takes a new direction, leaving the hills and the boundary of Persia to cross the plains towards Merv and Bokhara. After leaving Dushak for about 30 miles the railway

crosses the Tejend. The wooden bridge has been partly restored with iron piles. Water is brought to Geok Syur in pipes for 16 miles from the Tejend. Dgoudgouklou is on the Alikanoff Canal, which leads water from the Murghab. At Dort-Kouyu the jhao (stunted) jungle begins. The line in places is protected by bushes from sand drifts. Many small houses for the soldiers, below ground-level, lined with sleepers, and roofed in with rails and sleepers—a protection necessary against both the heat and the cold. At Karabata the plain is on all sides covered with the tamarisk jungle.

From Dushak it is about 90 miles to old Sar-rakhs, and about 66 more to Zulficar, the extremity at present of the 'Turkoman wedge.' It has been lately supposed that a branch line was being made in this direction; if so, nothing was seen of it; such a line has no doubt been surveyed, and can be laid and worked within two months' time, Zulficar being about 100 miles from Herat, and no Paropamisus difficulty to intervene. The direct line from Merv up the Murghab to Herat would be 230 miles. The new frontier, it is understood, runs from the northern end of the Zulficar Pass, south of Ak-robot, along the bank of the Kushk River, north of

Meruchak, and then along the crest of the hills to the west of Maimene and Andikoi to Kham-i-ab on the Amu Daria.

Merv was reached at 10 a.m. Called on Colonel Alikanoff, the Governor, who was not at home. Engaged rooms at the Grand Hotel in the town, a mud edifice with sundry court-yards filled with empty bottles and débris. The main saloon is in use during the evenings as a *café-chantant*. The sleeping apartments are on one side, and have a small bed, coloured chintz curtains, rafter and mud roof, dirty clothes, etc. The chaff that went on from having taken up quarters at a wrong shop led to my making a most agreeable acquaintance with M. Michail Livovich, a gentleman from Tiflis, who had come over here as traffic manager. Breakfast was obtained at another *café* close to the bridge over the Murghab. The place swarmed with flies, and a pullet was ordered as being the safest, but it was skinnier than any *dâk bungalow murghi*. Merv is regularly laid out with wide streets and rows of shops. There are some 300 or 400 troops here, with detachments along the Murghab.

Towards noon Alikanoff sent us an invitation to dinner. We drove back again into the fort, and

found a Cossack band playing in front of his house. Tamamsheff preceded me, and I was duly received by Alikanoff and his officers, and then introduced to Madame Komaroff and her two daughters, a young lady from St. Petersburg who was just 'out,' two other ladies, and Madame Harfeld, an intelligent and well-educated English lady who is married to an officer (civil) employed on the railway. Her son is in England at University College.

The dinner-party consisted altogether of about twenty, seven of whom were ladies. The ladies entered the dining-room first by themselves, and the men followed, going at once to the side buffet, where the *zacouska* was served. This being finished, seats were allotted, and my place was between Mesdames Komaroff and Harfeld on the opposite side of the table to Alikanoff. Toasts were drunk during dinner, and my health was proposed. Alikanoff stood up, gave the toast, and clinked glasses, whereon all others did the same.

During dinner, Alikanoff, seeing that I was conversing rather intently with Madame Harfeld, leant over, and laughingly said in Russian, 'You must not tell him all the secrets I have told you.' When this was translated to me I added that 'Truth

was the greatest secret of all, for the simple reason that no one would believe it.' This fact, after some discussion at the table, seemed to be generally accepted.

The drawing-room was hung with carpets on the walls. There were huge settees and pillows covered with carpet, and carpets on the floor—a durbár room, in fact. The writing-room was furnished much in the same way, a table and a few knickknacks. In the dining-room carpets were on the walls, with a panther and a fox skin, a plaque or two of stuffed birds, etc.

Bought some photographs of Khiva, the Khan and his Ministers, and also one of Alikanoff at a small shop kept by an Armenian. Alikanoff is a fair-faced man with rather red hair and a heavy beard—physically strong and rather determined in manner; he is either a Lezghien or an Avar of the Caucasus, and a Mussulman.

Khiva is now a Russian vassal state. The Khan Syed Mahomed Rahim Khan succeeded in 1868. The area is given at 22,320 square miles, with a population of 70,000, chiefly Uzbegs. The fields and gardens are irrigated by canals from the Oxus. The surrounding country is barren, affording but

little pasturage. Khiva was captured on May 20, 1873, slavery was abolished, the Khan acknowledged himself a vassal of the Czar, and promised payment of a war indemnity of about £350,000. The campaign included the march of five columns from Krasnovodsk, Orenburg, Kinderly, Tashkend, and Kazala. Four reached Khiva, and the fifth was forced to retreat after suffering severely from want of water. The first column, under Markusoff, did not lose a man. The attack was given on two sides, and Russia added 200,000 square miles to her territories.

The power which Russia possesses of assimilating all classes may probably be traced back to the domination of the Tartars, for these hordes, settling as they did in the country for nearly 300 years, must have greatly affected the future of the nation, though at the time their manners, language, and religion may have been different. The restless spirit of 'spreading' which has so influenced Russia since her recovery may also be nothing more than the reflex of the wave of the same nomad tribes which poured in from Asia and submerged Russia from the thirteenth to the fifteenth century.

The passengers who did not halt at Askhabad are still in Merv, the line ahead having been blocked with shifting sand. The railway-bridge over the Murghab at Merv is on piles five in a pier, crossbraced. The bridge is planked for ordinary road traffic. Stream at this season sluggish, and not very large. There are, however, at times heavy freshes, when the fields are inundated and the crops damaged or destroyed. Last year the inundations were so serious that many protective bunds have since been erected. The return at Merv on the sowing was said to be as high as 117 fold. Ridge-way puts the average yield of the cultivated land in Herat Valley at 5 fold, or, in exceptionally fertile spots, 10 fold; and the return on lands in Badghis from 60 to 80 fold (*Nineteenth Century*). At Kom, in Persia, Mr. Lyne stated that the net profit on the adjacent lands was 40 fold. An irrigation project with a bund 42' high has lately been sanctioned. The entrance to the fort is marked by an old Turkoman mosque, which is on the ramparts facing the setting sun. The Governor's house and many others are in the fort. The fort is irregular, with faces to the east and west about 2 miles long, and the north face about half a mile. It is now over-

grown with camel-thorn, and the railway runs through it. It contains a racecourse, and in one part there is some cultivation.

The old ramparts of mud are now broken down and overgrown with camel-thorn (*Alhagi camelorum*). One profile showed that, originally, the section must have been 20 feet high, with a parapet wall 6 feet in height. The terreplein, 40 feet wide, with exterior and interior slopes falling to a base 70 feet in width, with ditches both on the inside and the outside. Bricks are now being made in the outer ditch by labour transported from the Caucasus. A number of Turkomans, their women and children, were passing to and fro on horses and camels, while numerous donkeys were bringing in lucerne. The Turkoman wears a huge sheepskin hat as big as a grenadier's bearskin; otherwise he is dressed as a Sindee. Slept in a covered goods-waggon, arranged as a carriage, with bed, table, washing and retiring room. Introduced to a mining engineer, Charles Borganovich, a most intelligent officer, who was going to Chardjui prior to starting on a geological survey from Meshed to Astrabad.

Persian trade has been largely diverted from the Resht route, and Russian companies are now

developing a textile, fabric and mineral trade from Persia, while Russian goods are being poured in. In Merv there is a refinery to make sugar from melons. Messrs. Rudin and Co. have agencies at Askhabad and Merv.

The station next to Merv, and 14 miles away, is Bairam Ali or old Merv. A fair account with good illustrations of these old ruins has been given by Boulangier in 'Le Tour du Monde.'

At Ravnina the sand begins, and it may be said to extend for about 90 miles to Chardjui. The portion between Peski and Barghany, extending for 50 miles, is known as 'the shifting sands of Repetek.' The principal herb of this sandy tract is 'Saxawol,' the Turkoman name for *Calligonum Pallasi*, a plant with roots 30 to 45 feet long. There is another plant also, called 'Salsola Kali.' Prejevalsky says that 'Saxsaul' (*Haloxylon Ammodendron*) is called 'Zak' by the Mongols, a tree or shrub growing to a height of 14 feet. It supplies the nomad with fuel, and his camels with food; its wood, though heavy and hard, is exceedingly brittle. It burns like coal, and retains its heat for a long time. It is met with throughout the vast tract extending from the Caspian Sea, on the west, to the

limits of China proper, on the east, and through nearly 12° of latitude, from the parallel of Lake Uliunghar (Semipalatinsk), on the north, to Isaidam, on the south, where it grows at a height of 10,000' above the sea. Its chief habitat is the Gobi and Northern Alashan. Aitchison also mentions this salsolaceous tree or shrub as thriving in the shifting sands of Baluchistan, though far more luxuriantly on the banks of the Hari Rud river. It but rarely exceeds 15' in height at the trunk, but attains sometimes as much as 12' in circumference. The wood is extremely heavy and coarse, and a green dye is extracted therefrom.

As regards the shifting sand between Merv and Chardjui, there is naturally a good deal of anxiety, for the extent to which drift takes place may be gathered from one instance, in which 3,000 cubic sajènes (40 000 cubic yards) were swept on to the line during 10 hours in a length of 10 versts. Sometimes the wind will blow the sand out of the cuttings, leaving holes 3 feet deep under the sleepers. Certain protective measures have been taken; the chief plan is to widen the cuttings to 28 feet at bottom, and to flatten the slopes. The slopes of both banks and cuttings also are covered

with smoothed earth and moistened clay, so that as little resistance as possible should be offered to the drift. 'Saxawol' is planted at the noses of the slopes, to prevent 'erosion.' The banks of sand to windward often rise to 28 feet in height. On this length, extra gangs are employed, and the maintenance-gangs consist of one watchman for every 3 versts, and 10 gangs of from 15 to 20 men for every 8 versts. Trains are not allowed at present to run at night between Merv and Chardjui.

Whatever is done on one side of the line must be done upon the other, for the wind blows from opposite directions at different seasons of the year. Nothing can prevent the sand drifting, and the less obstruction that is offered to its movement the better. At one time it was considered that the only efficient defence against the sand was in the construction of stone galleries. The expense where building materials are wanting would have been enormous, and the precaution would have in reality been no better than the more simple plan of using natural bush ready to hand. Sometimes the air is so thick with sand that the drivers cannot see a yard ahead, and traffic is suspended for 2 or 3 days at a time.

Engineer Jugovitch took much trouble in explaining the difficulties that had been experienced in platelaying through these treacherous lengths, and he believed that the remedies adopted would keep the line clear. He and his wife were out in the desert all through the hot weather. The thermometer in their kibitkas in the bed of the Amu Daria stood at 110°. In the hot weather in India, anything over 91° in the house is uncomfortable. These kind people received me on my return from Bokhara.

At Chardjui, a small roadside-station, the Beg and his Mirza were waiting in coats of many colours to receive one of the Russian generals by the train. The fort, perched on an earth mound, was visible in the distance over the garden walls ; and as the train approached the terminus, General Annenkoff and his staff were seen returning from the river to their quarters at Chardjui.

At Amu Daria, the station on the Oxus, a great deal of wool and other merchandise was ready stacked for transport to Russia in Europe, and nearer the river stores of rails and sleepers were ready for the extension Trans-Oxus. The rate for Government material, boats, etc., to the river is

17 kopecks per pood from Asunada, while the public rate would be 50 kopecks per pood for iron and wood, and 80 kopecks for other goods—cotton rate being 35. By the Carrying Company cotton goes in 70 days from Bokhara to Moscow for 1'60 roubles per pood.

After a good wash and a change of clothes, we enjoyed a first-rate breakfast in a mat saloon of the temporary restaurant, and then returned by train to Chardjui to call on General Annenkoff. His residence is in a house of the Emir's, in a large garden, with rose-bushes, mulberry-trees, running water, etc. Here Mr. Rubenstein, another secretary, and Mr. Rodzievitch, the correspondent of the *Moscow Gazette*, received us, as the General was taking his mid-day rest. The General gets up at 4 a.m., and goes out inspecting the work till noon, when he breakfasts at the riverside. On returning to Chardjui, he rests for 2 hours. The General's manner was most cordial; he was full of life and spirit, speaking with pleasure of his acquaintance with Lord and Lady Dufferin, and of the delight he always experiences in reading 'The March to Kandahár.' All my wishes to continue my journey to Bokhara were met at once—a launch to cross the

river, a carriage to the outpost, with permission to use the post-horses beyond. After a pleasant interview, with an invitation to dinner, the General sent me for a ride with an escort round the town on a horse given to him by the Emir. The fort is perched up on a mound overlooking a bázár, which is not unlike the one at Shikárpur. One of the escort was a son of Haji Mourad, the Minister of Schamyl, another instance of Russian powers of assimilation.

Dinner was served for about thirty under the trees in the garden, the Inspector - General of Musketry being on General Annenkoff's right hand, while my place was on his left, and the Beg (Governor appointed by the Emir) opposite, with one of his Ministers acting as interpreter. After dinner the General made a speech in Russian, which was received with great cordiality; and when I rose, with the others, to complete the toast, he turned and said: 'We are drinking your health, and presently Mr. Rubenstein shall translate my words to you.' I felt that the greeting was sincere and highly complimentary. Mr. Rubenstein then translated the speech. He said that the General welcomed me as the first English officer in Chardjui, that he was

proud to say he numbered many Englishmen among his intimate friends, that he had visited England and received much hospitality there, that he hoped my visit would be of interest, that he and his officers would render me all assistance, and in drinking my health he wished also to drink to the whole of the British army.

I then asked permission to say a few words in return. I first acknowledged the great favour by which I had been permitted to visit Trans-Caspia, and dwelt upon the kindness with which I had been received everywhere as a brother officer. Though I had been welcomed as the first to arrive, I was sure that when I reached India and told my friends of the many pleasant hours I had spent with them, I should not be the last. Finally, I complimented them on their success in cultivating such friendly relations with the natives, and expressed admiration for the energy and ability which had secured them such a good railway.

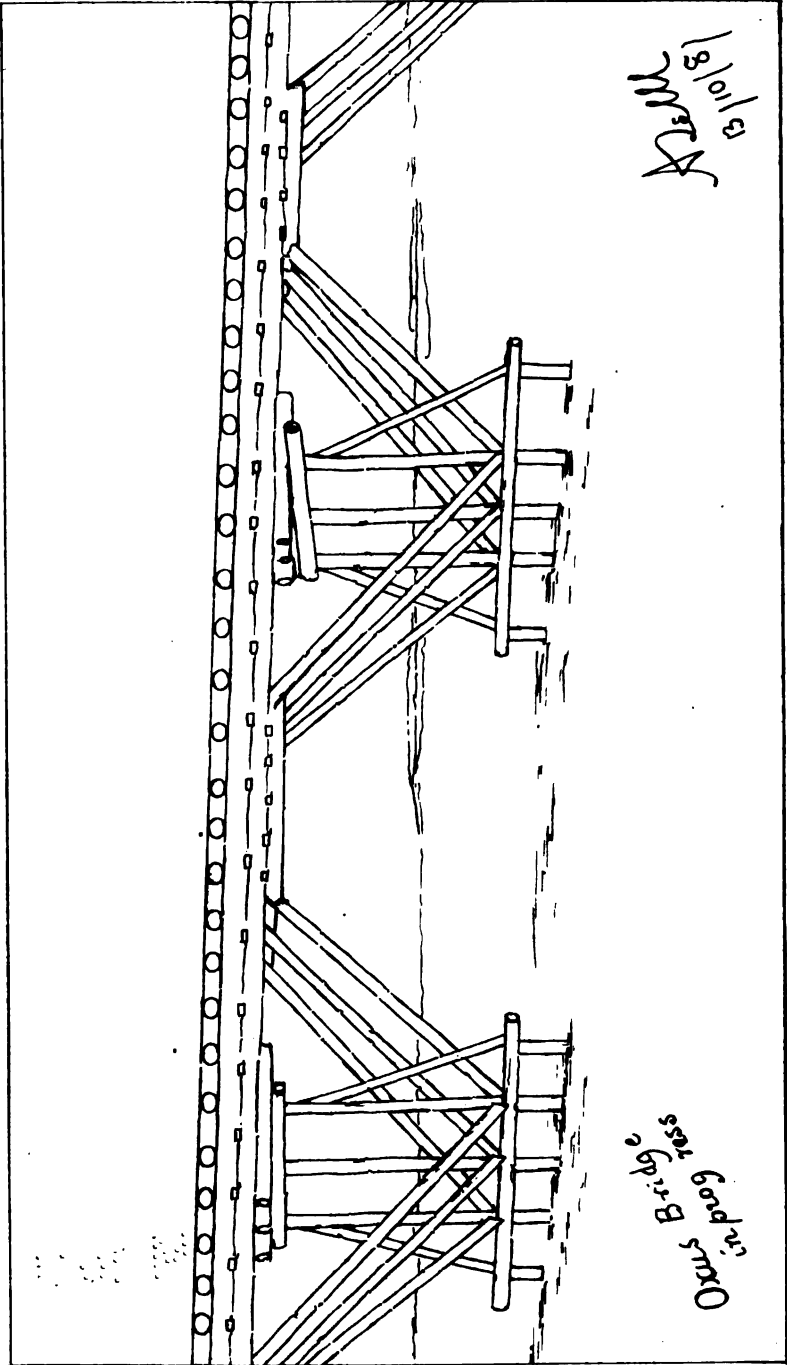
No sooner had I finished than the General jumped up, and gave his guests my speech in Russian with great vigour and expression—each sentence being heartily applauded. Afterwards I learnt that Captain Durand had passed through Chardjui on his return

from the Boundary Commission, and that he had been too ill to leave the railway carriage.

The General lent me his carriage to drive back in—a roomy victoria on good springs, built in Moscow, and drawn by three cream-coloured horses. The night was quite dark, and although the lamps were alight, the dexterity and pace at which the coachman drove back the seven miles through sand, over narrow bridges, down into nálás, and round corners, was little short of marvellous. Packing for the morrow was soon completed, and the night quickly passed away in sleep in the waggon.

1965

18/10/13
M.A.



Ordnance Survey
18/10/13

CHAPTER XI.

FROM THE OXUS TO BOKHARA.

Oxus Bridge—Its Cost—*The Times*—*Le Figaro*—Telegrams—
 The Oxus River—Ferries—Cossack Outpost—Moving Sands
 —Khoja Daulat—Elyat—Karakol—Sand Squirrels—Broken
 Wheel—Bokhara—The Russian Embassy.

THE length of unopen line from the Oxus to Bokhara is $231\frac{1}{3}$ miles, and work is said to have been begun on this section in February, 1887. The bridge over the Amu Daria is in course of erection. It is entirely built of timber, with spars from the Volga in 28' spans, and a breadth in the pile-piers of $24\frac{1}{2}$ feet.

There will be four water-ways, viz., of 1 mile, 500 feet, 420 feet, and 150 feet, with earth banks between, and from the first abutment to the last the length is nearly 3 miles. The smaller openings are nearly finished, and of the largest opening about 23 spans are done. The alignment goes past Karakol

to the Bokhara Station (728 miles), which is fixed 9 or 10 miles south of the city, and thence to the river Zarafshan at Kermineh, and along its southern bank to within half a mile of Samarcand (897 miles). The earthwork is well advanced, and the banks and abutments at the Zarafshan crossing near Karakol are ready for the girder (105 feet).

The bridge will be finished in three months, or, say, by the end of January, and the rails, laid at a rate of $2\frac{1}{2}$ miles a day, will bring the locomotive to Bokhara by the end of March, and to Samarcand before the end of May, 1888. Seeing what has been done, and is being done with the abundance of labour, there is but little doubt but that the trains will be running between the Caspian and Samarcand *with public merchandise* by June 1, 1888.

After-events have shown that the dates anticipated for completion were not far wrong. The bridge was so far completed by December 7, that six carriages were taken across, after which a flood caused a large gap. The formal opening took place on January 18, and the opening ceremony of the Samarcand extension was inaugurated on May 27, 1888. The construction of the Oxus Bridge in so

short a time is a splendid achievement. Under a rough calculation, the work from one end to the other is $2\frac{2}{3}$ miles long, of which 2,117 yards is bridge, and 2,676 earth bank. It was completed in eighty days. There are 227 openings, containing about 32 miles of spars, and the earthwork is equivalent to a mound 100 yards square and 15 yards high. Approximately, 600 soldiers of the railway corps and 2,000 Tekes represent the working parties. The cost may be distributed as under : Wood-work, 300,000 roubles ; local labour, 24,000 roubles ; haulage, 120,000 roubles ; administration, 46,000 roubles ; permanent way, 60,000 roubles, or a total of 568,000 roubles, or, say, £50,000.

An account of the opening of the line is given in the *Times* of August and September, by its correspondent at St. Petersburg. Anyone who made a journey from Karachi to Lahore in the hot weather during the early days of the Indus Valley Railway can quite understand the many little inconveniences he experienced. *Le Figaro* of June 27 (sent me by my good friend, Colonel Call) also gives a letter from Napoleon Ney, describing his return from Samarcand after the formal opening of the railway, in which the following occurs :

‘ Le général Annenkow, comme tous les hommes de génie, voit haut et loin. Comme nous félicitons notre hôte éminent de la perfection exacte avec laquelle s’était accomplie l’inauguration du chemin de fer—ou l’accroc de la dernière minute ne s’était pas produit :

“ Oh! nous avons eu de la chance,” dit le général.

“ Avouez que vous l’avez un peu aidée.”

‘ Le général sourit et nous raconte que l’année dernière, il a reçu à Tchardjoui, au mois d’octobre, la visite d’un officier distingué de l’armée des Indes, colonel du génie en retraite, M. Le Masurier. Les travaux du pont de l’Amou-Daria (long de deux kilomètres et demi) commençaient alors. Ils avançaient lentement, les ouvriers se trouvant aux prises avec de grosses difficultés.

“ Quand pensez vous avoir terminé le pont ?” demanda le colonel anglais au général.

“ Avant le cinq janvier prochain.”

“ Mais c’est impossible. Il vous faut pour une longueur pareille au moins six mois encore.”

“ Je suis sûr d’être prêt à la date fixée,” repliqua le général.

‘ L’inauguration eut lieu le 1er janvier de cette année ; et le général Annenkow reçut plus tard la carte du colonel Le Masurier avec ce simple mot — “ Splendid ! ” ’

It is quite true, that as soon as the news arrived of the completion of the Oxus Bridge, I telegraphed

from Calcutta, on January 19, to General Annenkoff, at Chardjui, the simple word 'Splendid,' and I had also three days previously telegraphed to the General thanking him for a large case of beautiful photographs of his railway work in Central Asia.

It is said that the current of the Oxus at Amu Daria at this season is $4\frac{1}{2}$ versts an hour (probably only 3 versts), and that the rise and fall during the autumn months is within a limit of 6 feet. Plutarch relates that a Macedonian named Proxenus, who had charge of Alexander's equipage, on opening the ground by the river Oxus, in order to pitch his master's tent, discovered a spring of gross oily liquor, which, after the surface was taken off, became perfectly clear, and neither in taste nor smell differed from real oil, nor was inferior to it in smoothness and brightness, though there were no olives in that country. (Strabo, lib. iii., ascribes the same properties to the ground near the river Ochus. Indeed, the Ochus and the Oxus unite their streams together, and flow into the Caspian.) It is said also that the water of the Oxus is of so unctuous a quality that it makes the skin of those who bathe in it smooth and shining. (Pliny tells us that the surface of these rivers was a consistence

of salt, and that the waters flowed under it as under a crust of ice. The salt consistence he imputes to the defluxions from the neighbouring mountains; but he says nothing of the unctuous quality of these waters mentioned by Plutarch.)

We crossed the river in a steam-launch, *Peter*, manned by Cossacks, my companion, Tamamsheff, kindly seeing that all tips and disbursements were properly made. There are three islands, so called, at the crossing, and, consequently, there will be four divisions of the bridge. Steamers and barges are being built near the bridge. It is said there are three paddle-wheel steamers and three barges for the river traffic up and down to Khiva, with a draught of 2 feet when empty, and 3 feet when loaded. On the other side of the big stream a carriage with three horses was ready—one horse in the shafts with hoop, collar, etc., and one on each side for conveyance to the next stream, over which there is a ferry. The ferry is worked by Cossacks pulling a rope over rollers which are fixed into uprights on the raft—one soldier steering with a long oar. No sooner has the boat drawn up to the bank than the horses, carriage, and all are driven with a bump and a jump on to the raft, and the

crossing begins. The promptness and decision with which these minor movements are executed are most noticeable. From the ferry a track runs across the other two branches of the stream to a Cossack outpost, where an officer invited us to breakfast in his kibitka. The banks and islands in the river are all overgrown with tamarisk, self-sown like one sees it in the Indus. The drive in the fresh morning air through this jungle at a rattling pace was most pleasant. A kibitka is a circular tent of felt raised on a framework of willow-wands, fully carpeted and fitted with bed, table, chairs, and if the camp is stationary a small room in brick is built off to carry a stove.

After breakfast we inspected the outpost: the horses were all tethered by the head to a rope like cattle. Three nice mares and their colts belonging to General Annenkoff were feeding on grain thrown on the ground. Received many instructions and warnings as to our route—notably not to drink or wash in any water that had not been first boiled, because of the guineaworm between Karakol and Bokhara, the water about these places being scanty and stagnant. In Samarcand it was different—water being plentiful in the rice fields, and running.

We started at 1 p.m., a party of six, on horses, to cross the sands to Khoja Daulat, some 17 or 18 miles—the guide (djiggit), furnished by the Beg of Chardjui, myself, Tamamsheff, Osip the servant, and two Cossack soldiers. For a short distance the sand was gathered in small hills, and the villages were like those in Sind, with a few fields of cotton and jowári. The moving sand is soon reached, and here, following the guide at a walk, the order is single file over and around the crests of the different knolls—a veritable sea of sand, with billows complete, the crests of many being blown and curled about like so much spray. About half way is a salt plain, nearly a mile wide, hard, crisp, and in many places glistening white. The air of the hills is thick with the finest sand. Camels at 100 yards off are quite indistinct; the track is rapidly obliterated, and, with no points to steer by, there is every chance of missing the caravanserai at the far side. After about three hours Khoja Daulat is reached. No horses available; needs must wait. Having dismissed the Cossacks with a suitable acknowledgment, we again started at 5.50 p.m. in a 'drogi,' drawn by three horses, a low carriage without springs—four long poles, in fact, longitudinally

placed on frames, carried by the front and hind wheels. The poles are cross-laced with rope, to carry the grass on which felts are placed for travellers to sit on. In the dark, and with tired horses, Elyat was reached at 8 p.m., where one of the Beg's subordinates took us in, provided dinner, and a clean room to sleep in.

Next morning we left Elyat at 6 a.m. with the same horses, and reached Karakol at 8 a.m., the route from Elyat being fairly cultivated, trees, canals, houses all the way, and a fair traffic in camels and donkeys carrying cotton, etc. At Karakol, the coachman, of his own accord, drove to the house of the Beg. Sweeties, cakes and tea were quickly ready in a room reserved for travellers, overlooking a courtyard, where a number of horses and animals were standing apparently asleep, the favourites among them evidently being a white donkey, called 'Shaitan,' and a fat-tailed sheep. The Beg, a fine old man, short, stout, and florid, dressed in a coat of Bokhara silk in many colours, with a white turban, was most polite, and produced his hawks. The coachman disappeared with the 'drogi,' as the change horses were some distance away by the new railway-bridge under erection over the Zarafshan. The Beg was

highly amused with the changing figures on the face of Tamamsheff's watch.

Left Karakol at 10 a.m. with fresh horses, in a heavy dust-storm blowing from the north, the air being much like a silver fog. The bridge over the Zarafshan is roughly, but strongly, built together of big branches. Fields and houses continue for some distance, then we pass among sand-hills, and finally cross a sandy plain, which, apparently, is of no use to anyone. Many strings of camels pass along the track in both directions. In this desert some small animals like sand squirrels were dodging about ; the driver said they drank no water. They may be the same as those at Sambhar Lake, in India. Saw also black crows, hooded crows, rooks and magpies. At 1.15 p.m., Ek-i-tut, where the headman had more tea and refreshments ready in a dharmshála. These refreshment stages are apparently maintained by the Begs and headmen for the benefit of officers travelling backwards and forwards. Payment is not expected, but tips, particularly in paper roubles, are fully appreciated. By 2 p.m. fresh horses were put to, for the last stage into Bokhara. Passed an 'omyah,' or old fort, and shortly afterwards one of the wheels showed signs of coming to pieces. It

was patched up with ropes, and the drive continued cautiously. By strange good luck a return carriage appeared : a little jabbering between the drivers, and in ten minutes, by an interchange of parts, the 'drogi' was fitted out with a sound wheel. Seagulls and terns in the fields, which were growing young wheat. Barley also in the ear. Mhowa trees are seen within walled enclosures, and assuredly we are approaching a large gathering-place of some sort.

The numbers of wayfarers increase, men on donkeys carrying hawks, women in kajjawas, boys loitering about, and at 5.30 p.m the 'drogi' passes through the western (Imám) gate, and enters the city of Bokhara. Thence, for some distance, we follow one of the principal streets, turn to the left, and then to the left again, thus returning in a direction parallel to the main road first traversed. A turn to the right leads through a large courtyard within the precincts of the Russian Embassy up to a gateway, where the horses are stopped. Servants show the way into a second courtyard, and point out the rooms which are kept ready for travellers. Here, at ten minutes to six in the evening, the journey, for the present, ends, on the expiration of a month from the day (September 14) I left my home in Ealing to catch the night mail from Victoria.

CHAPTER XII.

BOKHARA.

M. Klem—Bazaar—Public Execution—‘Bokhara Burnes’—Bokhara Prisoners—Yusuf—Colonel Stoddart—His First Reception—The Black Well—Typhus—Abdul Samut Khan—Captain Conolly—His First Reception—Cabul Disaster—Conolly imprisoned—Stoddart and Conolly executed—Conolly’s Prayer-book—Date of Execution—Captain Wyburd—Haji Ahmet Arab—Vambéry’s Account—Orlando—Mussulman Cruelties—Bokhara and Mysore—The Land of Nod—Russian Currency—Russian Telegraph—The Emir’s Brother—Seid Abdul Ahad—Musjid Dewán Begi—The Fort—A Missionary Agent—Bokhariot Troops—Drill—Rainfall—Area—Population—Altitudes—The Great Inland Sea—Deluge of Deucalion—Land Stations—Kerki—Oxus navigable to Kunduz—Partition of Afghanistan—Exports and Imports—‘Kokchi’—Trade Routes—Visitors—Dr. Heyfelder—Reshta.

THE distance from Karakol to Bokhara is about 36 miles, and it took nearly 12 hours. Road there is not, for the ground’s surface is all cut up by caravan tracks ; but a Russian driver never stops for want of a road : the carriage and horses are to him sufficient to undertake and complete a journey.

Monsieur Klem, the Secretary in charge of the

Embassy, called. He is living in a third, or inner court, with his wife and sister and mother-in-law, and invited both Tamamsheff and myself to be his guests during our stay.

Early next morning, horses were provided for a ride through the city, under the guidance of the head dragoman. As ill luck would have it, just as I had mounted, and was giving the sketch-book to the syce, my nag went off with a squeal, and in ten yards I was 'bucked' off on to the flat of my back—a very severe fall, which kept me more or less in pain for the next three weeks.

The bazaar is very large, and very clean. The streets were very full of people; and the square was crowded, for a man was about to be publicly executed in front of the Emir's palace. Sometimes a criminal is thrown from the top of the Minar-i-kalan, a lofty minaret in the middle of the city. In 1832, the mode of punishment was by strangling; but the King of Bokhara said: 'Strangling gives more pain, and the rascally King of Khiva strangles people; and, therefore, out of mercy, I command the heads of evil-doers to be cut off with a common knife.'

Many soldiers returning from drill were among the people, some with breechloaders and some with

old percussion muskets. Their uniform consisted of a sheepskin cap, red Garibaldi jacket, belt, etc., crimson knickerbockers, and big boots. Officers were differently dressed in long frock coats, with epaulets and swords.

I imagine that I am the first Englishman (excepting Dr. Lansdell in 1882) who has been permitted to enter this city since Wolff left it, on August 3, 1844, more than 43 years ago; and it is odd that my first experience of it should be an execution, for to Englishmen Bokhara must always stand connected with the murders of Stoddart and Conolly.

How far back in the past all these things seem to be; and yet it is not so, for, although I never met 'Bokhara Burnes,' still I knew his elder brother, James, the doctor, with whose sons I was at school, and one of whom entered the Royal Engineers.

The news of Burnes's death (November 2, 1841), and of the insurrection at Cabul, is assigned as one of the reasons which caused the Emir, on December 20, 1841, to re-imprison Stoddart, and to confine Conolly with him.

Wolff gives a list of people killed at Bokhara at the instigation of Abdul Samut Khan, the commander-in-chief of Nasr-ullah's forces: (1) Yusuf

Khan, from Scio; (2) Colonel Stoddart; (3) Captain Conolly; (4) a Turkoman from Merv, sent to Bokhara to assist in the escape of Colonel Stoddart; (5) Ephraim, a Jew, from Meshed, who brought letters for Conolly; (6) an Englishman, who passed by the name of Hatta; (7) Captain Wyburd; (8) five Englishmen, executed outside the town of Jehar-Joo; (9) Naselli.

Yusuf was a Greek servant of Conolly's; Jacob, another servant, who had been released from captivity by Conolly at Khokand, said he was at Bokhara when Yusuf (called also Augustine) was led outside the town and had his throat cut; while the narrative of Saaleh Mahomed, commonly called the Akhoonzadah, says that Yusuf and three other prisoners were brought from the citadel and killed. A Hindoo was killed first, and then Yusuf, who told the executioner to sharpen his knife, that he might not suffer pain. He then raised his hand and eyes towards heaven, and his throat was cut. The date given is June 10, 1842.

Stoddart was, in 1835, attached as military secretary to Ellis's Persian Mission. He went to Herat, and in the autumn of 1838 Sir John McNeill sent him from Persia on a diplomatic mission to Bokhara

to conclude a friendly treaty with the Emir, and to obtain the liberty of any Russian prisoners he might find there. On his arrival at Bokhara, Stoddart appears to have acted rather incautiously, for when about to be received in audience, he knocked the Master of the Ceremonies down, and entered the presence of the Emir alone and unattended. Four days after his arrival he was seized, bound, and confined in a subterranean prison. This prison was the Siah Cha, or Black Well, 17 feet deep and 21 feet in diameter, into which criminals were lowered by a rope through a hole in the roof. This horrid dungeon, in which he was confined with two thieves and a murderer, 'swarmed with innumerable ticks and every disgusting species of vermin, which are especially reared to annoy the wretched prisoners; and should this prison by any extraordinary chance be without an inmate, that the vermin might not perish, they are supplied with rations of raw meat.'

On the second day of his imprisonment, Stoddart was forced to embrace Islamism. After two months he was released, and transferred first to the care of the Chief of the Police, and secondly to the palace, under the charge of the head cook. He became

painfully ill with typhus, and finally fell into the hands of that scoundrel Abdul Samut Khan, by whose instrumentality he, nevertheless, managed to communicate with Cabul. Writing from Bokhara, on June 26, 1841, he says : 'A painful three years have passed away without my being able to hear and give any news, and I venture to inquire of my kind friends what they are doing, and to beg a line in reply,' etc. Eleven days later he received his first news by the hand of the Russian Mission.

Captain Arthur Conolly, of the Indian Cavalry, set out from Cabul on September 3, 1840, on his diplomatic mission to Central Asia. He went to Khiva, and thence to Khokand, just at the time that Mahomed Ali Khan was at war with Nasr-ullah. He was granted permission by the Emir, through Stoddart, to visit Bokhara on September 11, 1841, and arrived there, in company with the afore-mentioned Abdul Samut Khan, on November 9, 1841. The Emir at first seemed to have treated him well, for both Stoddart and Conolly had houses assigned to them in the town, with an allowance equivalent to £1 10s. a day ; but on December 2, 1841, they were accused of being spies, and 18 days later, when the news of our disaster at Cabul arrived, they were

imprisoned, this making the fourth term to be suffered by Stoddart.

When the Russian Embassy left Bokhara, on April 17, 1842, both Stoddart and Conolly were alive ; and the last-known written record of Conolly is an entry dated May 26, and of Stoddart, an autograph letter dated May 28, 1842.

From Conolly's letters and entries in his Prayer Book, we have records of the days these two British officers passed in prison, 'in the filthy clothes they had worn for 115 days and nights, with heads and beards uncombed for 5 months.' And if the day of their incarceration is correctly fixed, on December 20, 1841, the time of this unhealthy confinement must have been prolonged for yet another month before they were released by death from all their troubles. They were taken from their prison (it had a court about 20 feet long) to an open square, where, with hands bound, they waited, in the presence of a crowd, while their graves were being made ready. Stoddart was taken first. He knelt down, and his head was cut off with a huge knife. Then Conolly was told to prepare for death, but life was offered him if he would abjure Christianity. He refused, knelt down, and was executed also.

The little Prayer Book was given by a Russian prisoner to General Ignatieff at Bokhara in 1858. 'So one day in 1862—20 years after Arthur Conolly's death—it was left at the door of his sister, Mrs. Macnaghten, in Eaton Place.'

Wolff puts the date of the execution in the early part of 1843, as 11 months (not 20) before his arrival in Bokhara. Kaye gives the date as June 17, 1842, for no letters of a later date than May 28 were received, though the Army of Retribution under Pollock was at Cabul till October 12 in that year; and 'on the morning of September 16 Major Rawlinson met one of Stoddart's servants near Cabul, and the man informed him that he had come from Bokhara, where his master had been executed shortly before his departure.' Vambéry shows that Ferrier's date of June 24 is wrong, agrees with Kaye, and concludes his account of the execution with these words: 'Thus the first ambassadors of the Christian West who had entered Trans-Oxania since the time of Clavijo met their end. We may call them the first apostles of a new world, for whatever may have been the motives which led the British Government to interfere in the affairs of the States beyond the Oxus, it was certainly no lust of

conquest that dictated that policy, but a humane endeavour towards the civilization of Central Asia, in which was sought the best rampart against the attacks of a northern rival.'

I can find no further record of the Turkoman, or of Ephraim the Jew, or of the Englishman Hatta. As regards Captain Wyburd, Wolff says that his name was Wyburt, and that he was murdered at Bokhara by order of the Ameer 'before the arrival of Colonel Stoddart;' that when he was offered service and refused it, his head was cut off and thrown into a well. Grover, however, who is far more circumstantial, says that Wyburd left Teheran for Astrabad in 1835, on a secret mission to Khiva, under the name of Haji Ahmet Arab, and that nothing had been heard of him in 1838. It was supposed that he had been murdered by a Yamook Turkoman chief. The confusion regarding the circumstances of Wyburt's mission may, in all likelihood, have arisen during the transfer of the British Mission at the Court of Persia from the East Indian Company to the Foreign Office, which was shortly afterwards accomplished, in November, 1835.

Jehar-Joo, where the five Englishmen are said to have been executed, is Chardjui, on the Oxus.

No. 9 mentioned by Wolff was the Cavalier Pietro Naselli Flores, a Sicilian; and, according to Vambery, he 'was probably attracted to the East by the splendid career of his countryman, General Avitabile, in the service of Rendjit Singh. Flores came to Bokhara some time after the execution of the English, and would place his military science at the disposal of the Emir. As he had, however, no acquaintance with the languages of the country, and the treacherous Abdul Samed Khan, a great enemy of Europeans, feared to find in him a rival, he was arrested as a spy within a week of his arrival, and executed.'

Both Wolff and Vambery mention another Italian, by name Giovanni Orlando, who came from Constantinople to Khokand, and thence to Bokhara. 'For some time he was employed as Court watchmaker; but on one occasion, the machinery of the tyrant's watch having come to a standstill, Orlando was summoned to the palace, and, by way of punishment, the machinery of his life was brought to a standstill by the executioner.'

The cruelties and punishments exercised by Nasr ullah in Bokhara are not dissimilar to those enforced by another Mussulman tyrant, Tippoo Sultan, at

Seringapatam some 60 years previously. The circumstances, however, were different. In the one case, the sufferers were, a few 'innocent travellers' in a country which was believed to be generally inaccessible; and in the other, many 'prisoners of war' on the Mysore plateau, where British troops had already taken the field. In Bokhara there was an occasional respite, with good treatment, to be followed by public executions; while in Mysore the confinement was constant, and in chains, on a miserable pittance, until peace brought freedom to those who had not died from disease or poison.

Stoddart was to all intents imprisoned for $3\frac{1}{2}$ years, and the Central Asian sufferers may be counted on the fingers; but Tippoo's prisoners were confined in fortresses during a like period, the number of those restored at Bangalore in May, 1784, amounting to as many as 1,100 Europeans and 2,500 Sepoys.

Throughout the city, on all the minarets and mosques, storks build their nests. Wolff was assured by the Chief Rabbi that Bokhara is the 'Habor,' and Balkh the 'Halah' of 2 Kings xvii. 6; who added that 'the Jews, both of Balkh and Samarcand, assert that Turkestan is the land of Nod,

and Balkh where Nod "once stood." Bokhara became a vassal State of Russia on the fall of Samarcand in May, 1868.

Russian paper roubles are current everywhere, and there are rows of shroffs in the bazaar, dealing, apparently, in rolls of this money; there is a local currency in silver and copper, but kopecks are readily taken. The values would seem to be :

3 poolis (local) = 1 kopeck (Russian).

16 poolis (local) = 1 mireh or karatinga (local), a thin copper-silver coin, about the size of a half-penny.

1 tinga (local) = 25 kopecks = 5½d. about.

One Persian piece of 3 kráns in gold was valued at 75 kopecks, whereas it was really worth 33 per cent. more; and an English sovereign was at first priced at 9¼ roubles, and, secondly, after weighing, at 10 roubles, whereas the ordinary price is 11 roubles. The shroff said the paper had a higher value than the metal, 'because he could send it away.' However, the Russian paper rouble is current in Bokhara, and the shopkeepers do not care to take anything else. Melons were selling at from 1 to 7 kopecks a piece, ordinary native swords at 2½ roubles (4s. 6d.), Damascened blades at

11 roubles (₨1). The caravanserai was full of iron from Russia—priced at 3 roubles a pood (about $7\frac{1}{3}$ farthings a pound).

The Emir of Bokhara contributes 9,000 roubles for maintenance of the telegraph, in addition to 3,000 towards salaries, and gets 10 kopecks a word tax; he loses on the transaction. The rate for a telegram to London is at $88\frac{1}{2}$ kopecks a word, of which the Emir gets $7\frac{1}{2}$ kopecks. The price to India is 2 roubles 20 kopecks a word, and the Emir gets $7\frac{1}{2}$ kopecks. A message for England goes through Samarcand, Khojend, Tashkend, Orenburg, Moscow, to London; while for India it would go from Moscow to Odessa, and thence through Tiflis, Teheran, etc.

A telegram despatched from Bokhara at 9 a.m. on October 16 was received at 7 p.m. in London; allowing four minutes to a degree, the time of transit was $12\frac{1}{3}$ hours. Another telegram to India was received at Teheran for transmission on the same day. The distance from Bokhara to India, as the crow flies, is under 600 statute miles ($69\cdot16=1$ degree), or rather less than from Bombay to Jabalpur—616 miles.

In 1887 there was no telegraph from Bokhara to

Chardjui, but only the Post ; so that a message to Chardjui or Merv, or any station on the Trans-Caspian Railway, has to go *viâ* Moscow to Tiflis, and thence to Krasnovodsk. This will soon be altered on the completion of the railway to Bokhara.

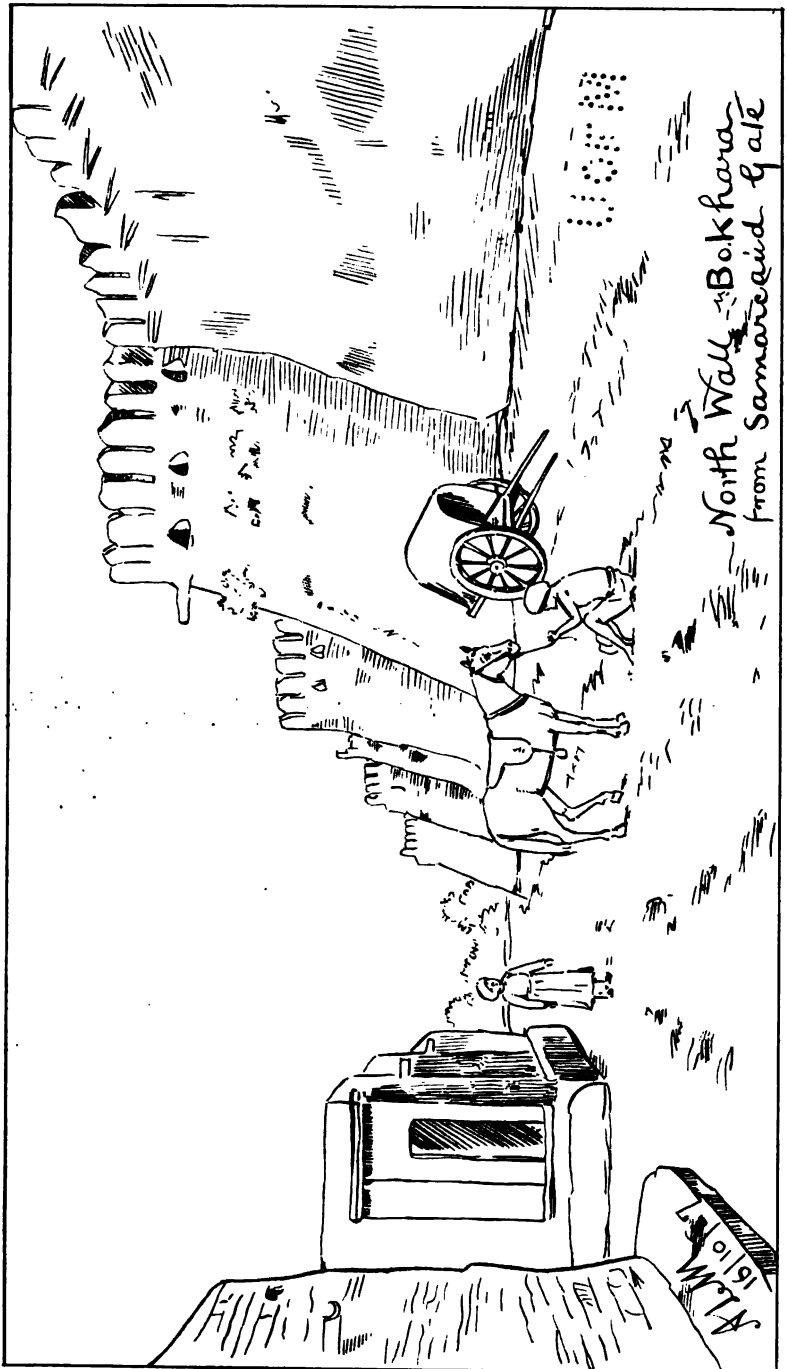
The Emir's younger brother is a cornet in the Russian cavalry, and the story is that, on his visit here last year, his head was shaved as soon as he reached the frontier, when a robe of honour and a turban were given him. His mother was sent to look after him, and also a wife to console him during the time of his leave. The young soldier did not like the change. Another story says that the grandfather of the Beg of Chardjui bought a slave girl for £7,000 at Constantinople, for presentation to the Emir. Also that the Emir is presented with a new wife once a month.

The Emir of Bokhara, Seid Abdul Ahad, who succeeded on November 12, 1885, was, at the time of our visit, staying at some gardens about 60 miles from the city. He is said to be thirty-five years old, and to have been educated in Russia. The Uzbegs of Turkish extraction are the dominant race, but the Aryan Tajiks are the aboriginal inhabi-

tants of the country. Slavery has been abolished through the influence of Russia.

The mosque of Dewán Begi (some photographs of the city were given me by M. Pousinousky, the officer in charge of the telegraph at Bokhara) is a great place of resort. There is a large tank, with stone steps leading to it. There are houses on the bank at one side, and houses somewhat further removed on the other sides. The place is alive with barbers, fruit and tea sellers ; and here by the tank, with clouds of doves flying about, one may see men of all classes and nationalities sitting in groups eating melons and grapes, enjoying the shade of the mulberry-trees, and talking at their ease—a spot with its surroundings, overlooked by the big mosque, forming in its hum of busy life as great a contrast to the fatigue, discomfort and solitude of the desert as it is possible to conceive.

The walls of the fort are 11 versts (7 miles) round, and in them there are eleven gates. The profile is about 36 feet high, built of well-trodden clay, with an indented parapet flanked by semicircular bastions of the same material. At many places inside, the walls were in need of heavy repair ; but I made no attempt to mount the walls, as M. Klem



North Wall of Bokhara
from Samarcand Gate

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had told me it was against orders for anyone to ascend, lest the privacy of the gardens should be disturbed. The profile may be taken at 30 feet high, 12 feet wide at bottom, and 8 feet at top, on which a parapet wall, 6 feet high, is placed.

Just outside the Samarcand Gate I met the sub-agent of the Foreign Mission ; he had just arrived from Chardjui in an 'arbah.' It had taken him five days to do 70 miles from the river, and he had to pay 21 roubles for the cart. He was travelling with his mother, an old lady, as far as Tashkend. An arbah is a platform cart on high wheels, with a mat roof open in front and behind. The shafts run straight out, and the driver rides perched up on the horse with his legs on the shafts.

The Emir has 25,000 troops, and about 4,000 of these are in Bokhara. They are clad like Russians : artillery, green ; infantry, red ; cavalry, white. There are no Russian troops in Bokhara, and Bokhara pays no subsidy to Russia. On Sunday, October 16, Tamamsheff and I, with the head dragoman and some others, witnessed a parade of the troops on an open space surrounded by gardens to the north of the city, outside the Samarcand Gate. The Emir inspects his soldiers from a

building in a garden which overlooks the drill-ground.

The troops were drawn up in close columns by companies, the band playing fifes and drums. They advanced, flags flying, wheeled to the left in four lines, and again to the left in four lines; no very particular attention being paid either to dressing or distance. Short quick step—then by right of companies forming four lines to the left, and these lines formed into columns to their left (original right), lastly wheeling to the left by sections from right of companies. The manœuvres were ordered by bugle sound, and the company commanders gave words of command in Russian. The uniform consists of a black sheepskin cap, black or red single-breasted coat with red piping, red shoulder-knot with Russian numbers, broad waistbelt with pouch, crimson trousers, and high boots. The head shaved, small whiskers and moustache. Towards the close, the troops were massed in twenty columns, of four companies each, preparatory to a march past, and, as far as could be seen, ten of the columns were in black and ten in red—the average strength of each company being forty-four as counted. The strength on parade would, therefore, be $20 \times 4 \times 44 = 3,520$

infantry, and if to these 400 is added for the artillery, and 200 for the cavalry, the total will be rather more than 4,000. Each column of four companies, as it passed the commanding officer, cheered in the manner of salute, and, the march being continued, the companies finally formed outwards into one large square round the parade-ground, front rank kneeling to fire. The troops then went through the manual and platoon. The movements were very smartly executed. The officer commanding stood on a raised platform at one side attended by his buglers; and immediately a bugle sounded, the company commanders repeated the orders in Russian without hesitation. Moreover, the men seemed to understand the bugle; and if there was a doubt or hesitation among the rank and file, it was soon removed by the cane of the drill-instructor. The parade-ground was pretty well filled by the troops manœuvring. The movements, extending over three-quarters of an hour when once begun, were continued to the end without any halt, promptly, smartly, and without any noise or fuss. The officers, judging by their colour and dress, were all Bokhariots, or, perhaps, more correctly natives of Central Asia, while the soldiers themselves were dark-skinned men, hard,

rough, and ready. As soon as parade was over, the dispersion was immediate. Some companies marched off for duty elsewhere under their officers, who were now riding on small horses ; but the bulk of the parade vanished, and in many instances rifles were handed over to women, while the soldiers, two and two on donkeys, set off for the bazaar or their homes.

The rainfall of Bokhara is about three inches a year ; and although the Zarafshan is a minor stream, yet there is water everywhere in the plain within a few feet of the surface. There can be no doubt upon this point, considering the fertility of the soil. The population of Bokhara (roughly about 70,000 square miles) is said to be $2\frac{1}{2}$ millions (Mysore has 25,000 square miles, and $4\frac{1}{4}$ millions of people). Of these there are 150,000 within the city walls. Whitaker says 70,000 ; and that Bokhara, inclusive of its tributary territories of Shignan, Roshan, and Karategin, has an area of 92,300 square miles, with a population of 2,130,000. The starlight nights are wonderfully clear, and all night long the guards are continually tapping drums.

'The watchmen of the camp, who in their rounds
Had paus'd and e'en forgot the punctual sounds
Of the small drum with which they count the night.'

Burders, also, in his 'Oriental Customs,' mentions that the parts of the night are made known, as well by instruments of music as by the rounds of the watchmen with cries and small drums.

Bokhara is said to be 92 sajénes (644 feet) above the Black Sea, and, if so, it will be 730 feet above the Caspian.

Some figures, which were taken off a Russian map, are as under :

Merv, 860; Chardjui, 510 (?); Karakum, 550; Bokhara, 640; Kerki, 640; Kilif, 730; Kunduz, 1,030; Samarcand, 2,200; Narazim, 545. If these correctly give the heights, the fall of the Amu Daria for 130 miles below Kerki would average about 9 inches a mile; and between Kilif and Chardjui about 190 miles, it would average $1\frac{1}{8}$ foot a mile. These must all be checked, because one of the engineers persisted in stating that both Merv and Chardjui were both *below the level of the Caspian*. The Aral is entered as being 243 feet above the Caspian, and, if this is correct, Chardjui must be higher still, and probably 510, as entered above.

I found afterwards, on referring to another map, that many of the heights correspond with our own figures, while others varied, notably: Merv, 1,900;

Kunduz, 500. The elevations of some more sites are now added: Katta Kurghan, 1,370; Zi-ai-udin, 1,170; Kwaja Ali (near Aral), 217; Aral Sea, 158 above mean sea-level; Askabad, 2,000; Kizil Arvat, 191; Caspian Sea, 85 below Black Sea; Jizak, 1,200; Chinaz, 1,000; Tashkend, 1,400; Uratupa, 2,700; Khand, 1,300; Marghilan, 1,400; Andizan, 1,512; Chust, 2,100; Osh, 3,040.

The level of the Caspian Sea is given in the map at 86 feet below that of the Black Sea, while the surface of the Aral, another inland sea, about 250 miles to the east, is shown at nearly 250 above it. These points are of interest in connection with the idea that a great fresh-water inland sea once covered the plains of the Lower Danube and of Southern Russia, and included the basins of the Black, the Caspian and Aral Seas, and their neighbouring low-lying steppes; the subsequent separation of the three basins being explained 'by the rupture of the straits of the Bosphorus, which there are grounds for attributing to a volcanic commotion at the mouth of this opening in the Black Sea, and which caused the cataclysm, about 1529 B.C., known as the deluge of Deucalion'; while the arguments submitted by Major Herbert Wood, R.E., in his volume, 'The

Shores of Lake Aral,' indicate 'a very strong probability that the three basins of the Euxine, the Caspian and the Aral could be connected again in the water-spread of an Asiatic Mediterranean, which would pass its surplus-water to the north merely by closing the Bosphorus to a height of 220 feet.'

If the closure was made, the waters of the Black Sea, which now flow to the Mediterranean, would escape by the Manytsch into the Caspian (between Astrakhan and Petrofsk), and, after having filled it up, would pass by the Valley of the Emba to Lake Aral, and from Balkan Bay by the Uzboy channel of the old Oxus, the eventual overflow of the Aral Sea proper passing north over a ridge about latitude 51° (near Fort Orsk), and thence along the eastern foot of the Ural Chain as far as the Frozen Ocean. It has been established that the fauna of the Aral, the Caspian and Euxine are almost identical.

The railway-station will be at 14 versts south of the town (near which also will be the new Embassy, etc.). The reasons for selecting this site for a Russian settlement chiefly were to avoid interference with irrigation channels, to preserve the Emir's numerous gardens, and to save the price of the land.

The Russians own Turkomania, but not Bokhara. The railway has paid for its land.

Good land near Bokhara is priced at 1,000 roubles for 1 disatine ; and if this measure of surface is correctly represented by 60 x 40 sajénes, the rate will run out at about £33 an acre.

The stations beyond the Amu Daria will be Elyat, Karakol, Ek-i-tut, Bokhara, Tuja Rabat, Kusan Mezar, Oskatch, Melik, Kerminéh, Ziai-eddin, Mir, Sara Bulak, Katta Kurgan, Arilley, Arab Khana, Samarcand, where the station is half a mile from the fort. As 300 versts (200 miles) of the railway are in the Province of Bokhara, the western boundary of Samarcand will be probably between the stations of Sara Bulak and Katta Kurgan.

Kerki was spoken of as the 'frontier town,' and it was positively stated that no branch line was being or was about to be made from the present terminus either north or south along the river. Without in any way wishing to dispute this information as given me in October, 1877, I will only record the fact that the papers two months afterwards reported that many labourers were at work southwards along the Oxus, between Chardjui and

Oghri-tepe, with a view to complete a line to Kerki by the end of January, and later on it was reported that railway connection had been completed for about half the distance (60 miles), while the force at Kerki had been largely augmented, with a full complement of stores and material. It was also said that the Oxus was navigable 1,000 kilometres (600 miles) past Monkous (?) and Kilif by steamers with $2\frac{1}{2}$ feet draught. By Monkous, Kunduz must have been meant, and the distance would probably be split up into the following sections, viz. : Khiva to Chardjui, 250 ; thence to Kerki, 120 ; and on to Kunduz, 250 ; giving a total of 620 miles.

If so, whether Russia is endeavouring to monopolize the right to navigate the Oxus or not, a very vigorous military *cum* commercial action on her part may shortly be expected in the upper waters of this river, which bounds Afghanistan on the north, within 200 miles of its capital.

When I say 'may shortly be expected,' I do not mean that Russian merchants have not entered and settled at Cabul, for it is more than probable that the Armenians of the Caucasus have already done so, just as they, as Russian subjects, have, it is said, settled at Herat and Ispahan.

If England depends on Afghanistan, or accepts the responsibility of her actions, she should have her own representative in this neighbourhood, that there may be no doubt as to facts. The partition of Afghanistan between Russia and England was openly spoken of, and there can be but little doubt but that sooner or later, either through Bokhara or by dissensions among the tribes, the severance of Afghan Turkestan from Cabul will become an accomplished fact.

Petroffsky speaks of Bokhara bazaar as five times that of Tashkend, and estimates its annual transactions at 4 millions sterling. Russian subjects can reside within the city or in the province for the purposes of trade under the protection of the Emir. They may acquire houses and land, and may build serais for their caravans, which are allowed to pass without hindrance or taxation. The same liberty exists in Khiva.

The only merchandise Bokhara sends to India is raw silk, and then only 150 camel loads, amounting to 2,100 poods (nearly 34 tons), the price of every pood in Bokhara being 200 roubles (10s. per lb.).

India sends to Bokhara tea, which is known as Indian tea or green tea, and called 'Kokchi,' in

distinction to the China tea, which is known as black tea or *thé de famille*, for consumption by rich folk. 'Kokchi' is drunk by all the poorer people in Turkestan. The trade at present amounts to 70,000 poods (1,125 tons), and its price in the bazaar varies from 1 to 2½ roubles (1s. 10d. to 4s. 6d.) per lb. As soon as the Hindus in Bokhara have disposed of their consignments, they hand the money over to Jews, who remit it to Moscow, and thence to India by telegraph. India also sends the following, viz. :

Indigo, amounting to 18,000 poods (289 tons), and this will sell at 800,000 roubles the lot (2s. 3d. per lb.).

'Dacca' or muslin, 700 pieces, varying in length from 12 to 24 arshin (20 to 40 feet).

'Drugs,' 800 poods (say 13 tons), including opium.

Two hundred and fifty shawls from Lahore, 50 Cashmir shawls, and 300 pieces of Indian kinkhab.

The above may be accepted as correct, for they were given to me by M. Klem, who was most kind and attentive to me during my stay at the Embassy.

The ordinary route is from Pesháwar *viâ* Cabul

to Kilif, where the loads are changed on to Bokhara camels for transport to Bokhara. It is said that the Amir of Cabul has now put a higher tax on these kafilas, because the camels return without loads, and this, added to the disturbances of late, has diverted the trade, which now goes from India by boat to Bandar Abbas, the transport through Persia being by kafila to Meshed and Herat, and thence by Maimene and Andkoi to Bokhara. This route, however, is an old-established one; it was adopted originally to avoid the Turkomans, and now adhered to, to avoid Russian taxes.

Caravans from India pay duty at Amu Daria, Tashkurgan, and Bokhara, at which place it is $2\frac{1}{2}$ per cent. *ad valorem*, the rate considered just by Mohamedan law.

Bokhara also exports a great quantity of cotton to Russia. The staple, however, is said not to be long enough, and merchants are now settling at Chardjui to grow American cotton. The country produces corn, fruit, silk, tobacco and hemp. There are good breeds of goats, sheep, horses and camels, while gold, salt, alum and sulphur are among its minerals. By the Carrying Company cotton goes in 70 days from Bokhara to Moscow for 1·60 roubles per pood.

During our stay in Bokhara, besides the members of M. Klem's household, I had the pleasure to meet Comte Aymar Pluvinel and M. Henri Lorin, who were returning from Samarcand, the Russian engineer Jugovitch, and Dr. Heyfelder, the residency surgeon. Dr. Heyfelder was with Skoboleff at Geok Tepe, and I have spent many pleasant half hours listening to his tales of the fights with the Turkomans. He is at present busily engaged in testing water in glass tubes of gelatine for 'reshta,' the guinea-worm (*filaria medinensis*), and known in India as 'naru.' He related how an officer had taken water to drink at Bokhara, and how at Tashkend 9 months afterwards his skin broke out in places with no less than 30 reshtas. Also that an old man in Bokhara, who had been in the city for 40 years, has a reshta every year. Apparently it does not trouble him, for he simply awaits the development, and then unwinds it, fancying himself better-looking after each visitation.

Dr. Moore, of Bombay, shows that the fiery serpents of the Israelites are supposed to have been 'dranunculi;' that males are not known to exist; that the young are produced by a non-sexual process; that but little is known of the life-cycle or

of the manner in which the worm enters the system, and that the period of incubation varies probably from 1 to 12 months. The guinea-worm is common in the semi-deserts of Marwar and Bickaneer, where water is many hundreds of feet below the surface.

CHAPTER XIII.

THE RETURN FROM BOKHARA TO BAKU.

A 'Britscka'—Caravanserai—Oxus Boats—Jugovitch's Kibitkas—Plate-laying—Progress—Climate—A Working Train—A Material Train—Military Railway Corps—Effective Strength—River-steamers—Navigation—The Oxus—The Uzboy—River Deposits—Igdy Wells—The Jaxartes—The Aral Sea—Merv Bazaar—Slaves—Alikanoff—M. Rodzievitch—Postal Inquisitions—Trans-Caspian Railway, a great Military Work—Traffic Rates—Military Transport—The Siberian Railway—Russian Loans—Kaye's Lives—Antagonism—Opinions of Burnes, Conolly, Todd and Sausserman—Central Asian Question—Altered Conditions—A Caspian Steamer—Abstract of Route, Time and Cost.

ON October 17, Monday, Tamamsheff and I commenced our return from Bokhara at 9.30 a.m. in a 'britscka,' a basket of wicker-work on long poles supported by front and hind frames. This time the centre of gravity was kept as low down as possible, to avoid an upset.

We reached Ek-i-tut at 1 p.m., and found great

preparations for General Annenkoff's reception on his way to Samarcand. The driver went straight to the Beg's at Karakol ; this was a mistake, as the changing-station is on the near side of the river, 2 miles lower down, where M. le Brun is erecting the bridge (105 feet span, 27 feet clear, but very little water). After some tea, we started again, lost our way in the dark, were very nearly upset, and finally reached Khoja Daulat at 11 p.m. The caravanserai was full. Such a noise and clatter, such a tea-drinking and smoking !

We secured a corner of one of the raised platforms, and with our cloaks round us we took what rest we could. It was rather cold ; travellers were coming in all through the night, and with the first dawn, at 3 a.m., the cocks began to crow. After a most soothing cup of tea, with a bit of stale bread, we got some idea of the caravanserai in the early morning, crammed inside and out with recumbent figures rolled up in razais and rugs. We started again on horseback, with regular guides, at 7 a.m. ; crossed the first sands by 9 a.m. on to the salt plain, and then across the second sands to the kikitkas of the Cossack outpost by 11 a.m. These sands are dangerous, for there is nothing to mark the way.

One officer with a Cossack guide lost the track, and took 12 hours before he got across.

Fortunately we met General Annenkoff, who was riding with his staff on inspection to Samarcand. I was very pleased to have an opportunity of thanking him for all his kindness, and to explain what a delightful visit I had had. The General mentioned that Ayub was making headway in Afghanistan.

After breakfast in the kibitka, we rode to the river-bank, met the boat, a cutter with nine oars, manned by Cossacks, who pulled us across in three-quarters of an hour. Rails, spars and materials are carried across the river in large flat-bottomed open boats. These boats are also on the Murghab at Merv, and probably they are of the same pattern as those which, I understand, were carried in pieces across Central Asia on camels over two thousand years ago by Alexander the Great. They are very similar to the large open cargo-boats of the Indus, which again in all probability are of the same model as those which Alexander ordered to be made after the battle with Porus on the Hydaspes (Jhelum), when the Macedonians refused to cross the Ganges.

We put up in one of the kibitkas which formed part of Engineer Jugovitch's camp-equipage. He

and his wife were living in the house, and I saw a good deal of them, as Tamamsheff went to bed and refused to move for 24 hours. I have already acknowledged the valuable explanations he afforded me of the difficulties experienced in laying the railway and keeping it clear of shifting sand. He gave me photographs, he drew diagrams, he talked of rates and engineering details, while his charming wife kept us well supplied with hot and sweetened tea.

At the river-crossing, the earthwork was being done by diggers from side-trenches, and then carried by porters on a hand-board to form the bank, the amount so carried by two men not being equal to what one Wuddar woman carries in India. The soldiers' tents are of very thin material, very open, and supported at the four corners on poles. Helio-graph at work across the river.

In making the railway, the earthwork, etc., up to formation is done by local labour under petty contractors, who work to a schedule of rates. The ordinary rate for earthwork is $1\frac{1}{2}$ to 2 roubles per cubic sajéne (about $9\frac{2}{3}$ d. per 100 cubic feet, or $2\frac{2}{3}$ d. per cubic yard, rather more than was given in Mysore, where the contractor's rate was 5 per cent.

less than $2\frac{1}{2}$ annas per cubic yard). The highest rate paid for stone, etc., was 3'90 roubles. A Russian labourer would earn about 2s. 6d. a day, the Persians and the Tekes about 7d. each, and the Bokhariots from 5d. to 6d. daily.

In laying the permanent way, railway military battalions are employed. As soon as the earthwork is ready, the Decauville tram-rails are laid ahead. If the road is through sand-hills, the tram is laid on formation, but if it is through ordinary country, the tram-rails are laid on the side width.

The sleepers and small stores are all carried forward by the tram, and everything is then put into its place by local labour under the supervision of the military. Every sleeper has its spikes beside it; the fish bolts and nuts are at site, and the soldiers are also ready in their places. The material-train comes up to the head of the line, and discharges its load of rails by a simple apparatus on to broad-gauge trollies (from 12 to 16 on each), to be run forward on the main line. A trolley advances: off go two rails; these are placed in position, gauged, jointed, and spiked at the ends. The trolley is pushed forward until it has moved over and got rid of its load, and when empty it is simply removed from the line. Other trolley loads are

treated in the same way, and as the material advances, so does space become available for men to work ; gaugers adjust the rails, hammermen drive the spikes, fitters fish the joints, and the road is left to the packers, who have everything safe before the next material-train arrives at the advanced rail head. An ordinary rate of platelaying for the engine and train to pass over daily is 4 versts ($2\frac{2}{3}$ miles). The gangs have done nearly 4 miles for some days together, and in the earlier stage of the work General Annenkoff managed to make and lay 800 versts of line in $1\frac{1}{2}$ years (say a mile a day for 500 days).

This is as it was told to me ; but from my notes it would appear that out of 665 miles completed, 95, to Agtcha Kuima, were laid during the military expedition of 1880-81, and 67 more, to Kizil Arvat, were finished at the close of that expedition. The further extension of 137 miles was undertaken in 1884-85, and the balance, 366 miles, was begun and finished in 275 days, ending November 30, 1886.

Of course the men underwent the usual hardships. The climate is not of the best, and there is the drifting sand. In the desert the thermometer constantly stood at 57° Réaumur (160° Fahr.). The air, however, is very dry and bearable ; but, as one

of their smartest men described it, the 'candles used to "thaw" in the candlesticks.'

There was also a 'working train' which advanced with the line. It consisted of from 34 to 45 carriages, viz. : 4 double-storied vehicles for officers, 1 for officers' mess, 1 officers' kitchen, 3 kitchens for soldiers (3 companies of 200 each), 1 hospital, 1 telegraph, 1 forge, 1 provisions, 1 reserve P.W.M. stores, 20 double-storied sleeping barracks for the men (600 soldiers and 300 labourers)—each barrack being 21 feet long, 9 feet wide, and holding 25 men on each floor. The men are divided into two parties, and each party works 6 hours, the time being increased to 10 hours at, or near, stations and sidings. Every evening a 'material train,' carrying $1\frac{1}{3}$ miles of rails in 45 waggons, arrives, and unloads behind the 'working train.'

A military railway corps was first formed in the war of 1870, when the Germans mustered six battalions, and from this time permanent military railway cadres were introduced into the German and Russian armies.

The Germans enrol mechanics, railway employés, etc., and give them a training at the head-quarters of their Administrative Railway Regiment. The

Russians, on the other hand, send their *personnel* to ordinary line battalions for training for 18 months, after which they join one of the four railway battalions at St. Petersburg, Warsaw, Kiev, or Riga. After a short training at either of these places, they, as reservists, go back to their former vocations. In this way very small cadres are kept up until a battalion is required for work.

The strength of each Russian railway battalion during peace is 25 officers (5 of whom are employed on State railways), 3 classed officials, 625 non-commissioned officers and men, 10 draught horses, and 42 transport vehicles. The battalion comprises 5 companies, viz. : 2 for construction, 2 for working, and 1 cadre for formation of reserve companies on mobilisation in war of 4 companies. The effective strength of a company during peace is 123 non-commissioned officers and men, including 8 or 10 men 'without arms,' as orderlies or clerks. A cadre company has 101 non-commissioned officers and men, including 8 without arms. Excluding the 3 Trans-Caspian railway battalions, Russia has 4 others, counting in peace 2,372 non-commissioned officers and men, which in war can be quickly raised to 8,320, excluding officers.

At Amu Daria two steamers and two barges were nearly ready to ply between Khiva (250 miles) to the north, and Kerki (120 miles) to the south. It was said that the channels were never more than 20 feet deep and never less than 4, while the rate of the stream in floods varied from 6 to 10 versts an hour (versts per hour = feet per second), and that in the cold weather it ran almost 3 feet a second. The speed of the steamer was put at 12 versts an hour, and with the barge in tow, 10 versts. So that against a 10-versts stream she could, with a barge, almost hold her own.

The capacity of one steamer and its barge is about 250 tons of cargo (with 'astatki' as fuel sufficient for 5 days), or a battalion of 800 men complete. Diagonal compound engines, 500 horsepower indicated. The steamers were afloat, and their boilers were just going in. The consumption of fuel was given in the following proportions: 1 naptha = 6 of fir = $4\frac{1}{2}$ pine = 4 of tamarisk. A barge will carry 10,000 poods (160 tons) on a 2-foot draught and 15,000 poods on a 3-foot draught.

The steamers are too large, and the plan of towing the barges will never answer. The barges are far too large, and too lightly built. The plan of

endeavouring to counteract the danger of an overrun by rigging out 'apparatus' which shall arrest the way of the barge is not sensible, for it will result in one of two things—either the gear will break and the apparatus will be lost, or, if the tackle holds, a great piece will be torn out of the barge. No arrangement for pilots has yet been made. The exclusive right of navigating this river is probably reserved by Russia.

Before leaving the bank of the Oxus, I will add a few notes from Wood's 'Shores of Lake Aral.' The Amu Daria, or Jihon, or Oxus, has its source in Lake Victoria, about 14,000 feet above the sea, on the Pamir plateau. Its length is about 1,500 miles, and its discharge at Kodjeili, on August 3, 1874, in high flood, was 143,000 cubic feet a second, and in low flood on March 22, 1875, 35,000 cubic feet a second, half of which was diverted for irrigation, and half entered Lake Aral.

The Uzboy is described as presenting appearances of a great ruined ravine, and though it has at times carried a portion of the Oxus' stream to the Caspian, it should, perhaps, be more properly regarded as the channel of that river into which the southern overflow from the Aral finally resolves

itself. Early in the sixteenth century some of the Amu waters flowed by the Kunya-dariya-lik into the Uzboy Channel, and so past Igdy Wells to the Caspian.

The waters of the Oxus and its affluents have been continually employed in fertilising the soil since the dimmest days of antiquity. At present a volume of 2,000 cubic yards per second is carried by the canals, derived from the stream of the Amu Daria, over the cultivated surface of the Khivan Khanate, and if $\frac{1}{1000}$ th part is solid arenaceous matter (the Ganges carries $\frac{1}{800}$ th part, the Indus $\frac{1}{800}$ th), then in every second of time 2 cubic yards of sand are distributed over the oasis of Khiva, and for the whole period of 200 days during which the canals are open, the quantity of sand will be 34,560,000 cubic yards, equal to a yearly deposit of sand to a depth of about 11 yards upon one square mile of ground. From this there are grounds for asserting that the great sandy wastes east of the Caspian have actually been caused by the distribution of the Oxus' waters over the surface of the country.

The report of the Turkoman tribes who wander in the desert shows that an ancient river-bed runs

westward from near Chardjui to Igdy Wells. At some still unknown point a branch turns southwards towards Kizil Arvat, and is said to pass through the defile between the Kopetdagh and the Kurendagh Hills, and so by the Atrek to the south-east corner of the Caspian.

The Syr Daria, or the Sihon, or Jaxartes, rises in the high valleys of Russian territory to the south of Lake Issikul. Its total length may be 1,450 miles. The question whether this river formerly flowed directly to the west across the Kizil Kum desert, and has changed its course just below Khojend, is a highly important one. Wood gives the probable discharge at 91,666 cubic feet a second, of which less than one-half enters Lake Aral. According to Strabo, in the first century of our era, the mouth of the Jaxartes was in the Caspian (Mertvy Kulduk or Dead Bay ?), 350 miles north of the old Oxus' mouth, in Balkan Bay.

The Aral Sea has an area of 24,500 square miles, and its water contains only 13 of salt in every 1,000 liquid parts (Atlantic has 42). Its greatest depth is 37 fathoms.

We left Amu Daria at 1.30 p.m., and reached

Merv on the morning of the 20th. The railway telegrams from Merv to Askhabad, 27 words, cost $1\frac{1}{2}$ roubles—that is, 5 kopecks a word and 15 kopecks tax; and also from Merv to Tiflis, 10 words for 1.15 roubles, or 10 kopecks a word, and 15 kopecks tax.

After breakfast, I walked with Denisoff and Tamamsheff to the market held in Merv fort. There must have been some 3,000 or 4,000 Tekes riding and walking about, besides those selling and hawking goods. Pheasants were selling at 20 kopecks, a fine one alive at 80 kopecks, large sheep-skin caps at 30 kopecks; silver ornaments, large leather shoes at 1 rouble; tea, raisins, drugs, iron, skins, mats, sugar, tobacco, dried fruits, metals, water-bottles, carpets, chintzes, cotton, etc.

Business was conducted very much as it is at any of the fairs in India, and differs pretty considerably from the practice when Conolly was at this market in 1840. It was then full of slaves of both sexes and all ages exposed for sale, and intending purchasers were going about from one group to another 'handling them like cattle.'

Vambery says that the inhabitants of these steppes will adhere to their nomadic life; but, seeing them

now, one would think that regular wage for regular work will bring many to the condition of settlers along the railway, and that security of their earnings will fix more as traders in the towns. Emigrants from the Caucasus and Southern Russia are already settling on land which is given to them on very advantageous terms. Possibly for years to come portions of the tribes will wander in search of pasture for their flocks, but the process of absorption, once begun, is rapid in its progress.

The mean barometrical reading at Merv = 741.4 millimètres = 29.188 English.

The sanitation of Merv is not sufficiently attended to. The system is by cesspools, which have to be cleared out periodically by contractors, to whom the work is let; apparently the contractors are not kept up to their work.

I again saw Alikanoff, and had a long talk with him at his house; he gave me his picture, and wrote my name and his own on it. He produced the map of Afghanistan, and said that Ayub had got to Ghuzni, and was now with the Ghilzai chiefs. I doubted it, and said he could not have got as far, nor would he have passed by Kandahar without taking it. The general idea among the officers here

is that the Amir Abdul Rahman has ruled long enough, that a change is needed, and that Ayub is the man to succeed him.

Next day we reached Askhabad at 8 a.m., and left the train at Asunada on the 22nd, to find no steamer ready. Dined and slept on board the *Kasvin*, a steamer bound for Krasnovodsk.

About 100 time-expired men came with us from Askhabad. They were returning to Russia, having served six years. Had a capital walk with M. Rodzievitch, the agent of the *Moscow Gazette*, all round the depôt. I met him first at Chardjui, and he told me that he had telegraphed on the 12th to Moscow that I was passing along the line. I did not telegraph myself till I reached Bokhara on October 14.

On handing in at the post-office at Asunada a book properly packed and stamped for despatch, the clerk took it, cut the string, unpacked and opened the book.

‘What’s the book about? Is it in French or English?’

‘The book is in English—all about the Russians at the Gates of Herat. Be so good as to repack and despatch it to Merv as directed.’

‘ Oh! that’s of no consequence : we have a censorship of the press here ;’ and he showed me a number of newspapers ‘ blacked,’ and many with parts cut clean out.

I asked if such a game was worth the candle, and got him to redirect and post the book.

The Trans-Caspian railway exists as a great Russian military work. It is the only railway in the world built and administered by military engineers, under the direct orders of a War Office. It is open to traffic for 665 miles, and will be open for 897 miles in a few months. Such a length of line of communication is open to interruption, but its base is on an inland sea, its course is under the shadow of the hills for a great part of the way, and undoubtedly it will be strengthened by military roads, if not branch railways, on the side open to attack. The visitor, when picturing the difficulties that must constantly have presented themselves, can only express sympathy for the workers, and, when seeing the obstacles that have been overcome, can only admire the ability which is conducting, and the energy that is bringing the undertaking to completion with so much rapidity. Apparently commenced in 1880 by Annenkoff as a temporary line from Michailovsk as far as the first

fresh water, to assist Scoboleff in his attack on Geok Tepe, it speedily extended to Kizil Arvat. The annexation of Merv in the spring of 1884 required its prolongation to Askhabad. Early in 1886, the construction beyond Askhabad was ordered, and in nine months, on November 30, 1886, O.S., it was finished to the banks of the Oxus.

The principal feeders are from Askhabad to Khiva, and to Meshed ; from Merv to Dushak and Meshed ; and from Chardjui to Khiva and Kerki. No great masses of troops visible anywhere ; nor, seeing that rail communication was established, was anything to be gained by asking questions which might have given trouble to answer in full.

Judging from the amount of traffic at present, the railway will probably also prove a commercial success. Besides passengers of all classes from as far as Khokand in bi-weekly passenger-trains both ways, there is a goods-train daily, and a supplementary-train weekly. Eastward there will be spars, bridging material, planks from the Volga, railway material, kerosine from Baku, sugar, vodki, eau de vie, alcohol, beer from Samara (selling in Bokhara at 8 roubles per 100 bottles, exclusive of cask and bottles), piece-goods, carriages, pianos, furniture

made in Poland, Russian tallow, iron, grindstones, leather boots, dried fruits from Persia, rock-salt from Chelikan, etc. Westward there will be wool from Penjeh going to Marseilles, silks from Bokhara for Moscow, white cotton from Khiva (the best) in white covers; more cotton from Bokhara and Samarcand in brown covers, hand-pressed. There is at present one hydraulic press at Chardjui, but more are to follow very shortly. The whole neighbourhood is marvellously busy. More than once an assurance was given me that the goods stacked in the vicinity of the railway were the produce of the year, and not the storage of past years.

Heyfelder says that 'last year' the Russian exports to Central Asia amounted to 14,500 tons, at a value of $3\frac{3}{4}$ millions sterling, while the Central Asian exports to Russia were 22,000 tons, at a value of $1\frac{1}{2}$ millions sterling.

The cost of carriage from Bokhara to Moscow is now 1 rouble 50 kopecks per pood (say 33d. per 36 lb.). Of this the Bokhara camel-men get 20 kopecks (say $4\frac{1}{2}$ d.) as far as the railway terminus on the left bank of the Oxus; the transport agencies profit 50 kopecks (say 11d.), thus leaving 80 kopecks per pood (say $17\frac{1}{2}$ d. per 36 lb.) for freight and tran-

shipment over this railway, the Caspian, the Volga and the Nijni-Moscow line.

For military operations, as there is no scarcity of water or fuel, and as there is an amount of rolling stock on the line which can be easily supplemented in a few days, Russia has secured a means of moving a mass of troops from Baku and other western ports to any point of the Trans-Caspian line within a very short period, to say nothing of those that might arrive from Khiva, Tashkend and beyond, the Emir's troops, the local Turkoman levies, etc.

The idea in constructing the line was to secure a service of 12 trains each way daily, with the object of transporting a complete army corps from the Caspian to the Oxus in a fortnight. The approximate number of trains for this would be about 100, of 40 vehicles each, the full strength being two divisions of infantry and one division of cavalry, or a total of 47,373 of all ranks, 13,951 horses, 108 guns, and 2,595 vehicles.

The calculation as to the capability of the line simply rests on the interpolation of sidings to cross the traffic, which could certainly be run in groups of trains at 25 to 30 miles an hour. The staff is of such excellent material, the arrangements are so

good, and the population is apparently so quietly disposed, that now even five trains a day of 40 waggons, carrying 8,000 men, might leave Asunada and run to Chardjui, 660 miles, in 33 hours if requisite. At present trains do not run at night from Chardjui through the shifting sands of Repetek to Merv, but on an emergency the electric lights could all be moved up from Kizil Arvat, extra watch gangs could be put on, and the trains might proceed with caution without increasing the through time given above.

As regards further extensions, report says the railway is to stop at Samarcand, but probably it will run on through Tashkend, Semipalatinsk to Omsk for junction with the Siberian line. The Siberian line, to serve about five millions of square miles and four millions of people, possibly will be located as under :

Samara through Ekaterinburg to Tjumen by rail.

Tjumen to Tobolsk and Omsk by water.

Omsk, Irkutsch, round N. of Baikal to Nerschinsk by rail.

Nerschinsk to Busseh on Amoor by water.

Busseh to Vladivostock on sea by rail. .

3,200 versts by rail = 143 million roubles.

The capital for the Siberian line, 300 million roubles, was said to be ready : one said with an

American syndicate, another with the Bank of France, and a third that Russia had it in gold. The way that Russians speak of money is surprising. One has so often heard that Russia is bankrupt that it is hard to believe anything else. The *interest* on her debt alone is 50 millions sterling, and this has to be paid in gold, and apparently her chief gold receipt is from the Customs, which must fall in the face of the high protective duties she is now said to be imposing. Her loans are obtainable at a sacrifice, bear a high rate of interest, and as many are redeemable at par, this process is rather like burning a candle at both ends. To live on paper may be easy enough so long as credit is established, but the mineral wealth of Russia is only just about to be tapped, and the railway from Siberia is to carry it westward. Rouble paper is never exchanged at the local banks for its equivalent in metal.

But amidst all the doubts one may experience it seems as if Russia is now determined to look after and improve her own affairs. She is utilizing her resources in every way ; she is endeavouring to get at her wealth ; and who can tell the extent to which this may not be proved within the next few years ?

In reading Kaye's 'Lives of Indian Officers,' it is interesting to note the opinions which were expressed some 45 years ago regarding the antagonism of England and Russia in Central Asia. Although Burnes 'somewhat exaggerated the aggressive designs of Russia, he was logically right in contending that our best policy was to strengthen ourselves in Afghanistan, and not to endeavour to oppose by arms or to baffle by diplomacy the progress of the Muscovite in Central Asia.' He deprecated any of our officers going in any capacity to Turkestan, to Khiva, Bokhara, or Khokand; he considered that no political advantage was to be gained by any English mission to those places, and that we should be merely interfering with Russia in ground already occupied by her merchants, far beyond our own line of operations. He hoped that our every nerve would be strained to consolidate Afghanistan, and that nothing of any kind, political or military, might take place beyond the passes.

Arthur Conolly and D'Arcy Todd, however, thought 'less of Russian aggressiveness and more of Central Asian provocations,' feeling that much good might be effected by peaceful mediation, especially by endeavouring to liberate the Russian subjects

who had been carried off into slavery by the man-stealers of those barbarous States.

The action of Russia in Central Asia could not possibly have been retarded. Colonel Saussermann, according to the *Army and Navy Magazine*, some years ago contended that she had been driven on by circumstances in her seemingly aggressive march eastwards. If any charge can be made against her, it is, that she has not been sufficiently firm and consistent in this movement. 'Whenever the force of circumstances imperatively required that another step forward should be taken, the Government were opposed to it. They did not wish to see the bounds of the empire extended, and were alarmed by certain considerations of foreign policy. In every case moderation and diplomacy were recommended, the recourse to arms forbidden, and the inevitable staved off for a year or so, until the attacks of the Turkoman hordes became so intolerable that no other remedy remained than that which had been recommended, and should have been adopted years before. For many centuries the Kirghese, and all other Turkoman tribes, have regarded robbery, plunder, and the slave trade as their national calling. Caravans were peculiarly exposed to their attacks,

and our trade with Central Asia was thereby fatally crippled. Some end must sooner or later be put to this state of things, and the only effective remedy lies in the complete subjugation of the lawless nomad tribes which cause the mischief.'

The construction of this railway completely alters all conditions of the Central Asian question. Follow it on the map through lands which are now realizing the blessings of peace ; overshadowed by the Persian mountains, where Russia maintains her influence so strongly ; the Cossacks at Merv ; their outposts within 100 miles of Herat ; months of travel with fatigue and misery reduced to a few days' journey in comparative comfort ; across the river, tapping the resources of Kunduz, on one side, and of Khiva on the other ; to the gates of Bokhara, a centre of Mohammedan fanaticism and the capital of the Central Asian world.

It may be that Russia is now gaining her India in Central Asia, but will she stop to develop it? Will her ambition be satisfied in rehabilitating Nature, in reproducing material benefits, in refounding cities, and in restoring civilization to whole regions of territory which for so long have remained absolutely desolate?

The P.S. *Czarewitch Alexander* steamed out of Asunada at 8.30 a.m. She had six large fires, burning liquid fuel, 'astatki,' in one pipe, and steam in the other, all under easy control. One fire was put out in a second by the turn of a cock, and relighted by simply letting the jets play on a piece of lighted rag inserted through a hole in the fireplate. The six fires were calculated to burn 28 poods (1,008 lb.) per hour, at 5 kopecks a pood (say 1½d. for 36 lb.) f. o. b. The time-expired soldiers were on board : all very orderly ; many had their wives and children with them. The lightship was passed about noon, and inside the Krasnovodsk spit was the steamer which had left Asunada with wool the day before, and had now put back for shelter.

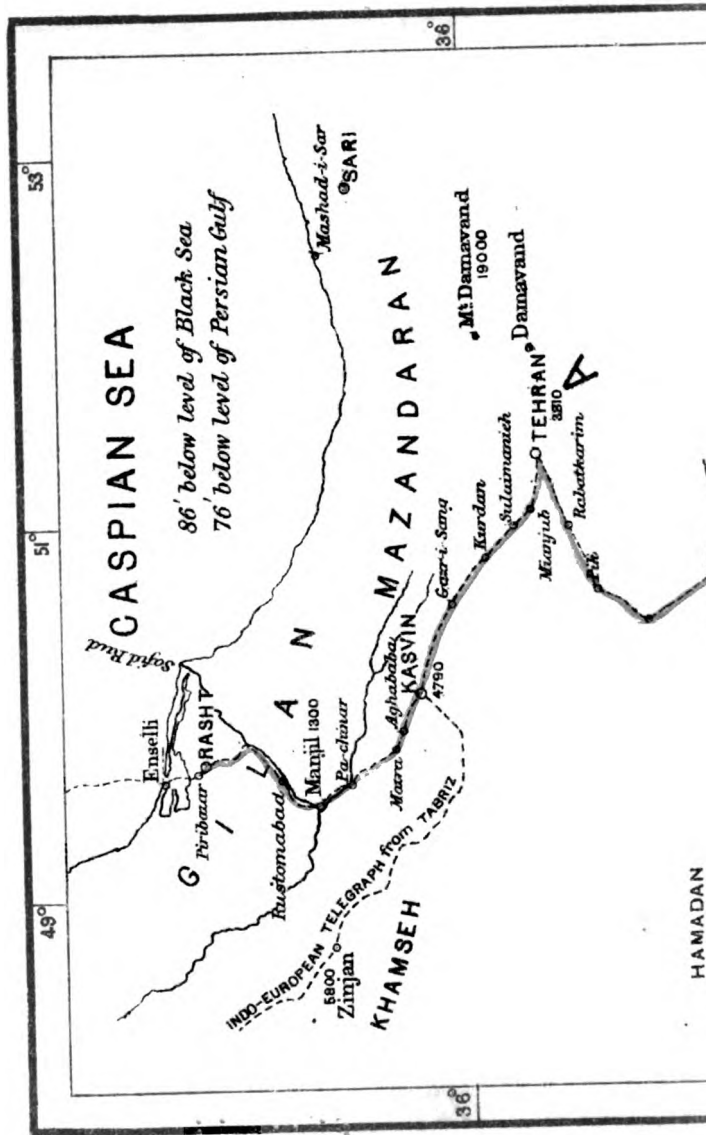
Our steamer had left Asunada a day late, because she had lost 24 hours at Petrofsk on her outward trip from Astrakhan, and had carried the delay all round her course ; consequently we arrived, after a rough passage, at Baku on Monday morning at 7 a.m., instead of 6 a.m. on Sunday, to find that the mail-steamer for Persia had started.

The following is an abstract of the route, time, and cost :





MAP No. III.



CHAPTER XIV.

FROM BAKU TO RESHT.

Money-changing—The *Euphrate*—Lenkoran—Enselli—A Mirza—Resht—M. Vlassow—Persian Money—Preparations—Nasrullah—A Padoroshna.

THE mail-steamer for Persia had started from Baku about 6 hours before our return from Trans-Caspia, and there was every prospect of a week's delay. The quickest way to get to Persia appeared to be in recrossing the Caspian by the boat for Asunada at 2 p.m., and so reaching Meshedessa by Thursday, the 27th. This not only required a telegram to Teheran, to send the servant from Enselli to meet me if possible at Meshedessa, a trip of some 200 miles, which in all probability could not be done in the time, but also a special permission from the authorities at Tiflis to recross the Caspian.

The difficulty was solved by a fellow-passenger (manager for some time of the *Caucase-Mercurie*,

and now running another line), who ascertained that a small steamer was at a quay lower down, getting ready to start at 10 a.m. for Enselli.

My baggage was soon transferred, and the short interval available was usefully occupied in recovering my photographs and purchasing others, breakfasting, laying in provisions, telegraphing to Ealing, Tiflis, and Teheran, money-changing, etc.

The correspondent of the 'lettre d'indication' (no object in mentioning names) was not out of bed, but after a while he appeared, and returned to me the 25 sovereigns I had left with him in deposit on September 25. He also said he had given me too good a rate of exchange for the circular notes at our first interview, and this was settled there and then by my returning 3 roubles to adjust the account. Money-changing was another matter. This was done at an Armenian bureau on the quay, and the name of the agent was said to be 'Guzzis.' For 133 roubles in paper he gave 391 krans in Persian money, which, according to a rough table (11 paper roubles = £1 = 33 krans, and therefore 1 rouble = 3 krans), should have been 399. On this he cleared 8 krans, or say 2 per cent. Now for the sovereigns, what is the exchange? The exchange for one

English pound is 10·90 roubles. Here, then, are 10 sovereigns or 109 roubles, and for these at the rate of the first transaction (133 roubles = 391 kran) the exchange will be 320 kran. Quite true, but the figures will be 309 only, *as I do not want sovereigns in gold!* I parted, wishing, like the man in *Punch*, that I had only 'half his complaint.' On the second transaction he probably cleared 14 kran, or 4½ per cent.

At present it is incomprehensible how this 'roubley' paper commands a better price than foreign gold. Furthermore, what is to prevent Russia from issuing paper which may depreciate more than the rupee (in 1876 a rouble was converted at 2s. 6d.; in 1887 the exchange is 1s. 10d.) and 'flying kites' to any extent she chooses within her own lands (one-sixth of the territorial surface of the globe), where silver is rarely seen, and where gold never circulates?

All aboard and ship's a-sailing! After sending messages of kind recollection by M. Rodziewitch, who was about to return to Trans-Caspia, and after repeated farewells, my last good-bye was said in the affectionate embrace of a Russian officer in uniform, for my good companion Tamamsheff had said, 'My

dear Colonel, I must kiss you!' The little tub of a steamer cast off, and by 10.30 a.m. she was puffing and panting at about 4 miles an hour through the oil-stained waters of the bay.

The *Euphrate* may have been 60 tons in burthen, under a Persian commander, with a Persian crew and flying a Persian flag of the lion and the sun. (The treaty of Turkomantchai permits no boat to fly the Persian flag on the Caspian.) Of the crew, two mates were Russian. There was a fairly large saloon for the better class of natives and their wives, with a small cabin beyond, which was allotted to me, and beyond this again was the captain's crib, in which he kept his money, etc. There was a party of Persian gentlemen returning from a pilgrimage and about 60 deck passengers. My fare was fixed at 9 roubles, on account of the cabin (the ordinary fare by mail-steamer is 12 roubles). Deck passengers paid 3 roubles each from Baku to Enselli, and all found their own food. Luggage was 15 kopecks a pood. The steamer carried sugar, glass, coals, iron, etc. The barometer at sea south of Baku stood at $786.2 = 30''945$. Towards evening the sea became very rough, and the steamer rolled a good deal. At night we anchored, and the rolling increased.

Next morning the crew began to wake up about 7, and after a lazy start at 8, anchored again at 9.30 a.m. off Lenkoran. Russia numbers about 120,000 Persians in the Caucasus as her subjects, chiefly in these districts on the Caspian, and in Erivan, which was annexed in 1828. The scenery, as far as one could see on a dull morning, was not unlike that near Tanna. High wooded hills in the distance; isolated hills midway; with thatched houses and a few red zinc roofs on a wooded foreshore. One native steamer and a few native boats in the roadstead. No business was done at Lenkoran, and after a fashionable delay a start was made for Astara, whence, after another expenditure of time, the steamer set out at 8 p.m. for Enselli. The cultivation of Indian rice is steadily pursued in the low marshy lands in this vicinity.

Arrived at Enselli at 7 a.m. on Wednesday, 26th October, and anchored in an open roadstead about a mile from the shore with the mail steamer to the north and outside us. Shortly the boats (not unlike the Madras surf boats, but smaller) came off for passengers, but as no one appeared inclined to move I started off by myself. Fortunately the sea was fairly calm and there was no 'beaching.' One or

two 'surfy' waves seemed as if they would envelop the boat, but these passed, and after a short turn through the neck of an inlet a landing was made at a small quay in the bazaar. I gave the boatman 2 double-kran pieces (2s. 6d.). 'This will not do. I want 10 tomans' (say £3). Others wanted nearly as much for touching my baggage. Presently, by strange good luck, a Persian asked my name, and said that a Mirza had been inquiring for me for some days, and that he was probably now here. The Mirza (educated person) was found, about to return comfortably by the steam launch to Piri Bazar, as he had satisfied himself I was not a passenger by the mail, which had arrived the previous evening. The kit, without any examination by Customs' officials, was transferred to the launch; the boatman accepted an additional 2-kran piece, and at 9 a.m., under charge of a Persian, the little launch started on its trip across the lake (local Dead Sea) towards Piri Bazar. My first impression of the Persians, as represented by these boatmen, was not favourable.

Counting the $3\frac{1}{2}$ hours' halt in Baku to lay in provisions and change steamers, the time occupied in reaching Enselli was 50 hours. The distance is

204 miles, the price of the ticket £1 1s. od., and miscellaneous expenses £9 8s. od.

At Enselli the chief object is a garden tower five stories high, built when the Shah made his first trip to Europe. The bazaar is good, but small; there is the telegraph-office and a Russian fish-curing establishment. Sitting on the side of the boat I chatted with the young Mirza; he is one of Dr. Bruce's converts, by name Joseph, and earns a living by teaching French in Resht. He had, on a request from Teheran, been asked by the postmaster of Resht to meet me, and this was his third visit for the purpose. The launch carried about fifteen passengers, and the trip over the smooth water for 10 miles till 10.30 a.m. was very pleasant. At the western side of the lake a change was made into tow-boats, which carry the traffic up the inlet to Piri Bazar.

The stillness of the air, the grateful shade, the easy gliding through the water—all embodied the poetry of motion, and one felt rather sorry when, about noon, there was another change to the racket and the avarice of the horse-keepers on shore. The fare for the steam and boat trip of 15 miles was 2 krans (first-class). Mirza Joseph was travelling

without a ticket, so I bought him one for one kran.

The road to Resht is under repair—part is cobbled and part is untouched. The kit was given to a syce, who put it on his horse and rode off with it. It was raining, and there was nothing much to be seen—a few houses and gardens, dirty streets, and then a bazaar with open shops, and projecting roofs, not unlike a scene at Mangalore. Drove to the Russian Consulate on a kind invitation from Madame Vlassow. (The latest advice is that M. Vlassow is to go to Meshed.) Mr. and Mrs. Nelson (telegraph) and their children, and Miss Pratt (sister of the American minister), were also the guests of M. Vlassow. They had left Baku before me by the regular mail-boat, had a dreadful passage, landed at Enselli, spent the night on the floor of the Shah's garden tower, missed the launch, and finally arrived after me at Resht late in the afternoon. M. Vlassow is a Cossack of the Don, and one of a very few of that race who have entered the diplomatic service.

The payment in Russian currency ceased on board the steamer, and the use of Persian money began on landing.

As regards Persian currency. First of all in copper there are :

$\frac{1}{2}$ shahi pieces called 'pool'	.	.	$\frac{1\frac{3}{8}}{16}$ " diameter
1 " " . . . . .	.	.	1" "
2 " " . . . . .	.	.	$1\frac{3}{16}$ " "

and in silver :

Irregularly shaped dubs	.	.	$= \frac{1}{2}$ kran	} old coinage
" "	.	.	$= 1$ "	

and also :

1-kran piece $\frac{5}{8}$ " diameter	} new coinage.
2 " " $1\frac{1}{8}$ " "	

These last are rather pretty, having the lion on one side with a drawn sword erect in the right paw extended, and a woman's face illumined as the sun orient over his back, all enclosed in a wreath. On the reverse the Shah's name and title is given in Persian characters within a wreath. The computation is :

1 pool	=	$\frac{1}{2}$ shahi	.	.	.	$\cdot 181$ of a penny.
40 half-shahis	=	20 shahis	=	1 kran	=	$\frac{240}{33} = 7\cdot27$ pence.
10 krans	=	1 toman	=	say 6s. 6d.		

Therefore, roughly, in one's dealings as an Indian traveller, the single kran ($7\frac{1}{4}$ d.) may be treated as an 8-anna piece ($8\frac{1}{2}$ d.) and the 2-kran piece (1s. $2\frac{1}{2}$ d.) as a rupee (1s. 5d.), but with a tendency to be more liberal with the double-kran pieces than with rupees.

The first day at Resht, although it poured with rain, was spent in great contentment, M. Vlassow kindly arranging for my journey; he engaged a Persian, by name Nasr-ullah, to go with me to Bushire: gave the man 50 krans and took a receipt. The agreement says I am also to pay at Bushire for his return 1 kran per farsakh for a horse, and $\frac{1}{2}$ kran a day for food, so that the charge for this servant will be 50 for himself, 260 for the horse, 22 for food, or 332 krans in all, an equivalent to £10, for which the man will have to leave his home for two months, and traverse nearly 2,000 miles on horseback. A native saddle and bridle were purchased for 25 krans for the servant, and these were to be presented to him at Bushire if he behaved himself. A telegram was sent in Persian to Major Wells at Teheran, acquainting him with my movements, for $4\frac{1}{2}$ krans. The padoroshna, or post-office permit, was obtained, the charge being 1 kran, and 3 horses were ordered to be ready to start from the Consulate at 4 the following morning.

The preliminaries being so far complete, there only remained the Mirza. Having consulted the Consul, 20 krans was thought ample as remuneration for his services. The Mirza in due course came to

call, smoked his cigarette, and when I proposed to him a small present for his trouble, he replied that he only wanted his actual expenses, which amounted to 45 krans. I did not laugh, but wished him good-bye, saying the money would be ready for him in a short time. He never returned, so the amount was left with the Consul. From experience No. 2 I am inclined to think a converted Persian is neither fish, flesh, fowl, nor good salt herring.

CHAPTER XV.

FROM RESHT TO TEHERAN.

Physical Geography—Post-stages—The Farsakh—Foreign Trade—Provincial Revenue—Administration—The Silk Trade—Kodoom—Mode of Travel—Rustemabad—Menzil—The Valley of the Winds—Pachinar—Kasran—Mesreh—Agababa—Kasvin—A Tarantass—A Persian Road—A Rest-house.

THE best idea of the country to be traversed will be gained by examining the plan, the section, and the table (Appendix E.). The plan and the section speak for themselves, but there are no roads, excepting, perhaps, the rough preparations between Piri Bazar and Rustemabad, the cleared width from Kasvin to Teheran, and the stone staircases south of Shiraz. The country is shut in, and the difficulties of approach from certainly three sides may, to a great extent, account for its comparative obscurity. The fact that Persians are Shias, while their neighbours are Sunis, may also have tended to exclusiveness.

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A few words in explanation of the table (see Appendix E.) may be requisite. In the first column are the stations by name, with principal post-stages in italics. In columns two, three, four are the distances, about which in Persia there is always a difference of opinion, partly owing to the old measure, which once established is not changed, according 'to the law of the Medes and Persians which altereth not,' partly to the variations in local computation, according to the ease or reverse with which any particular stage may have been accomplished, and partly to the disinclination to accept any correction which later investigation has shown to be expedient. The Persian measure of distance—the farsakh—is said to be the old parasang, which was put as equivalent to $3\frac{1}{2}$ geographical miles, and, consequently, rather in excess of 4 statute miles. But as there are only 18·44 Persian farsakhs to a degree, the true value of each farsakh is $(\frac{69'16}{18'44})$ equal to $3\frac{9}{16}$ English statute miles. This value will be adopted. It also meets one of the local definitions of a farsakh, viz., that it represents the distance which a loaded mule will, according to the country, walk in an hour.

Naturally, therefore, the farsakh is a very variable

quantity : *vide* the figures opposite Pachinar and Kasvin, where the staging distances are 5 farsakhs for each, while the local estimates are 16 and 32 miles, and the map gives 13 and 21 miles respectively. Moreover, the number of farsakhs in a stage is generally supposed to be fixed by the contractor who supplies the horses ; this being so, it is a wonder the distances are even approximately correct.

In column five the lengths of the journeys are given, but these can be varied at the pleasure of the traveller within certain conditions. No horses available at Mesreh would mean a halt for the night in a poky room in a very small village. An extra horse sent back from Kasvin might mean a night in the open. Again, the ordinary stages end at Bideshk and Ispahan, but my rest was taken under the genial shelter afforded by the MacGowans at Soh, and Dr. Hoernle at Julfa. One may be benighted at Shulgistan, and not be able to make Abadeh. Persepolis also requires a halt at Poozeh, where the accommodation is most limited. A day's journey may be as long or as short as you like ; in my case the telegraph department received and took care of me, passing me on from one to the other with

all the interest, warmth, and hospitality of old friends.

The hours on the journey (column six) give, roughly, the time in the saddle under ordinary circumstances. Each one according to his weight and agility, and the condition of the nag that carries him, will progress differently. . Anyhow, for heavy men a ride of 50 miles on two nags from Teheran to Pik, including a somersault, horse and all, near Robot Kearim, in 10 hours, is fair. Fifty-seven miles, with a second fall near Sinsin, on three nags in the same time, is also fair ; while 78 miles on four nags in 12 hours makes $6\frac{1}{2}$ miles an hour right through. The longest stage on one horse was 29 miles, but there are others of 28, 27, 24, etc., and for staging in any country these distances are too long. Many of the nags were in poor condition, and for the most part with sore backs, making riding rather a rickety performance, particularly at the outset and at the finish of each stage. But in travelling, it is these little inconveniences which, like fleas in a dog, afford something to think of.

Column seven gives the height above the sea of different stations ; there is a steep approach from

both seas to what may be called the elevated plateau of Persia ; but from Kashan, southwards to the Gulf, the soldiers' remark on the march in Abyssinia will aptly apply : ' If this is what they call a table-land, we can only be moving up and down the legs.' Take from Pachinar to Mesreh, a simple rise of 7,000 feet straight on end in 20 miles. Kashan to Kohrud is another ascending ride, while from Shiraz to Daliki it is so up and down that mules are in use instead of horses.

Column eight gives the prices payable to the contractors, with the recognised fees.

Column nine gives the extras. The amount, however, is very small, but a tip should not on any account be omitted, for it is distinctly a boon to poor men ; if given openly it will probably be appropriated by the chapparchi or headman as *his* perquisite.

Column ten gives the nature of the conveyance. There was a small carriage for one horse between Resht and Kodoom. There are carriages with three horses from Kasvin to Teheran. The spring-phaeton, which I failed to recognise before I saw it by its local name of ' Fitoon,' was in such a critical state with its drooping springs, that it was rejected

for the tarantass, a Russian carriage without springs. Travelling in Persia, a country very much as nature left it, is therefore generally on horseback, 'chapparing,' *i.e.*, riding light, and as fast as you can for three or more stages daily, or 'caravanning,' when you proceed more leisurely by one stage a day with baggage mules. The charge for 'chapparing' is 1 kran per farsakh per horse, or rather less than 2d. a mile for each horse, and the rate for 'caravanning' is probably the same for each mule.

The first thing necessary is to secure the padoroshna or post-office permit for the horses. This paper (for which there is either a fee, or for which you are supposed to make a small present) gives the route, the stages, and the number of horses required, and the price to be paid at each stage. Payment usually is made at the end of each stage, when the nags for the next stage are brought out ready saddled.

The trade of Enselli and Resht with Russia has increased fourfold since transit dues were levied on foreign merchandise *viâ* the Caucasus. Foreign (not Russian) trade comes by Erzeroum, etc., and takes longer, but this route necessitates entry through a Turkish port (Trebizond), and transit through

foreign territory. Russia sends immense quantities of sugar, piece-goods, silks, etc., and no English goods are obtainable. Samples of English piece-goods, I was told, were bought up and copied at Moscow for the trade with Persia. (Consul-General Abbott says, however, that in Khorassan a decided preference is given to prints manufactured in Manchester.) Rock-salt in the bazaar had been brought from Chelikan Island. The revenue of Ghilan is paid chiefly from rice and silk. Mulberry-trees grow everywhere. The Shah farms each province out to a governor. The governors have full civil, military, administrative, and judicial powers, and these are exercised directly by local subordinates in the position of governors of towns, mayors, superintendents of police, and chiefs of districts. I understood that 3 million krans, or £7,500, was the price at which Ghilan was let. Forty years ago the product of raw silk was over 500 tons; in 1874 it had dropped to 300 tons, and two years later, being a bad year, the out-turn was only 10 tons. The public sales of silk, which formerly realized 7 millions sterling, now only touch £150,000. The annual product of Persian silk is now only one-seventh of what it was in the middle of the seven-

teenth century. The average price is three times greater than it was then, but only one-fourth of what it was when the English held the silk monopoly of Ghilan. In the coast districts the silk is collected in May. Under the influence which Russia possesses, great endeavours will be made to restore this industry to something like its former magnitude. Fraser, in 1882, stated that the average silk production of Ghilan was £780,000 a year, of which one-third was consumed locally, one-third by Russia, and one-third by Turkey. (For some interesting particulars of this silk trade, read Benjamin, pp. 414-422.) All the coast district north of the Elburz range is said to be carboniferous. Ghilan and Mazandaran correspond with the ancient Hyrcania. Plutarch says that when Alexander passed into Hyrcania with the flower of his army he took a view of the Caspian Sea, which appeared to him not less than the Euxine, but its water was of a sweeter taste.

The journey from Resht to Teheran, 210 miles, may be done in three stages. On waking at 3 a.m. it was raining heavily. After breakfast with M. Vlassow, all was ready by 4, the hour at which the horses were ordered. They did not turn

up till 6 a.m., when a start was made in heavy rain. The guide and the servant with the kit were on horseback, while a small carriage took me the first stage to Kodoom by 10 a.m. The road was fairly good, cobbled in some places, and staked and bound at the sides. The scenery is not unlike that in the Concan.

At Kodoom began the first real ride, when the party was *tout à fait complet* with three nags. One horse, the best-looking, has a pack or post-saddle of stuffed felt and straw for the guide, or djiggit chappar; he takes the two Gladstone bags in the large kurjin with the shawl, and his load, with rider, will be about 244 lb. in all. The second, with a native bridle, and two or three folds of numdah under the native saddle, is for the servant or courier; he carries the servant's kit and the provisions in the small kurjin; his load will be about 186 lb. The third nag, a shaky-looking beast, but declared to be 'fast,' 'sure-footed,' 'the pride of the stable,' is for the master. His load, with ulster, English saddle, holsters, small bag, etc., will be 240 lb. Between Kodoom and Rustemabad, the road begins to ascend.

It is still raining heavily. On we go, the guide in front of me, and the servant behind. The

road is infernal, all up and down, crossing every ridge and valley from the mountains flanking the river (Safed). When I say road, I mean a track with its surface knee-deep in clay and slush, and crowded with mules, donkeys, camels, and people. My gray gave in, and fell on his knees, so I changed with Nasr-ullah. The valley is prettily wooded, but the rain was so heavy that very little could be seen.

At Rustemabad the forests end. Here I secured a nice chestnut galloway, and rode him to Menzil in 5 hours. The route follows a gorge, and is continually going up or down. Three arches of the bridge at Menzil had been washed away; a temporary bridge has been built. The spot is popularly known as 'The Valley of the Winds.' Certainly there is half a gale on. The structure is light and airy, not too broad, and quite free of hand-rail or parapet. Next to fear of being blown bodily over the edge comes the dread of your horse stumbling between the rough boughs which afford a very open corduroy roadway. We arrived at the chapparkhanah at 9 p.m., and I was accommodated in a nice room upstairs, furnished with beds, tables, and chairs. Made some soup and turned in. Thus ended the first

stage of 52 miles in 15 hours, having been wet through literally to the skin for the greater part of the time.

From Menzil the road winds along the right bank of the Shahrud. The valley is more open, and in $2\frac{1}{2}$ hours Pachinar is reached. From Pachinar the road to Kasran (over 8,000 feet above the sea) is uphill the whole way, and if ever one is tempted to dawdle in Persia to contemplate scenery, it will surely be here.

The hills are very fine, and of various colours, while the lights and shadows were intensified by the sunlight struggling through the heavy clouds after the storm. On reaching the summit, a wide view from a point just above Mesreh is obtained of the plains to the south. Kasvin is discernible. Although the distance from Pachinar to Mesreh is only computed at 16 miles, yet it took 5 hours to accomplish, and there was no delay, for my nag bolted with me for the last mile as soon as he saw his stable. It was soon found that no fresh horses were available, and after a long rest of $2\frac{1}{2}$ hours to bait, we went on with the same horses at 5 p.m. to ride to Kasvin, 32 miles ahead.

A lovely night, with the moon nearly full, and

very good going all the way. At Agababa the servant's horse gave in, and I went on with the guide, promising to send a fresh horse back. We reached Kasvin at 10 p.m. The city gates were locked, but after a little knocking we got through, and rode on to the chapparkhanah, a large building in a garden in the middle of a grand avenue. Made tea, and went to bed. So ended the second day's ride, 64 miles in about 12 hours, with nothing much to eat, and the servant, with part of the kit, stranded in the rear. Nasr-ullah came in at two in the morning.

Kasvin (40,000) is said to have been founded by Shapur, the conqueror of Valerian. It was the capital for about forty years before the principal seat of government was transferred to Ispahan in 1586. It is well situated. Hills to the north, snowclad here and there, within a day's journey, also a range to the south. The Shimran is a part of the Elburz range, connecting the Hindoo-Koosh with the Caucasus. Kasvin is famous for its Mesdjed Djami, built by Haroun-al-Raschid, the grave of Houssein, and its Mesdjed-i-Shah. To the north, at the foot of Mount Syala, are the ruins of the principal seat of the Assassins or Nabatheniens.

After an early inspection of the premises, garden,

and stables, I turned my attention to the conveyances. The tarantass was selected. The Gladstone bags made a capital seat; the bed-sack, filled with bhoosa, a capital cushion, and the shawl an excellent cover. The saddles and bridles were packed behind, while the servant occupied the box with the driver. I was glad of the change from horseback, not only for myself, but for Nasr-ullah, who was rather done up—in fact, it is a wonder he has managed so well, considering that for the last two years he has been sitting in a shop in Resht.

All round about Kasvin are fields of vines regularly walled in. The road, which is unique in Persia, is simply a width cleared of stones, and yet it is said to have cost £640 a mile. It begins about 8 miles west of Kasvin, is unbridged, is crossed by streams and irrigating channels, and ends at Teheran. The natural surface is hard, and it is good going both for horses and carriages. The first halt at 9.30, the second at 12, and the last at the post before Teheran at 9 p.m. Here everyone declared it would be impossible to reach Teheran before the gates were closed, and as I had no intention of wandering about a city in the dark searching for my friends, I agreed to halt for the night. The rooms were fairly clean,

and the food good. Beds with sheets, blankets, and razais ; washstand, looking-glass, brush and comb, soap, tooth-brush, pens, ink, paper, and a magnifying glass. The rest-houses along this line from Tabriz into Teheran are said to be of the first-class, because it is by this route all high officials from Europe travel.

Nasr-ullah is quite lively at the idea of re-visiting Teheran. There is no delay in putting the horses to, and by 8 a.m. I have found my friends, and am seated at early breakfast with Major Wells and his wife, quite as a matter of course.

On a hurried journey like the present, it is not possible to note down more than the chief experiences of the day, and then only in bare outline, where, to the writer, a word is sufficient to recall a scene, and a single sentence to embody the subject of an agreeable study. To the reader, probably these entries will afford but a bare record of fact ; they are, however, not omitted, for they may give some idea of the manner in which the time may be occupied during a week's stay in Teheran.

CHAPTER XVI.

TEHERAN.

Major Wells—Mr. Nicolson—Persian Officials—Dr. Odling—Dr. Tholosan—Prince Dolgorouki—Persian Art—Travellers' Notes—Captain Blumer—'Nassiri'—Tile-work—Mr. Pratt—Seven Hundred Wives—Doshantepe—Gulahek—Mirza Hassan Ali Khan—Teheran—Climate—Water-supply—Gardens—The Persian Year—The Persian Day—The Palace—The Treasury—Charitable Institutions—Rhages—Tomb of Shah Abdul Azeem—Khodaya.

My first visit was to Mr. Nicolson, the officiating British Minister. Then I called on the Minister of Science, and also on the First Chamberlain. These Persian officials were very friendly; their houses contained many rooms luxuriously furnished, and many servants. Refreshments consisting first of pipes with tea and then pipes with coffee. Dr. Odling called. He applied some strong iodine to my back, to counteract the effects of the fall I had from my horse in Bokhara 16 days previously. Visited the telegraph offices. Out for a walk in the even-

ing, and not at all disinclined to enjoy the few days' rest which the doctor recommends as necessary.

The following day I paid a second visit to the Embassy, and saw Mr. and Mrs. Nicolson. Dr. Tholosan, the physician to the Shah, came to see me ; also the old Nawab of Arcot. I spent a most agreeable hour with Prince Dolgorouki, who desired his kindest remembrances to Lord Dufferin. I then drove to the house of Yahia Khan, the Mouchir-ul-Dowlah, ex-Minister for Foreign Affairs, lately deprived of his post on Ayub Khan's escape. His rooms were magnificently furnished with Sèvres china, real china, carpets, pictures, etc. ; one room was positively lined with silvered plate-glass, covered with most elegant tracery of flowers, etc., in plaster of Paris. Persian art is decorative ; all material is obtained locally and adapted to its purpose ; stone, wood, and gypsum for building, cotton for carpets, wool for felts, clay for pottery, etc. All decorations are done without any guide or pattern, and the workman follows his own inclinations. Domes, windows, or arches are the principal features of every structure. Large dinner-party at the Residency ; about thirty people, members of the different embassies. After dinner the room was cleared for

dancing, four or five gentlemen dancing in turn with the same lady during one dance. At parting some of the foreigners kissed the hand of the hostess—a very graceful and courteous compliment.

The third day was devoted to writing. At Mr. Nicolson's request I prepared a short memorandum on the Trans-Caspian railway. This he was much pleased with, and said he should forward copies to England and to the Viceroy. It is better that this should be done, for I may lose my note-book, and a hundred and one things may happen before I arrive in India. Prince Dolgorouki called ; also the Colonel of the Russian Cossacks (Dimontovitch ?). Went for a walk along the ramparts—huge mounds of earth taken from a very deep ditch. Dined at Dr. Odling's, and there met Dr. and Mrs. Torrens, of the American Mission.

The next morning was spent at the telegraph offices, preparing notes for my route. Lunched with Captain Blumer, of the Russian service, who is engaged to drill the Persians as gunners and Cossacks. Visited the Mouchir's garden and palace, and also a large mosque, 'Nassiri,' that he is building to the memory of his brother. The design is excellent and very bold, while the construction seemed to

be sound. If Persians can design and complete works of this sort they are capable of still greater things. The entrance porticos are splendid; the colonnades and vaulted passages are well designed, and the recesses are beautifully adorned with tile work in miniature, similar to mosaic. The building includes a tomb, a mosque, a college, and a caravanserai. There is nothing paltry, meagre or mean, either in the conception of the design or the execution of the structure. The tile-work of Persia is a study in itself, and a reflet tile has an effect of 'matchless chromatic splendour,' 'a combination of gold and iridescent hues playing around azure letters, which in high relief reproduce the Koran.' Visited some gardens, saw frescoes in summer-houses, Fatch Ali Shah's palace, etc. Dinner-party at home (Mrs. Wells' pretty house), at which the Turkish Ambassador was present.

Another day devoted to writing English letters for the mail-bag. Received a very nice letter from Mr. Nicolson; he says my memorandum will go to-day. Called on Mr. Pratt, the American Minister. Breakfasted with Prince Dolgorouki, meeting the different officers of the Russian Embassy. Visited some gardens of the Shah,

where he has a big palace for himself, and seventeen smaller ones for his wives, ranged in an arc round a lake. This may seem excessive, but it is nothing like the number maintained by Fateh Ali, his grandfather, who had 700 wives and 600 children. The Shah, consequently, has many poor relatives, who have to be provided for in one way or another. Dr. and Mrs. Odling came to dinner, also Mirza Hassan Ali Khan, whom I had known at Kandahar as an assistant political officer. Bought some photographs.

The preparations for the continuation of my journey are well in hand. Changed £18, and received 603 krans old money in exchange. Two krans were deducted for converting into new money, the exchange being £1 = 33½ krans. Visited Doshantepe and the menagerie of lions, tigers and monkeys. The lions were in good condition, and had fairly thick manes. Persia offers a fair field for sportsmen; there are ibex in the hills, gazelle and wild-ass in the plains, tigers towards the Caspian, and lions round about Fars. Called on Dr. Tholosan; he gave me one or two of his pamphlets.

I renew my journey to-morrow. I am much refreshed by the rest, and by the pleasing company of

English ladies. There is a baby in the house, so I am quite happy. Drove out with the intention of visiting Gulahek—a summer resort at foot of Shimran—but was detained wandering about some gardens. Gulahek and Zergandeh are villages presented by the Shah to the English and Russian Legations. Lunched with the Nicolsons. Dinner-party, at which Mirza Hassan Ali Khan and Mr. Wood were among the guests. All arrangements for a start southward to-morrow are complete. The police in Teheran are under an Italian, Count Montifiore.

Teheran is said to have been founded in the sixteenth century, and to have been established as the capital in 1795 by Agha Mahomed Khan, the founder of the Kadjar dynasty. Since then three only have succeeded to the throne, viz., Fateh Ali (1797-1834), Mahommed (1834-1848), and Nasir-ed-Din (born 1829), the present ruler.

The city is situated on a large open plain sloping to the south. It is overlooked from the north by the snowy range of Shimran mountains and the isolated peak of Demavend, which rises to a height of over 19,000 feet above the sea. The town is encircled by broad ramparts of earth excavated

from a ditch in front. The suburbs are enclosed within a second wall. There are twelve gates in the *enceinte*, and the population is said to exceed 150,000.

Notwithstanding the advantage of its position and its height (3,810') above the sea, there is, owing to the heat and insalubrity of the place, a general migration in summer to the lower slopes of the hills. The climate is said to be very dry; the average rainfall is about 7", and the temperature in summer ranges from 95° to 100° in the shade; small-pox and scarlet fever are the chief ailments. It is said that the extended cultivation of the hill-slopes, where people congregate for the summer, has lowered the temperature of Teheran at least 10°, and that rain now lasts longer into the spring, and that showers are more frequent in early summer.

Teheran (100,000) may be called a city of private enclosures. There is, of course, the public quarter, containing the palace, the arsenal, the barracks, etc., but for the most part the dwellings are secluded and shut off, each with its gardens and buildings within high mud walls. The town is supplied with water brought in by 30 or 40 underground canals from the snow-fed springs at the foot of the hills.

These canals or kanats are works requiring great industry ; some at their source are as deep as 150', and the water is conducted in a tunnel under ground for miles till it comes to the surface. Shafts for ventilation and for the excavated material occur at about 100 feet.

The gardens are, to a great extent, private property, and although they are beautifully kept, with fountains and running water in abundance, they are too precise in their long avenues of plane-trees, and singularly devoid of bird or insect life. The general places of resort are the bazaar and the large squares, but here, again, at certain hours of the day one might be in a city of the dead. The year in Persia begins with the vernal equinox, and the day is counted from sunset to sunset.

The palace is separated from the arsenal by the Maidan-i-topkhana, the centre and principal square in the city. Near here is another maidan where troops are drilled daily, except Fridays, and where the military bands occasionally play. The principal streets are fairly well kept, water is laid on, and in addition every house nearly has reservoirs under ground for so many days' supply. Drains also exist ; they run down the centre of the roads, and

are constantly under repair. Dogs abound, and are nearly as numerous as at Constantinople. The bazaar is away to the south of the Maidan-i-topkhana, a perfect maze of vaulted labyrinths, where caste or trade by families palpably exists, in the fact of each separate industry being localized in its particular range.

In the palace there are two thrones, the one of marble inlaid with gold, and the other, the peacock throne, taken from Delhi by Nadir Shah. This throne is of gold, inlaid with precious stones ; at the back there is a sun in brilliants, flanked by two peacocks also in brilliants. Tavernier, who saw the throne at Delhi, estimated its value at 6 millions sterling. In 1738 (only 150 years ago) Nadir Shah with 65,000 men overran the Punjab before Delhi even knew of his advance. He defeated Mohammed Shah at Kurnal and entered Delhi in March, 1739, when, after loot and massacre, which lasted nearly two months, he retired with about 32 millions of spoil. The palaces contain many articles of great value—lamps, candelabra, pictures, chandeliers, mosaics, carpets, felts, china bowls, bronzes, etc., and one of the most curious objects is a golden globe of the world 20 inches in diameter, where the Ocean is

in emeralds, India in amethysts, Africa in rubies, Persia in turquoises, France and England in diamonds, while the names are given in brilliants ; the cost of this plaything being £320,000. There are precious stones also in abundance, among which is the Dar-i-nor, or sea of light.

The private treasury of the Shah is said to be in vaulted chambers under a large tank in one of the gardens. It is opened occasionally, once in three years, when the water has to be first run off before the door becomes apparent in the floor of the tank. The periodical visit is never for the purpose of taking money out, but always for putting more in. The estimate of the amount stored varies from 3 to 13 millions. The report that money is hoarded to a large extent is very possible, for, after the manner of the country, when the Shah wants money he asks for it and gets it. All surplus revenue also goes into the treasury of the Shah.

For the poor of all classes, however, there are two admirable institutions: one, the Sisters of St. Vincent, and the other, the Anglo-American Mission. The private physician of the Shah is Dr. Tholosan, a Frenchman; he daily visits at the palace, and reminded me very much in manner of Major

Martin, the private secretary to the Maharaja of Mysore. Dr. Tholosan has been at Teheran for many years, and he presented me with some pamphlets he had written on the sudden appearance and disappearance of cholera, and also on the plague, which apparently on the last occasion broke out simultaneously at certain spots far apart on the confines of Persia.

Near Teheran is the ancient city of Rhages, Rhëi, or Rhë (Tobit i. 14), the capital of the Arsacidæ or Parthian dynasty; the sun-dried bricks here are supposed to be over 1,200 years old.

The great place of pilgrimage is to the tomb of Shah Abdul Azeem, about 6 miles from Teheran, and to which place some 300,000 pilgrims annually resort. (The pilgrims to Mecca are said not to exceed 90,000 annually.) It is to this place that the much-talked-of railway is to go, but the material is, I believe, lying abandoned on the shore of the Caspian, and the concessionaire is in Paris. [Later accounts have shown that this railway has been completed.]

The servant, Nasr-ullah, on arrival at Teheran disappeared. On the third day he returned rigged out in a fine blue skirt, and said he had been to

see his friends and have a bath. It was thought advisable to engage another man, Khodaya, a very rough-and-ready customer. He was to have an advance of 50 krans, coat, breeches and boots, and 110 krans at Bushire, with a present if he behaved himself, say about 230 krans, or £7; for this he would have to ride about 1,500 miles, and be away from his home for 6 weeks.

The circumstances of Nasr-ullah's conduct were duly reported to the Consul, but after inquiry and explanation, the conclusion was that if the old idiot was to be handed over to the Persian authorities for punishment, *I must pay for it!* Nasr-ullah went his way with the 50 krans he had secured as an advance.

I learnt from the Resident of the communications which were passing between Ayub Khan and General Maclean at Meshed, preparatory to his giving himself up to the British.

CHAPTER XVII.

PERSIA.

The Shah—Foreign Legations—Russian Influence—Railway Concession—Opium—Pestilence and Famine—Mineral Wealth—Area—Population—Medes and Persians—Religion—Nomads—Settlers—River System—Commerce—The Army—Law—Temporary Marriage—Obstacles to Progress—Iskander Beg's Opinions—Russia and England.

I DID not see the Shah—a visit to the palace is a matter requiring a little time and arrangement. The sovereign is constantly going off on shooting expeditions (the royal train consists sometimes of as many as 20,000, of whom 6,000 are soldiers), or visiting his country seats—a very natural process, when it is remembered that there are representatives, ministers, and ambassadors from many nations located at his capital—viz. : the Russian and English Legations, the Turkish Embassy, and the French, Austrian, United States and German Legations, established in the order as given. The Shah is spoken of as a bene-

volent ruler, and one who, in a quiet way, has done much to improve his charge. He builds caravanserais, improves the water-supply, gives freely in charity, and has allowed the introduction of gas, cafés, and a hotel into Teheran. He keeps a watch over his ministers, for occasionally he deposes one ; and if he does not devote large sums to public works, it is more from the knowledge that the money will not be used for the purpose than from the wish to retain it. Being an Oriental, it is but natural that he should wish strangers to leave him alone ; but however much England may pay consideration to this point, and earn a more genuine confidence, it will not prevent Russia from pressing claims and securing tangible advantages. That Russia has an extraordinary influence in Persia has been generally acknowledged, and very lately the Russian authorities have, under a condition of some treaty, literally forced the Shah, against his will, to commence the construction of a road within his own territory from Meshed to Kubashan (Kuchan) to meet the section that they are making to that point from Askhabad beyond the province.

It is supposed that M. Borital has a concession for a line from Resht to Kasvin, and through

Teheran and Shiraz to Bushire; there are also projects for lines from Baku to Resht and from Tiflis through Tabriz to Teheran, while grander schemes include lines from Alexandretta through Persia to Peshawar, and from Tripoli along the Mekran coast to Karachi. For local lines, however, Persia as a country is scarcely ready, for hardly one-fiftieth of its surface is as yet cultivated, and very much of the land, especially in the south, on which cereals, sugar-cane, etc., were raised, is now given over to the cultivation of opium. According to the *Pioneer*, the principal markets for Persian opium are Hong Kong and London. In 1886, 4,993 chests, worth £374,475, were exported. The quantity of morphia varies from $11\frac{1}{2}$ to 12 per cent. Opium occupies the first place in the foreign trade of Persia. At the same time the fault in her communications becomes painfully evident in times of scarcity. In 1861 there was a great famine. In 1871-72 the plague appeared; in 1875, pestilence and famine together nearly ruined the country, when two-thirds of the population in large cities were carried off.

One or two things are prominently noticeable, viz. : clearness of the atmosphere, the absence of noise,

general disappearance of everybody at sundown, and the number of beggars and sick people.

Although in a general way there is no evidence of extreme poverty, yet one would not call Persia a rich country; at the same time there is a vast amount of actual wealth in gold, precious stones, lead, iron, coal, bitumen, etc., hidden away, and the fertility of the soil is of a very high order. Its area is about 636,000 square miles, and the population about 8,000,000. The old division between the Turanian (*Medes*) and the Aryan (*Persians*) still exists, for the northern part is occupied by people of Turkish origin (*Turkis*), while in the south the Persian element (*Farsis*) predominates. These two sects, having only one common religion aloof from other Mussulmans, form the Persian nation. The ruling power (*Kadjar*) is Turk, and until recently Turkish was the Court language. The characteristics of the nation are pride in its traditions, an invincible faith (as Shias) in the memory of Ali and the Imams, with a corresponding hatred of the Sunis and their caliphs, Omer and Aboubakr.

The *Turkis* and *Farsis* are distributed between Iliats, or nomads, and Tajicks, or settlers, etc. Of the nomads, the *Bakhtyaris*, mustering about

375,000, and the Luris, 125,000, are the most important; these, with the Arabs on the southern coast and the Beloochees of Kerman, Moghistan, etc., number nearly one-third of the whole population.

The Iliats, or nomadic tribes, are agriculturists as well as shepherds; they dwell in towns in winter, and return yearly to the same mountains in summer to pasture their flocks. They are ruled directly by hereditary chiefs, who are responsible for the conduct of the tribes and for the payment of the Government tax. This tax apparently is 4 shahis a month for each sheep or goat, or nearly 1s. 6d. a year. Benjamin estimates this tax at 40 per cent. on the value of each animal per annum. The Tajicks, or settlers, therefore, include everyone who is not a nomad, viz., the workman, the merchant, the courtier, the schoolmaster, the functionary, the landholder, etc. They are individually responsible to the laws of the land.

As regards the physical aspect of the country generally: in the west and north are mountain-ranges, while the central and eastern portion is salt-desert. With the exception of the Karun, navigable as far as Shuster, it has scarcely a river that can be

termed navigable, though some, like the Helmund, Zamdarud, etc., extend many miles in length, and possess a great volume of water. The chief products are wheat, barley, cotton, sugar, rice, tobacco, and opium. Among the principal sources of revenue are the turquoise-mines, which are leased for £16,000 a year, and the pearl fishery, which is let for £10,000 yearly. Irrigation works are necessary, and water is paid for by the hour. Its wines are celebrated, and silk is one of its most important manufactures. The Persian Government has no debt, as the revenue of the year always exceeds the expenditure. For some years Persia has not been obliged to export specie to pay for her imports, and lately she has been importing bullion in the shape of silver bars.

Commerce with Russia is by way of the Caspian, and with British India by way of the Persian Gulf. Its imports amount to about 4,000,000 sterling, of which nearly one-half are from British India. Protection to British trade is secured by the treaty of 1841. The revenue in cash is about £2,100,000, and about £330,000 in kind, while the expenditure is about £2,300,000. There are no railways or roads, and it has 3,775 miles of telegraph (Whitaker,

1887). The revenue is gathered under ordinary and extraordinary heads. Ordinary (*malliat*) apparently includes customs, tax on land, one-fifth of the produce and taxes on local manufactures, while extraordinary (*sadir*) can include anything at will.

The army is now being trained and drilled by Russian officers, as infantry, cavalry, and artillery. The material is said to be good; and although a great improvement has been made, there is a want of certainty or finality about the whole arrangement, owing to the irregularity with which pay is issued to the troops. A fairly full parade may last for a few days, but gradually the numbers dwindle, as the men in ones and twos have marched off to their homes. From the ease and manner in which every Persian seems to be able to ride, there should be no difficulty in forming regiments of first-rate horsemen, well suited to the military requirements of the province. The army is recruited by districts—moollahs, merchants and workmen being exempt; service is fixed at 12 years. The strength of the army is nominally fixed at 50,000, with power to enlarge to 200,000. It is actually about 30,000. The Persian, if properly led, is said not to be inferior to the Turk.

Persian law is divided into two parts. The Shahr, based on the Koran and enforced by the priests, generally takes cognizance of civil cases, and the Urf, or oral law, administered by secular judges, deals with criminal cases.

Temporary marriage is an institution peculiar to Persia, and four conditions are indispensable, viz., the contract, which must be drawn up before a priest; the personal conditions, wherein the woman shall profess one of the four supposed religions—Islamism, Judaism, Christianity, or Magianism; the dowry, of which the husband must pay half if he dismisses the wife before consummation, and if after consummation, the whole; the period for which the marriage may be agreed upon, and this period, whether for part of a day, for 50 years, or even an antedate, must be written in the contract. One of the fundamental principles of Persian law is the *lex talionis*, or law of retaliation, the injured party not only being entitled to punish the offender himself, but to demand the penalty. One of the most objectionable features is that which allows the penalty, when of a physical nature, to be applied by the injured party (Benjamin, 438-456).

The three great obstacles to progress in Persia

are said to be firstly, its State religion, where Government and the law are subject to official direction by the clergy; secondly, official corruption; and thirdly, the rivalry between England and Russia. Mr. Benjamin, who established the United States Legation at Teheran, considers that there is no question 'that British prestige in the East has weakened very greatly, and perhaps irretrievably, during the last decade,' and he states that 'the Persians cordially hate both England and Russia.' He also adds, 'politically, the Shah and many of the most intelligent Persians are secretly in sympathy with England, because she is inclined to leave Persia alone; and they are violently opposed to Russia, because her designs for the conquest of their country are evident and sure.'

Mons. Orsolle (pp. 273-276) reports a conversation he had in 1884 at Teheran with Iskander Beg, on Afghanistan and its future, to the following effect, viz. : As Afghanistan commands the routes leading from Central Asia to British India, it was necessary for her to choose between two such powerful rivals as the actual possessors and the future invaders of India. Russia entered upon the scene in 1837 in command of the Persian army, first to besiege

Herat, and then to absorb Afghanistan up to the Indian frontier. This caused England to interfere in Afghan quarrels by the replacement of Shah Soojah—thereon followed the Cabul massacre, and the final advance of Pollock. Since that period Russia and England have sought for an alliance with Afghanistan. Russia, again, in 1856 persuaded Persia to seize Herat; thereon England invaded Persia. By this act England secured the sympathy of Afghanistan, but failed to profit by it. In 1869 Shir Ali, alarmed when Russia took Tashkend, Khojend and Samarcand, sought assistance from Lord Mayo at Umballa, which was not granted. In 1873, after Khiva had been taken, and after Lord Northbrook refused assistance, and after the Seistan award in favour of Persia, Shir Ali took the side of the strongest—and although the war of 1879 was fatal to Afghanistan, the retreat of the English shows how little they trusted in a decisive victory. Each day Russia advances, and England dares not stop her. 'We also have our revenge to take against England. Her prestige in Central Asia is completely gone; all the world knows that Russia causes England to tremble, and when the Czar shall send his armies to conquer India the whole of

Afghanistan will help Russia. She will conquer, and England will have to withdraw.' Iskander Beg then continues that Afghanistan is poor, and Russia will ask for no tribute—that Russian rule will end all strife and benefit the country—and in return Afghanistan will furnish, as she has already done, troops for Russian service.

The simplest reply to all this long tirade rests in the fact that Afghanistan is not of one mind, and that the disaffected will always go against their ruler. It is by no means certain that the Afghan nation as a whole would quietly accept either one or the other of the powerful rivals as an absolute ruler. Moreover, Russia has stated that she has no intention, at present or at any time, of threatening Herat or any part of Afghanistan, and that her desire is to secure a peaceful border and strengthen her friendship with England. In the same way with Persia, Russia may be supposed to possess a preponderating influence, but it is by no means certain that England could not quickly check this, or even turn the balance the other way, if she chose to exert herself thoroughly. Russia, however, in the question of the frontier between Persia and Turkomania, declared some time ago that the definition of this

boundary is a matter which concerns herself, and admits of no foreign interference. Later on, when the Ateks (between Babu Durmaz and Dushak) were absorbed, Russia replied that she was as much interested in the integrity of the Persian province as England could be; that the Ateks had never belonged to or been under the control of Persia; and that it was only after the tribe had been subdued that the Shah had claimed them as his own.

CHAPTER XVIII.

TEHERAN TO ISPAHAN.

Major Wells—A Chapparkhanah—‘Haji Baba’—Mr. Lyne—Kum—The Shrine of Fatima—Ecbatana—Dr. Woolbert—A Sugar Egg—Mr. Aganoor—Kashan—Taxes—Kohrud—Soh—[Mr. MacGowan—Dr. Hoernle—Amir Panj—The Arsenal—The Palace—Zil-es-Sultan—Water-bottles—Tent d’abri—Persian Newspaper—Ispahan.

THE journey from Teheran to Ispahan, 280 miles, may conveniently be divided into five stages. On Monday, November 7, I left Major Wells’ hospitable roof at 6.15 a.m., and was well clear of the city by 7. Met donkeys, camels, men, all coming in for the market. Over the Kum gateway is Rustum fighting with the white demon. The ride very pleasant, and road fair going, though my first pony turned a somersault with me when within about 6 miles of Robat Kearim.

The scenery in front is of an ordinary type—a wide plain, with a few mud villages, sparse cultiva-

tion, some low hills and the telegraph-wire leading as to a vanishing-point. Behind, it is different; a range of fine hills with the lights ever changing. Halted at Robot to study a Persian dictionary for one hour; breakfast, and then on. The route good, but over some low stony hills. Plains with but little growth, 36 foot-paths winding about, the tracks of laden beasts. Saw three large sand-grouse; the servant called them 'tobah.' The new man (Khodaya) much more lively than Nasr-ullah.

The chapparkhanah at Pfk is small, with an upstairs room, from which one can see the country round, the mud domes of the village, the interior of some of the courtyards, and the camels and bullocks returning for the night. A chapparkhanah is a rest-house where the postal department keeps its horses. The ordinary type is built as a fort, in mud, with curtain walls and towers at the corners, and a large double gateway on one side. To the right and left of the gate inside there are rooms, one for the chapparchi, or head man, and the other for ordinary travellers, and on the three sides which enclose the courtyard are vaulted corridors which form the stables and storehouses during winter. In summer the horses are picketed in the courtyard, and feed

from mangers built into the walls. At one corner there is a staircase which leads to a room over the porch, intended for the better class of travellers. This room is unfurnished, but there is a fireplace, and the man in charge can generally produce a felt or two for the floor, some bread, a fowl, and possibly a little tea. After a day's ride personal comforts must be attended to, a good wash and a change of clothes for the night. The soup is cooked, the bed-sack filled with bhoosa, the fowl eaten, and after a few pages of Morier's 'Haji Baba,' the traveller is asleep, truly in a land of dreams.

On leaving next morning at 5.30 a.m., Venus looked like a huge solitaire in the sky. First-quarter moon. Rode to Kushk-i-bairam and then to Ramatabad. In crossing a plain by the edge of a salt lake, flushed a tilaor (houbara). Good going all the way. Kum looks rather nice—green fields, gilded mosque, high minarets and nice market. Got jammed in the bazaar with a drove of donkeys going one way and a herd of bullocks the other. Shops nice; festooned with fruit. Slept at Mr. Lyne's bungalow, and there saw Sergeant Macintyre. Heard from Wells that the Mirza Joseph wanted 30 krans more on account of subsistence allowance for six days while

waiting for me at Enselli. Replied by telegraph that I refused to be bled any more. Mr. Lyne is in charge of one of the telegraph sections; he has been here some years; his wife and child are with him. He says that land round about yields a net profit of 40 per cent. Here is the shrine of Fatima, so sacred that its altar affords protection to all who seek it. Kum is famous for its pottery. It is also said that criminals in Persia may find absolute protection by seeking refuge in a stable.

About 150 miles due west of Kum is Hamadan, or Ecbatana, where naphtha, or bitumen, was known to exist from an early period. When Alexander was in this district the people scattered some drops of naphtha on the line which led to his abode, and standing at one end, they applied their torches to some of the first drops, for it was night. The flame communicated itself swifter than thought, and the path was instantaneously all on fire.

On leaving the town Khodaya let his horse go, and this led to a chase for an hour in the cultivated fields south of Kum.

Near Passangun I met Dr. Woolbert, who was 'caravanning' to Teheran to join Maclean at Meshed.

Changed horses at Passangun. Had a tumble, as the horse, after carrying me for 20 miles, fell going down the last stony hill into Sinsin. Fresh nags ; this time, mine was a real beast ; got two farsakhs out of him and changed with the servant.

After passing Sinsin, the scenery varies slightly, and at Nusseerabad villages come into view more frequently. The flora of the plateau very scanty as compared with the rich production of the country below the hills towards the Caspian. Here one gets a lovely melon called *tokmeh khand*, or sugar egg. A few trees now appear ; snowy hills on the right, the salt plains of Kharian on left. Arrived at Kashan at 4.30 p.m., and put up with Mr. Aganoor. Kashan is in a hollow. Had a good bath. The place is famed for its silk and velvet.

Taxes are levied at Teheran, Kashan, Ispahan, Shiraz and Bushire on all through and local traffic. These are farmed out ; the yield for Kashan is said to be 14,000 tomans (£4,550), and for Shiraz, 23,000 (£7,475). English and Russian imported goods sell cheaper than local manufactures. Foreign goods merely pay a 5 per cent. *ad valorem* duty at port of entry and departure, and are exempt from octroi

and inland customs charges. There is a leaning tower at Kashan, but I did not see it.

The ride from Kashan to the foot of the hills, probably 12 miles, along a very stony track, takes about 3 hours. The air was so clear that, on looking back, the town did not seem to be 5 miles away. The road then ascends by a regular gorge with running water all the way, passing a big bund, which had been built across a narrow neck. The reservoir was nearly empty of water, but full of silt. The outlet was very small, and at the bottom of the embankment in the centre. On to Kohrud, a spot highly cultivated; a fair-sized village most picturesquely situated on the hill-side. The autumn tints at the fall of the leaf were lovely, the golden bronze of the chestnut mixing with the purple of the plane-trees. From Kohrud it is about a farsakh on to the head of the pass (nearly 9,000'), leading down into Soh. Here I found Mr. and Mrs. MacGowan and some foreigners from Ispahan on a visit. Had an attack of fever and neuralgia; passed a bad night owing to the continual hum from the vibration of the telegraph-wires, which were let into the room close to my head.

From Soh the route passes by Bideshk, Mer-

charkar and Gaz to Ispahan, where I received a hearty welcome from Dr. Hoernle. A post-card of October 5th from England. Telegraph to London, four words, 9 krans, 12 shahis (say, 5s. 10d.). Out riding with Madame Balois and Rev. G. R. Ekins. Monsieur Balois, the French Consul-General, was about to call on the Zil-es-Sultan, the Governor of Ispahan, and the eldest son of the Shah. A six-horsed brougham had been sent for him, and it is a wonder how such a lumbering affair could ever have been taken through the narrow winding alleys without any upset. Visited the arsenal, and was received by Karim Khan, the Amir Panj. A regiment was drawn up in the main square; general salute; regaled with tea, and then shown over the different galleries; everything in very good order. Boots for the infantry to last one year, price 5 krans; all leather locally cured (the process of making 'Russia' leather was borrowed from Persia); water-bottles of leather with brass nozzles; men's cloaks of gray material with cape, six of them intended to form a *tent d'abri* for six men; two cloaks form the roof supported by two rifles as standards; two cloaks on the ground for six men to lie on; and two cloaks remaining to cover them. The arms were from

Austria, Werndl pattern carbines, costing 8 tomans (£2 12s. od.), and rifles for infantry costing 12 tomans (£3 18s. od.): these prices were considered high; some rifles which had been made locally in imitation, piece by piece, handwork, were said to have cost 15 tomans (nearly £5).

Visited the palace. The Prince's body-guard, wearing Austrian helmets, drawn up; two bands playing. Different squads under instruction—gymnastics, fencing, sword-drill, single-sticks, pole-jumping, etc. In the old hall at the Garden Palace there are many curious wall-paintings of Nadir Shah's battles with Indians, Afghans, Turks; also his receptions of different kings. Visited the College. Tiles of the minaret very good; the courtyard looks cool and quiet with its plane-trees and tanks. Minarets at the University very pretty. Turkish bath with Dr. Hoernle, the son-in-law of Dr. Bruce. Missionary work in Persia is apparently limited to native Christians and Jews. Introduced to the Armenian Archbishop.

Sunday, November 13.—Family prayers in the morning. Public service in church conducted in Persian. Called with Mr. Aganoor on the Prince, Massood Mirza, the Zil-es-Sultan. The outer court

was filled with soldiers ; the officers came up, and in saluting me reported the muster of their regiments. Apparently there were four regiments, each 572 strong. Inspected the store-rooms. Saw men fencing and pole-jumping. Informed that the Prince was ready to receive me. Passed through a second court and into a small garden, the walls of which were decorated with ibex and gud horns. The Prince, about 40 years of age, with a pleasing though abrupt manner, was in a small room overlooking the garden. After a few remarks he said he was confined to his couch through indisposition, and that the moollahs had been with him. He said moollahs were very foolish. They thought the world was made for them. I assented, and said what a pity it was they did not travel to see it. He was anxious to know whether Ayub had been caught, or whether he submitted. Then we spoke of Bokhara and Russia. He said Russia would keep the Bokhara Emir upon his throne. He asked how many men could Russia move to Afghan frontier. I said about 8,000 a day. He said he did not want to know that, but how large an army. After a short time I replied that, drawing from the Caucasus, the Volga, Khiva, Siberia, etc., I thought the number

would be 300,000. The Prince agreed, remarking that he had himself heard the same from Russians, viz. : 400,000 and 600 guns, the odd 100,000 being required to keep Turkestan quiet. The conversation turned to shooting, and my late visit to Russia in the East. As I had heard at Teheran that the Prince was about to be decorated, I showed him my medals; he was pleased with them, and paid me a very pretty compliment.

In speaking of Alikanoff, when the Prince wished to see his picture, I gave him the photograph I had bought in Merv. In telling the Prince he ought to travel, I suggested he should go eastward to India first, to see what a Mohammedan province properly ruled could really become, and that, having done the East, he might then go West. He thought the suggestion was good, but it all depended on the will of his father. On my taking leave, he rose from his couch and gave me five of his pictures from a cupboard. I asked him to write his name on one, and then said, 'As you have given me so many, may I give one to the Viceroy in India?' He replied, 'That one is for you, and you may do with the others as you like;' that I might give one to the Viceroy, as he was so kind and considerate to Mussulmans;

that he had the greatest admiration, and even affection, for Lord Dufferin, and that I was to be sure to convey these sentiments to the Viceroy. I also expressed a wish to give one picture to the Commander-in-Chief. I then took leave, but the Prince called me back after I had left the room to shake hands with me a second time and bid me farewell. The conversation was carried on through the native doctor, a man who spoke English, and had studied medicine in England. The army is evidently the Prince's hobby. Although he is the eldest son, he is not the Crown Prince, for his mother was not of the blood royal. The general impression is that he intends to fight for the throne. The heir apparent is Musaffur-ed-deen Mirza, at present Governor of Azerbeidjan; he is said to possess good administrative ability. The third son is Kamran Mirza, who lives at Teheran as Minister for War.

[The photographs were duly presented in India; one to H.R.H. the Duke of Connaught at Poonah on January 5, 1888, a second to the Commander-in-Chief at Calcutta on January 12, and a third to the Viceroy on the 13th.]

From the palace I went with Mr. Aganoor to visit Karim Khan, Amir Panj; he was delighted to see

me. Plenty of fruits and sweeties ready. He also gave me his picture, and wrote his name thereon ; he presented me with a drinking-bottle of his own, and said he would send another from the arsenal as a pattern for our troops ; also two cloaks to make a tent.

The editor of the Persian paper published at Ispahan was present helping to receive us ; ordered a copy of his newspaper—8 tomans a year, including postage. In the evening, when the water-bottle and the cloaks arrived, the bearer, a junior officer, was duly received, given a kalyan to smoke, and sent away with a present of 2 tomans, Persian fashion, which requires that the tip shall be about equivalent to the things received.

At Ispahan 32 pounds of ice are delivered daily during 5 months for 10 krans. Ispahan is the ancient capital, and Julfa is its Armenian suburb. The Zamdarud flows by the city, and is crossed by two or more bridges, one with very high parapet walls, and the other acting as a dam with regulating sluices. Chahar Bagh might once have been a sight, but now all is neglected. The Maidan-i-Shah, 300 by 180 yards, is enclosed by barracks. The trembling minarets of Ispahan I did not see ; ap-

parently there are two minarets, one on each side of a dome. On striking one, the other oscillates, while the masonry between the two remains at rest. Near Ispahan is the range of Zaida Koh mountains, 16,000 feet.

CHAPTER XIX.

ISPAHAN TO BUSHIRE.

Mr. Gifford—Yezd-i-Khast—Sergéant Glover—Sergeant Blake—
 Reza Khan—Cyrus' Tomb—Mr. Whittingback—Naksh-i-Rustum
 —Poozeh—Persepolis—Bendemeer—Zergoond—Shiraz—Mr.
 Preece—Mule Staging—Sergeant Jeffreys—Pirizan—Mian
 Kotal—Doktar Kotal—Public Works—Kazran—Mr.
 Edwards—Kamaraj Kotal—Kotal Malu—Daliki—Sulphur
 Springs—Borasjoon—Mr. Malcolm—Kushab—Shif—Colonel
 Ross—English Letters—Bushire—Shuster—The Karun—
 Expenses.

THE ride from Ispahan to Shiraz, 274 miles, may be divided into six or seven stages, according to the time that is to be given to Persepolis. After two days' rest our cavalcade of three left Ispahan, or rather Julfa. Mr. Gifford met me on the road near Kumeshah, and took me to his house, where I saw Mrs. Gifford and her little girl. Passed a most comfortable night under their roof.

The route passes Yezd-i-Khast, a curious village perched on an isolated rock in a deep ravine.

The ponies from Shulgistan to Abadeh were

wretched. Sergeant Glover met me and gave me breakfast. Number of Mohammedans (Russian subjects) in Kashan, also at Ispahan. Russian influence is said to prevail ; that is, if any merchant or other person wants anything done, he applies to Russian Consul, etc. Lately a Russian officer (Captain Blumer) and his two Cossacks, all in uniform, passed through Abadeh on a trip to Bushire, making full inquiries as to routes for guns, etc. Glover says he was in the 37th Company, Royal Engineers, in 1866, when I was attached to it at Chatham. He is married to an Armenian, and his boys (two) are to go to the depôt at Chatham. St. John, when in Persia, had great influence. Saw the new moon ; such a beauty. Got on to Surmek, cooked dinner and turned in.

Sergeant Blake is at Dehbid with his wife, and although it is a place in the desert, they are as happy as possible. Saw four cranes (*gaz*) and two ducks. The robber Reza Khan, a Kashgari, is out on the Murghab Pass, looting ; his followers released him lately from prison in Shiraz, and they are now plundering right and left. The Governor has just sent a message to Reza Khan, saying that if he will go off to his village, nothing more will be said,

the sequel to this being that eventually he will be enticed into Ispahan or Shiraz and summarily disposed of.

The ride into Murghab takes 5 hours. The weather is perceptibly colder, and there is ice on every stream. The warm woollen gloves given me by Mrs. Glover are most comforting. Thirty miles at least on one nag, and of this 12 miles over about the worst road in Persia. It is at this pass that Reza Khan plies his trade. Some soldiers on watch. South of Murghab, at about 1 farsakh, is Cyrus' tomb.

The tomb had a Persian inscription, and Alexander ordered it to be inscribed also in Greek. It was as follows: 'O man! whosoever thou art and whosoever thou comest (for come I know thou wilt), I am Cyrus, the founder of the Persian Empire. Envy me not the little earth that covers my body.'

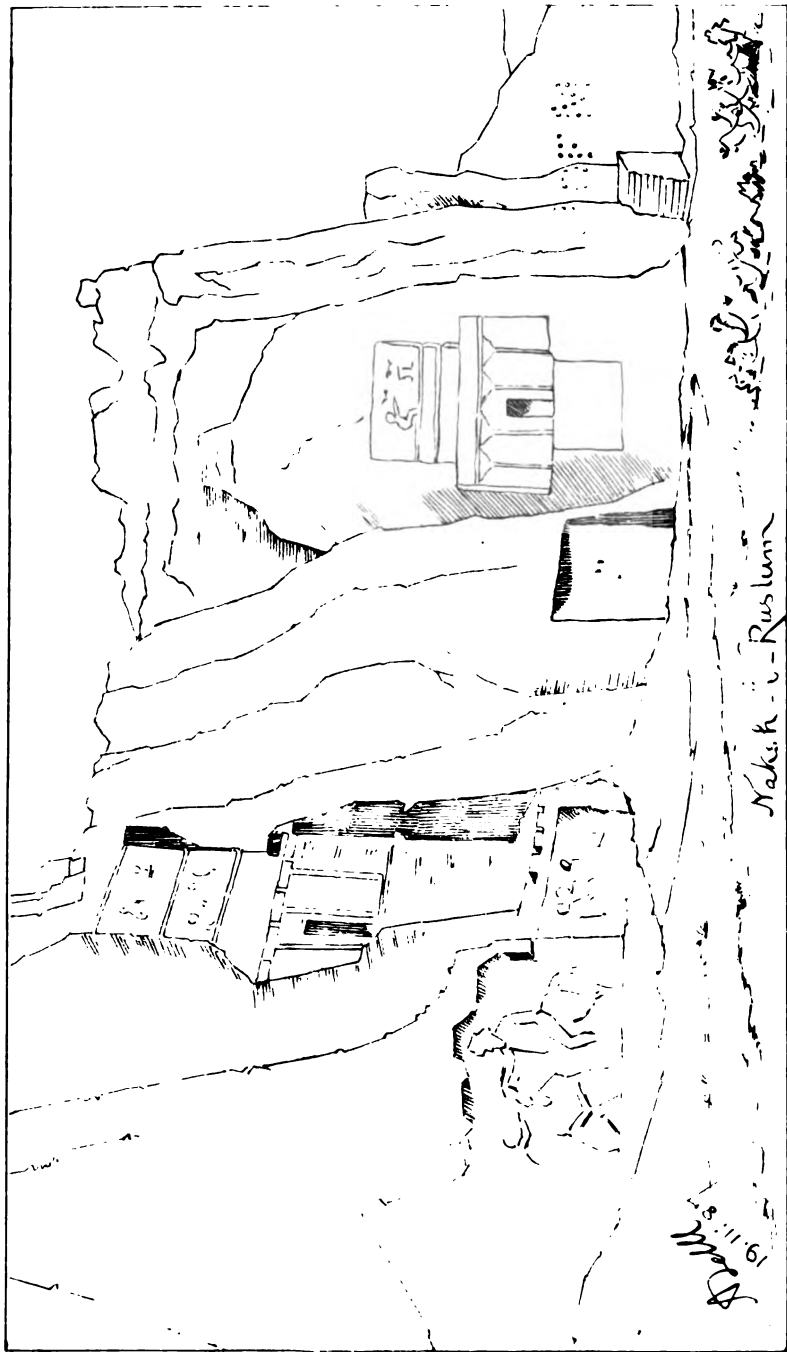
I noticed an outcrop of quartz here, for the first time during my ride. The scenery now becomes more wild, and the route runs through a bold gorge with running water, trees, etc., fording the same stream twice.

Into Kawamabad in four hours. Post just going out; two men on horseback, and two nags with

post-bags, trotting in front, four horses in all. No fresh horses, so our party had to be content with those which had been released by the mails.

Went on from Kawamabad and met Mr. Whittingback. I halted for a cup of tea in his tent, and then went on to sleep in his bungalow at Sivand. The route along the pass from Murghab is very picturesque with the river Polvar flowing by, and giving some life to the scenery. Mr. Whittingback was out on his half-yearly inspection; he has to walk along the whole of his charge and examine every insulator, etc. Lengths of the line are sometimes thrown down by the snow and storms in winter, and for days communication is interrupted.

Started about 7 a.m., and went straight to Naksh-i-Rustum, the Tombs of the Kings—a high sandstone hill, with its face sculptured with various scenes, notably one of Valerian as a suppliant to Shapur. There are also five tombs; the rock is cut out in the form of a cross, and in this figure the entrance-door is placed. In the head of the cross the King is shown worshipping fire on an altar. The sun hangs over the altar, and midway between the King and the fire a winged figure hovers. The doors are 40 feet from the ground, and the inner chamber is

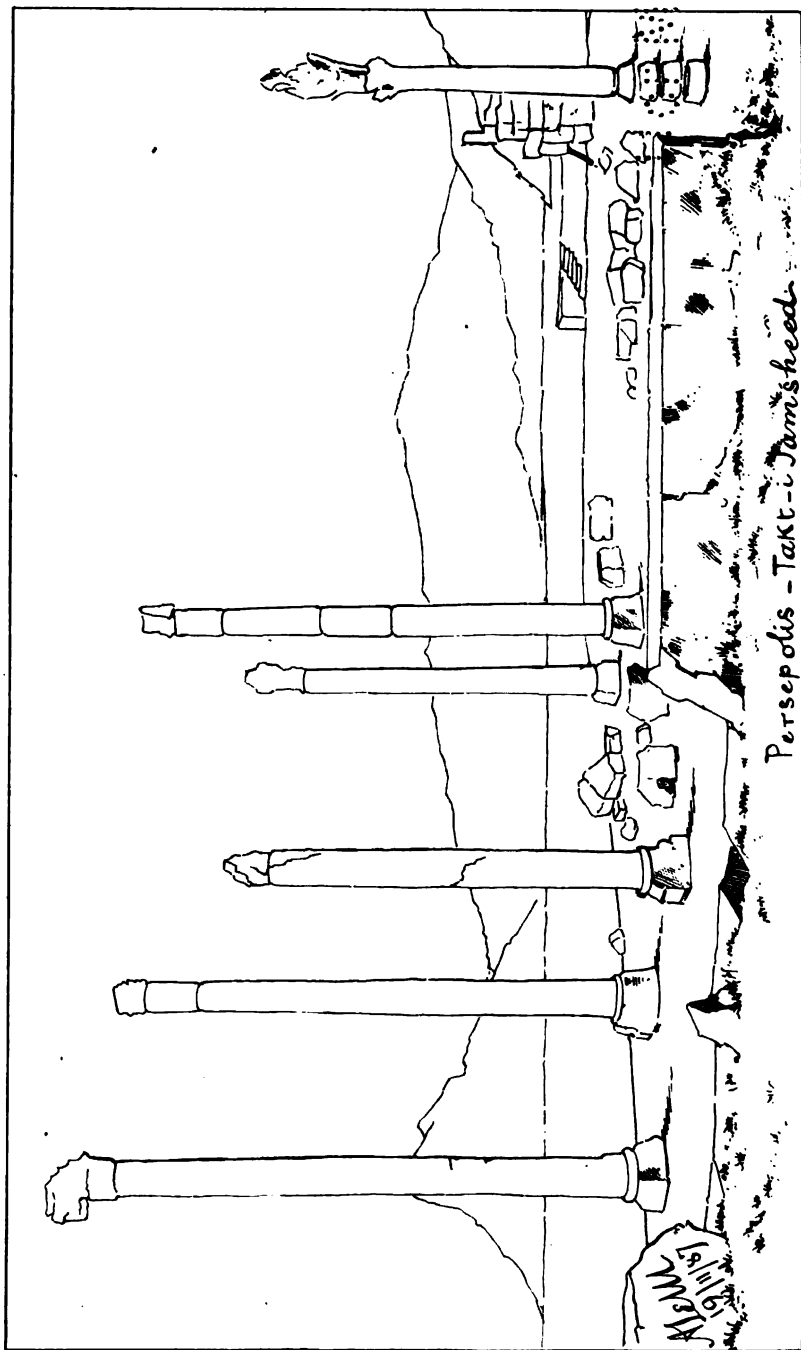


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excavated so that the roof is 20 feet above and the floor 20 feet below the entrance. Inside the chamber a transverse gallery extends 5 yards to the right and 15 to the left, while opening back from it are three recesses. Each recess was the resting-place of three Kings. From the tombs it is an easy ride across the plain to Poozeh chapparkhanah. Left my kit ; had breakfast ; got another nag and went off with the guide to Persepolis and Naksh-i-Rajjub : this time the man took his gun and sword, because he said the looties were about. We saw nothing of them, and it says a good deal for the Shah that his dominions are so safe for anyone who chooses to visit them. At Persepolis, there are more tombs in the hills, and on a platform 500 yards long by 312 broad are the ruins of the palaces of Darius and of Xerxes, with the grand steps, 21 feet broad, leading to the portal of the bulls ; the sides of the staircases are all beautifully sculptured in black syenite. The columns originally were 60 feet high. They are fluted and of marble, limestone, or magnesia. Alexander stayed 4 months in winter at Persepolis to give his troops time to recruit. (He led 120,000 foot and 15,000 horse to India, and only brought back about one-fourth of the number.) And it was after a feast

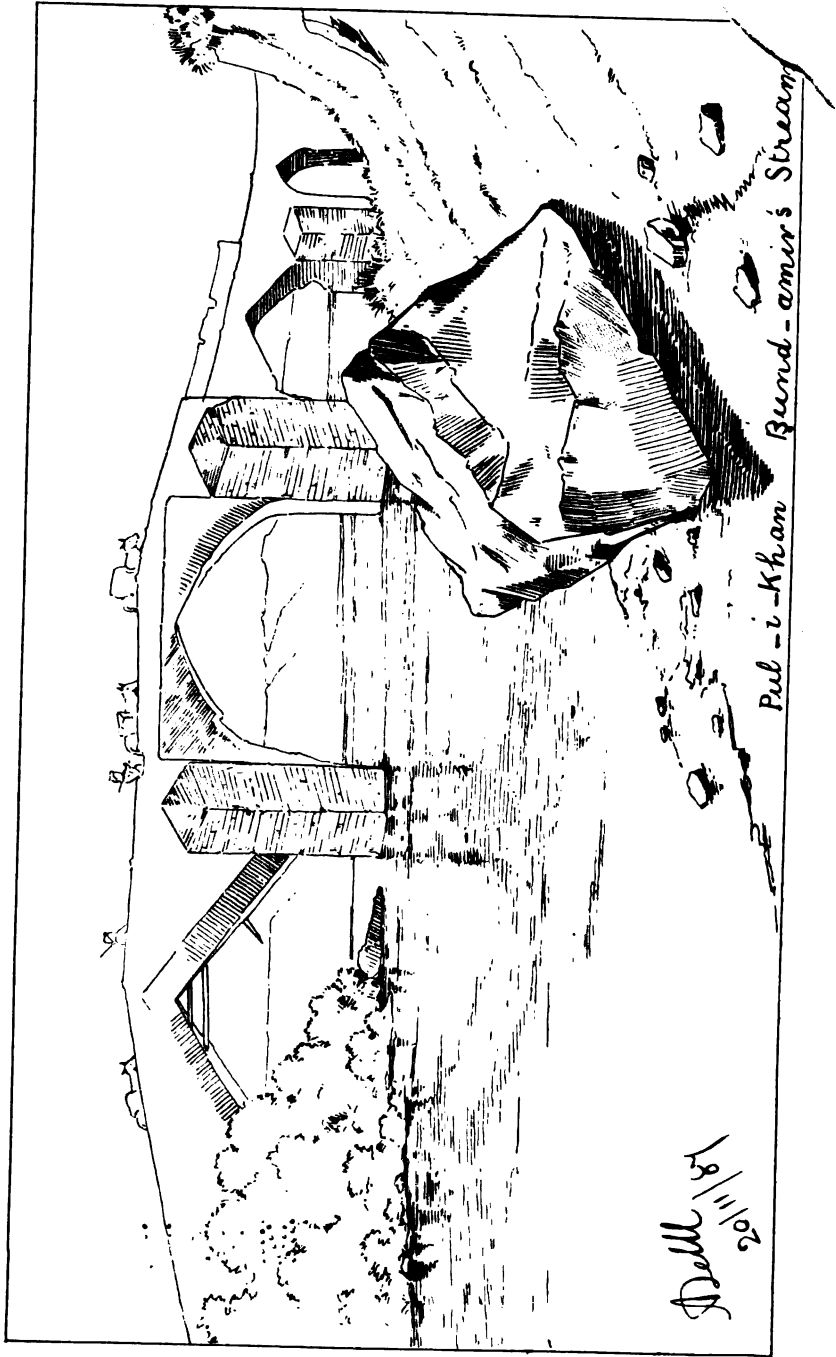
where a great deal too much wine seems to have been indulged in, that Thais, a native of Attica, and mistress to Ptolemy, afterwards King of Egypt, suggested burning the palace of Xerxes. Alexander himself is said to have led the riot. (At one supper Promachus drank about 14 quarts of wine, and the rest of the guests drank to such a degree that forty-one of them died from the effects.) The whole place is now tumbled about, but there is enough to occupy and interest one for at least two days. Many of the carvings are finely executed, and the hard black stone carries a high polish.

Between Persepolis and Zergoond the road crosses the Kor River, or Bundamir's Stream, by a bridge called Pul-i-Khan; the village of Bundamir being some miles lower down. This bridge gives one a very fair idea of Persian public works; irregular in design; a mixture of material; one-fourth of the parapet gone, and a great part of the arches washed away at the haunches from the force of the floods. The stream appears to be an ordinary one, rather muddy and silt-laden, with a few tamarisk-bushes on the banks. Scarcely sufficient to have inspired Feramorz when reciting to Lalla Rookh the Nymph's song to Azim, who had lost his Zelica :



Persepolis - Takt-i Jamshedd

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40
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20/11/81
Dodd

Pul-i-Khan Bund - Amir's Stream

1901

'There's a bower of roses by Bendemeer's stream,
And the nightingale sings round it all the day long ;
In the time of my childhood 'twas like a sweet dream,
To sit in the roses and hear the birds' song.
That bower and its music I never forget,
But oft when alone in the bloom of the year,
I think : is the nightingale singing there yet ?
Are the roses still bright by the calm Bendemeer ?

'No ; the roses soon wither'd that hung o'er the wave,
But some blossoms were gather'd, while freshly they shone,
And a dew was distill'd from their flowers that gave
All the fragrance of summer when summer was gone.
Thus Memory draws from delight ere it dies
An essence that breathes of it many a year ;
Thus bright to my soul, as 'twas then to my eyes,
Is that bower on the banks of the calm Bendemeer.'

Beyond the bridge is an old paved causeway, which stretches for about 3 miles across the open plain. There were plenty of Brahminy ducks, sand-grouse, wild ducks, cranes, plovers, and pigeons on the Persepolis plain. From Zergoond, 15 out of the 20 miles is up and down the narrow spurs of hills by a very rough and stony road. Then the country opens, and at once you see Shiraz is before you between the hills, a lovely peep through the dark framing of a narrow gorge. Shiraz, with its cypresses, gardens, town, and mosque, is below the hills, and in a highly-cultivated and well-watered plain. Three blue domes are conspicuous.

The bazaar was built by Karim Khan 150 years ago, in form of a cross. Mosque of Shah Chiragh prominent, also Masjid-i-Nan and Syed Hussein's. The coloured tile-work especially good. Mr. Preece is living in a garden enclosure, the property of Mir Hassan Ali Khan. Dined and slept at his house, and there met Dr. Scully.

From Shiraz the journey has to be continued with mules, as the country is so steep and rough. The distance to Bushire, 163 miles, is to be done in 6 stages. The order of travel is the same with the mules as with the horses. Mules arrived late. We left at 9, and reached Khan-i-Zinian at 4—8 farsakhs in 7 hours; road very up and down and very stony.

The night was spent in a serai. The first part of the march to Dasht-i-Arjun (Plain of Wild Olives) took $3\frac{1}{2}$ hours over a roughish road through hills covered with scrub jungle. Ice in the nullahs. Took breakfast with Sergeant Jeffreys and his wife. Dasht-i-Arjun seems to have no outlet, and it is a wonderfully large basin surrounded by hills; those on the east side, though the stratification is horizontal, are cut by storm and weather into upright pillars, giving a peculiar effect. It is easy to fancy



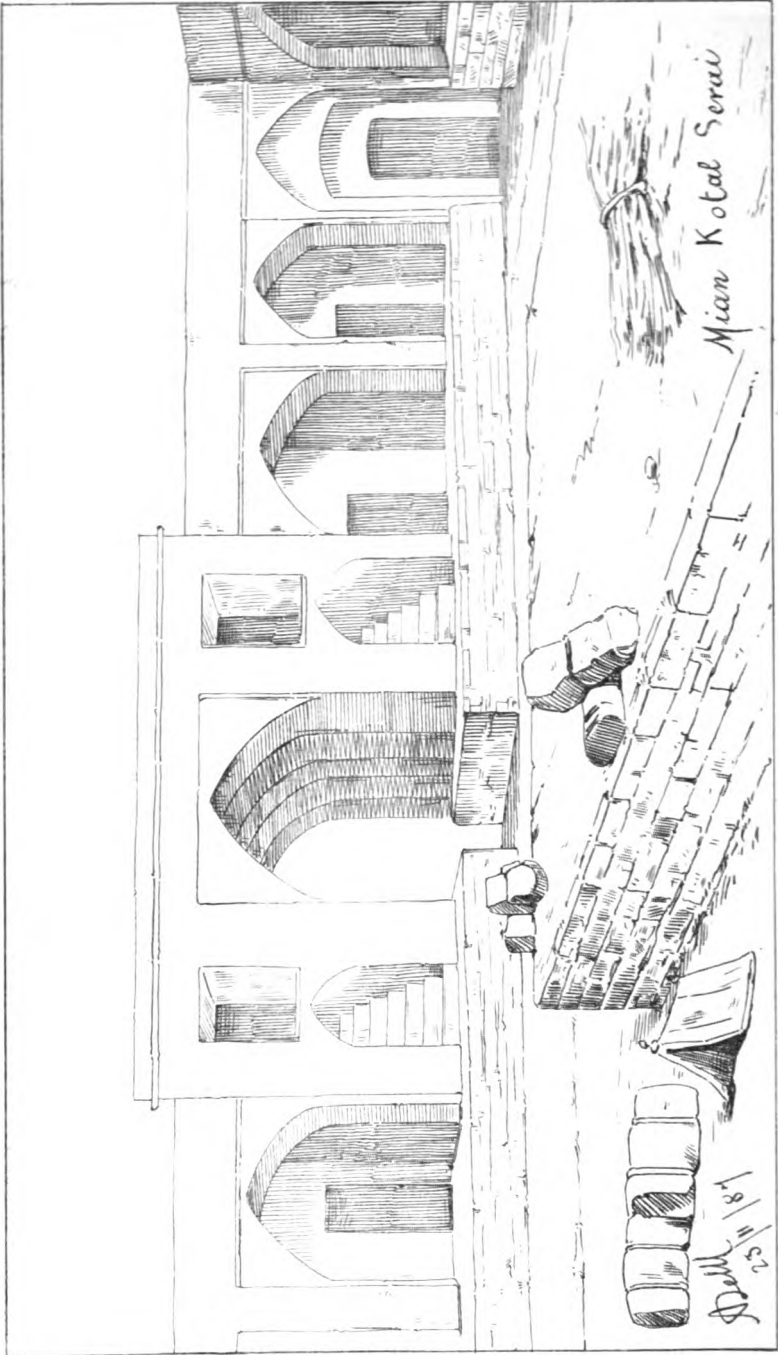
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from Pirizan Kotal

Looking West.







Mian Kotab Serai

Dobell
18/12

that this plain must be a perfect carpet of wild-flowers in the spring. A lion had been killing horses and mules for the last seven days at Pirizan (Old Woman's Pass) just at the spot where St. John was attacked by one. Jeffreys made me take my revolver from the valise. Tofanchis were out on the hills firing, and a spot was pointed out where some governor had been lately murdered. The track up to the kotal is very steep and very rough, quite impassable for guns, and the descent to Mian Kotal caravanserai is equally bad, through quite a forest of trees shedding the leaf. The caravanserai at Mian Kotal is prettily placed on a knoll amidst trees. Made a sketch of the route to-day from Pirizan looking across Doktor Kotal to the hills beyond the Kazran plain.

Left Mian Kotal at 6.30 a.m., and arrived at foot of Doktor Kotal, 3 farsakhs, in $4\frac{1}{4}$ hours. The path descends from Mian Kotal 500 or 600 feet down the rocky side of the hill into a stony plain, which is nothing more than the bed of the Quara Agach River, full of trees (black trees), but evidently swept by torrents. The hills on both sides are curiously pitched inwards evenly to the river, just as if the ground on both sides had once

formed one mass, and then had been deeply depressed in the middle by a sudden disturbance. After about 8 miles, the ascent of Doktor Kotal (the Maid's Pass), 1,000 feet high, begins ; nothing much to speak of, but marked by a small tower, a shrine, and a hauz (underground reservoir). The descent is another matter. At first it is a mere rut, worn between rocks and stones ; then it becomes a regular cobbled staircase, zig-zagging along the face of the rocks ; the cobbling is loose at places, and the stones are left scattered about. The work is an engineering feat, and, considering the circumstance of the short distance, the heavy grades, etc., it cannot be improved on. From the foot of the staircase the track is over the stony bed of a torrent up to a small bridge. Close by is Naksh-i-Timour, a sculptured rock, apparently representing three or four women and a lion. From the bridge it is 2 farsakhs into Kazran over a sandy plain, with kiril bushes here and there. Arrived at Mr. Edwards' place at 2 p.m. Coming down the hill the mule in front of me had a long-shaped box, and when I asked what was in it, the driver said, ' A dead man for Kerbela '—Kerbela, near Baghdad, where Ali is buried. Of all sacred places, this is

the most venerated by Shias. The first palm-trees seen in the village. Kazran has about 8,000 inhabitants, and is famous for its oranges and poppy cultivation.

Left Kazran late, as the muleteer, having got an advance of 60 krans the night before, had walked off with the mules to his abode. To the point of the hill where the route turns southward is 3 farsakhs, then a farsakh up and down a moderate hill, and then a farsakh into Kamaraj— $5\frac{1}{2}$ hours doing the 5 farsakhs. Waited for an hour at the rest-house. The Kamaraj Kotal is close to the rest-house, and after a short and rough rise the descent begins: it is just as if the sides of a mountain had fallen in, and a path was only to be found winding along through the stones and débris. The path is so narrow that the mule-loads strike against the rocks; the grade is very severe. In places it amounts to steps, and the way the mules scramble up and down these paths is little short of marvellous, considering that many of them carry heavy loads or huge kajjawas in which two, if not three, women are comfortably ensconced. About 1,200 feet in all of a descent from the Kamaraj Plain, which is 2,950 feet above the sea. The geological formation is

curious, a singular configuration of long flat-topped hills, with ribs in perfectly straight layers of coloured clays, pitched at a uniform angle from crest to bottom. At parts the pass is not unlike that of Upper Sooroo in Abyssinia, though here more tumbled and of a rougher description, but without the huge boulders which there blocked the way and required ramps and staircases to surmount them.

After about 6 miles the Kunar Rud appears, looking most refreshing with its open winding of blue-green water and miniature rapids; the road then leaves the stream, and after a few small hills the track strikes across a plain to Konartakteh. A lovely evening, so still and the light so clear. The surroundings remind one of many of the villages in Sind; plenty of date palms. Got in at 5.30, having taken $3\frac{1}{2}$ hours from the rest-house.

Friday, November 25.—Left Konartakteh at 6.10 a.m., and shortly reached the head of Kotal Malu, the worst section of the whole road. The descent is 1,000 feet from Khisht, 1,800 feet above the sea; the head is but a cut through rock, scarcely wide enough for one mule; there is a stone causeway in progress, with a grade of 1 in 3 or 4, turning

and twisting down a spur. The hill is formed of masses of conglomerate, and the track winds round and down for $1\frac{1}{2}$ hours as far as the three arches of an old bridge in the river. Here it rained. The route continues along the bed of a river to Daliki Bridge. Six arches, one large span in the centre, three on one side, and two on another; the cutwaters are out of repair, and very shaky. Then the track follows the scarped bank of river, passes another old broken bridge, and wanders through nullahs and rocky hills till Daliki is before you; heavy rain, thunder and lightning; groves of date-palms. Time, 5 hours. The heavy rain fortunately stopped shortly after 1 p.m. Passed the sulphur and naphtha springs. The hills seem as if they had been dipped in naphtha to their summit. Coal is said to have been lately discovered in Southern Persia. There are some salt-hills north of the village of different colours; water very green and sulphurous; some of the stones covered with red fungoids. Flushed a snipe in one of the odoriferous pools; will he taste of kerosine? Took 4 hours to Borasjoon. Borasjoon is the place to which the Persians fled after Kushab, and then to elude us left their camp and fled to Daliki before going up

the hills ; their idea being that English could fight at sea, but not on land. It is said that in the charge at Kushab, the Persian square was astonished to see a few officers and cavalry charge it : they did not know what was meant, and that when the officers got inside the square, the Persians did not attempt to kill them, but looked on and wondered *what they were going to do next*. Some peculiar ideas exist also as to the relations between Outram and Stalker. What is required for Persians is regular pay, etc., to ensure discipline. The public works one sees, caravanserais, etc., are due solely to private enterprise. The Kotal Malu I now find is not an unfinished, but an abandoned, work. One man, a merchant of Shiraz, commenced it, paying his own masons. Then it appears the man was a muff, for he began to pave a road straight up a precipitous spur without zigzags ; a darzi pointed out that another route to the left was better. The merchant in disgust stopped work, lost his money, and the credit to his name.

Mr. Arshak Malcolm, my host, was so full of country lore that I asked him to write a short account of the Persian War, giving the Persian version.

Left Borasjoon at 6, and arrived by 12.30 at Shif. Stack in his book says this march from Shif to Borasjoon was the worst he experienced in Persia; it was my last, so I had to make the most of it. The rain came down in torrents at Kushab, and lasted right into Shif, the mules slipping about like cats in nutshells on ice. The route is over a dead level plain, and most greasy. At Shif met Colonel Ross's men, who gave me my letters up to October 19. All well at home, and just as I was being carried off to the launch, an old curlew got up with his wild cry, recalling at once pleasant days on Loch Awe, and above all the oldest and best friend I have in the world—Will Merriman (Colonel, R.E.), the boy of 40 years ago, and with whom this peculiar whistle used to be a call and signal during youthful frolics. Good news from home to the latest possible date; sudden recollections of old friends, the labour of travel done, rest, a nice lunch, attentive servants, and a swift launch, so thoughtfully provided as 'wings to bear me over.' Verily the Good Spirit 'moved upon the face of the waters.' After 2 hours' steam, and after Khodaya had been thoroughly seasick, we landed at Bushire. Here Ross's dogcart was ready, and in 10 minutes I was under his

hospitable roof. By the time of *afternoon tea* with Mrs. Ross and her two daughters, I felt nothing more than just as if I had landed from England by the mail-boat. Dr. Ross and Captain Ravenshaw, a political, here.

Settled with Khodaya—he asked me for everything I had. Gave him 116 krans, and the native saddle and bridle; he is now going to Kerbela to be buried in a box, as I tell him. The customs of Bushire amount to £24,000. The harbour is not good, and the island can only be approached by vessels of light draught. Steamers and ships have to anchor some 2 miles away in an open roadstead. At Mohamrah, the junction of the Karun with the Shat-al-Arab, vessels of deep draught can lie along-shore, and from that port there is water carriage for 200 miles inland to Shuster.

Shuster is the ancient Susa, where Alexander found so much treasure and the purple of Hermione. It was here that Darius took refuge, as the country was so difficult to traverse, and all the passes were guarded by the bravest of the Persians. Alexander's loot at Susa loaded 20,000 mules and 5,000 camels (Plutarch). The Karun is said to be navigable as far as the rapids of Ahwaz, a point to which an

Englishman, by name Eastcourt, ascended in 1836, in a steamboat; Mr. Selby also went as far as Shuster.

There is a project for the navigation of the Karun, and a connection beyond, with Dizful, by rail, but the proposed terms and conditions are so adverse to Persia that it is no wonder negotiation is in abeyance. Some say that Russia prevents the Shah from sanctioning this work of development; the probability is the syndicate strangled their own project. [Later telegrams show that the Karun has been thrown open to ships of all nations. If the difficulty at Ahwaz should be overcome, the river will be easily navigable to Shuster, and with the tide of civilization advancing from the south, it may not be very long before the connection is extended by rail from Shuster, 200 miles further inland to Ispahan.]

The cost of a ride through Persia, 'chapping' from Enselli to Bushire, 954 miles, with three horses, may be put down, with extras, at £30, while the expenses from October 26 to November 26 come to £40.

CHAPTER XX.

BUSHIRE TO BOMBAY.

Captain Robertson—Linga—Bunder Abbas—Persian Seaboard—
 Pearl-fishing—Muscat—Colonel Mockler—Kurrachee—Old
 Friends—Bombay—Abstract of Route, Time, and Cost.

CHEQUES on Bombay can be cashed in Bushire. Ticket by the B. I. S. N. Co. to Bombay, ₹180. Telegram to England, ₹16 4a. op. Said good-bye to Colonel Ross and his family: Went on board the mail-boat by steam-launch—s.s. *Pemba*, Captain Robertson. Left at 6 p.m. Dined on deck. About 300 horses on board. Captain Robertson informed me that on one voyage, at the time of the Mohurram, a Seyd on board, in describing the Passion Play of Persia, so affected his audience that half the third-class passengers and the whole of the Arab syces were worked into a state of uncontrollable excitement.

After about 37 hours' easy steam in a quiet sea,

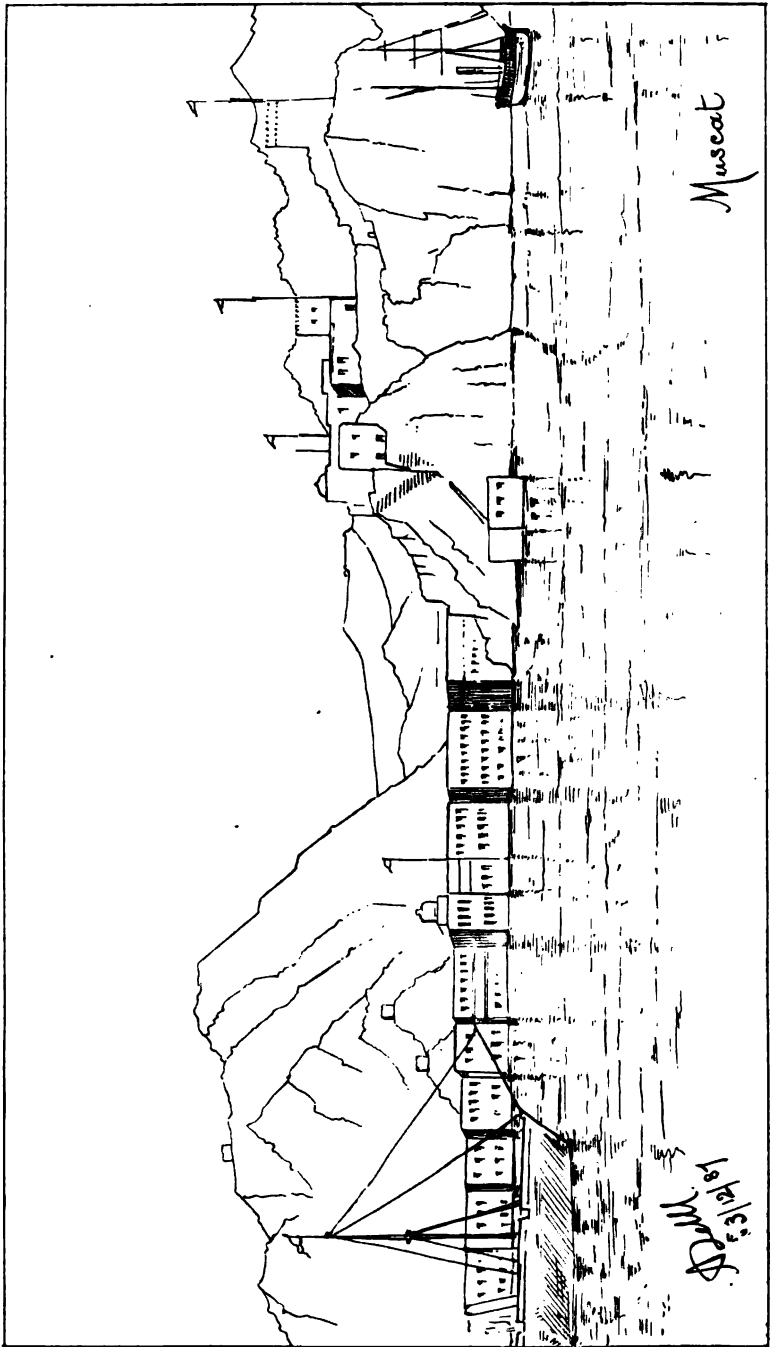
we reached Linga. Anchored for $5\frac{1}{2}$ hours, and left again at noon. The coast people are all of Arab origin. At Linga several buggalows lying off, laden with dates for Bombay. Took in about four buggalow-loads of rice. Rise of tide in Gulf about 9 feet; night tides higher than the day. Distance from Bushire 478 miles.

Thursday, December 1.—Approached Bunder Abbas at daylight. Kishm Island, the summer resort of the residents on the mainland. There are several isles—Laraz, Hormuz, and on the opposite coast of Arabia there are good harbours. Immediately behind Bunder Abbas is Jabal Gouar (7,690), a mountain the height of Simla, rising at once to its full height within a few miles of the sea. It scarcely looks its height, as the air is so clear; there are other mountains also close by—Shimil (8,500) and Bakhum (10,660), another 9,200, and another 5,120. Bunder Abbas is the chief port in the Gulf, and it is said Russia intends to have it, as being better than Bushire, and with a better land approach. Some idea of the configuration of the country may be obtained from the rough sections given; the heights are taken from St. John's and Pierson's maps. Russia may desire a port in the Gulf, but for the

present her aim is to control Khorassan and to gain some point south of Meshed where she can cut off the khafilas of Indian trade from Bunder Abbas *via* Herat to Central Asia. It is also said that so soon as the concession was reported as given to an English syndicate to construct the Euphrates Valley line, Russia at once flooded the route with Armenian traders. Took in six large buggalow-loads of cotton, wool, and rice for Bombay. An Italian war-steamer, *Rapido*, came in. Heard that two servants of a Baniah had secured a wonderful pearl for which ₹10,000 had already been offered and refused. Distance from Linga 110 miles.

After a halt at Bunder Abbas for nearly 12 hours, the steamer's head was turned for Muscat; sea very calm.

After about 12 hours' steam, we reached Muscat early; 248 miles from Bunder Abbas. No end of fish, porpoises, etc. Rocks painted with names of vessels in big white letters. H.M.S. *Osprey*, U.S.S. *Brooklyn*, etc. Spent the day with the Mocklers. Muscat—a small town situated in the hills, protected by walls and towers. The Sultan receives about ₹80,000 a year from England on account of the payment that formerly used to be



Musecat

Dr. M. J. 13/1/19



made to him by his brother at Zanzibar. The Sultan of Zanzibar having agreed with Sir Bartle Frere to abolish the slave-trade, England in return proposed to relieve him of the obligation or necessity of paying Muscat. The Sultan of Muscat has another brother in Arabia who bursts out occasionally and attacks Muscat. The Sultan is very hard up. The Maria Theresa dollar, used by England for the Abyssinian War, is the currency of Muscat. H.M.S. *Osprey* in harbour. Large exports of dates to America, the Muscat or black date being preferred to the Basrah or brown date. Hulwar made in great quantities. Drainage very bad. Cesspools in centre of courtyard. Left again at 6 p.m. Mr. McKenzie on board; he had been preparing estimates to rebuild the Residency.

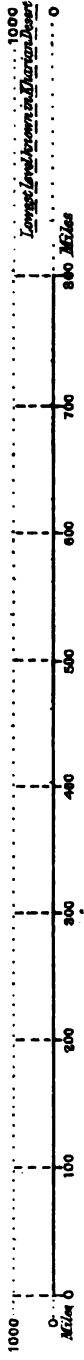
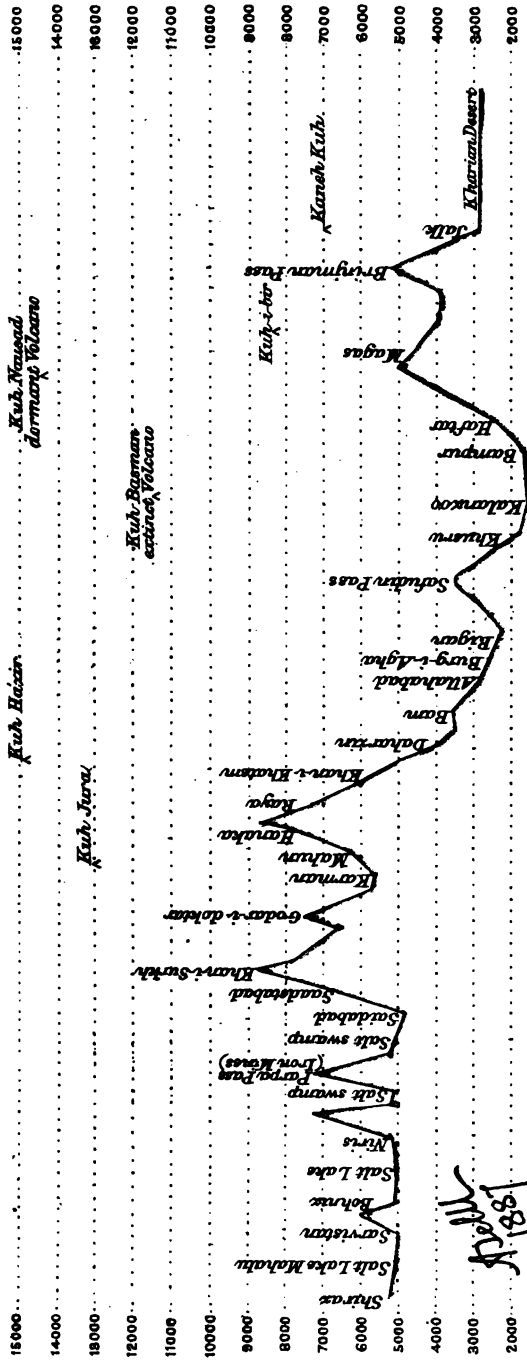
During the next two days the weather was very fine. Made the Manora light, Kurrachee, at 3 a.m., 500 miles from Muscat. Number of boats in the harbour; tramway to the city; extra lines of railway, wharves, etc.; place very busy. Stayed with my old friends Benjy Ffinch and his wife. Saw the General's old house, and my old house where my eldest daughter was born sixteen years ago. Fresh water has done much for the place; grass is grow-

ing on the lawns and all sorts of flowers, bouquets actually being cut from the house gardens. Peepul, baubul, casuarina trees, etc. My old coachman saw me at the stables and recognised me. Drove to Club, Zoological Gardens, Ladies' Club, Frere Hall ; called on General Marston, Jamsetjee, etc.

Next morning I breakfasted with Mr. and Mrs. Price at Manora. I was employed under Mr. Price in the Harbour Works here twenty-seven years ago. His daughters have since been born, grown up, and married. Two of them were at table with us, pleasing milestones in the journey through life. Went off to the boring apparatus in the harbour at Deep Water Point with Sangster. The drills are percussion, working with compressed air 70 pounds to an inch ; rotation of drill ten blows in a circle ; work 25 feet under water ; air conveyed in flexible tube. Batteries at Deep Water Point. Started at noon. Norville Theatrical Company on board.

Passed Dwarka (the scene of my earliest experiences of field service) next day about 7.30 a.m., and on Friday, December 9, arrived in Bombay Harbour 1½ p.m., 587 miles from Kurrachee. As soon as the steamer anchored my Portuguese butler, Antone, came on board. Took up my quarters at

**Rough Section along high road from Shiraz to Karman, Bampur & Jalk
on the edge of the Kharjan or Helmund Desert.**



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the Byculla Club, and lapsed without difficulty into the luxuries of an Indian life with exchange at 1s. 5d. for the rupee.

The distance by the Muscat route from Bushire to Bombay is 1,923 miles, and although we took nearly 12 days to do it, only 197 hours were under steam. The price of the ticket was £12, and the separate expenses were £12.

The following is an abstract of the route, time, and cost from Baku through Persia to Bombay, showing that for £100 one can pass in comfort from Bombay to Baku, over 3,000 miles, occupying one's self for 1½ months, half the time being spent in actual motion :

Date.	ROUTE.		Miles.	Hours.	Tickets.	Expenses.
	From	To				
From 7 a.m., 24th Oct. .	Baku .	...	...	3½	£ s. d.	£ s. d.
to 9 a.m., 26th Oct. .	Baku .	Enselli .	204	46½	1 1 0	8 7 0
26th Oct. to 31st Oct. .	Enselli .	Teheran .	230	44	7 10 0	4 17 0
31st Oct. to 7th Nov. .	Teheran .	...	...	...	...	15 10 0
7th Nov. to 20th Nov. .	Teheran .	Shirâz .	560	107	17 0 0	7 12 0
21st Nov. to 26th Nov. .	Shirez .	Bushire .	163	52	4 10 0	11 4 0
26th Nov. to 28th Nov. .	Bushire .	...	...	...	...	5 0 0
28th Nov. to 9th Dec. .	Bushire .	Bombay .	1,923	197	12 0 0	7 0 0
47 days.			3,080	450	42 1 0	59 10 0

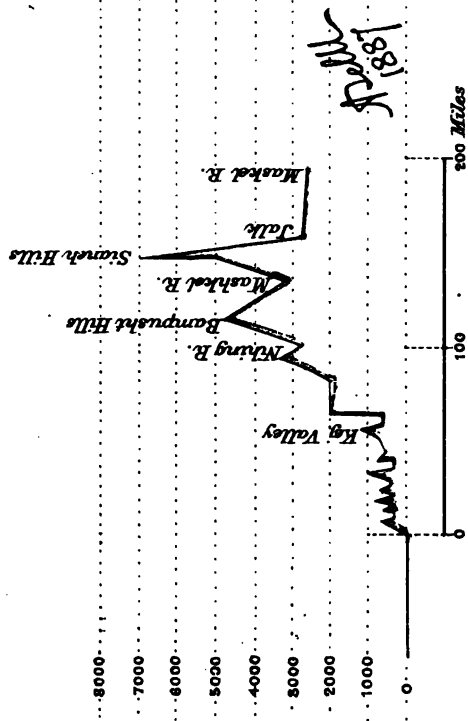
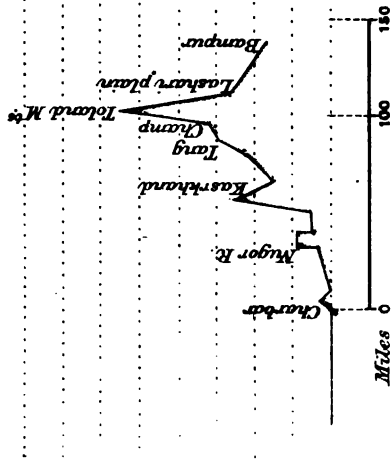
In conclusion, to sum up. Short abstracts of the route, etc., have been compiled in Appendix F.

The moral of my tale is this. Let those who have health, time, and means venture occasionally from beaten tracks. The world is not at rest, and there are forces at work which but few see and fewer still understand. 'Mites,' called men, are not one whit less busy than the more lowly organized creatures in their influence for good or for evil. The result of their labour is not less wonderful. 'Earthworms' in Europe are supposed by Darwin to have been engaged since the creation in the agricultural function of regenerating the soil. 'White ants,' according to Drummond's observations, have been apparently commissioned for some hidden purpose to carry devastation into the forests of Central Africa. Can we in our finite knowledge pronounce upon man's work as advancing welfare, or judge of it as leading to destruction?

The essence of my reconnaissance is that during 86 days the average progress was 100 miles a day, at an average rate of 10 miles an hour, and that the cost, excluding the first outfit, was £215.

Rough Section from Gulf to Bampur.

Rough Section from Gulf to Jalk and Kharian Desert.



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APPENDIX.

APPENDIX A.

LIST OF KIT.

No. 1.—Black Gladstone, 18" × 12" × 10" (Reserve), weight 35lb.

Dress suit.	2 towels.
2 pairs black silk socks.	India-rubber basin.
4 white ties.	Soap and case.
4 white shirts.	Large wickered flask for cold tea.
1 case miniature medals.	Veil and silk pagri.
1 flannel vest.	Knife, fork and spoon case.
2 pairs linen drawers.	Pocket-comb.
2 pairs socks.	Sketch-book, with A B C frame.
1 pair large loose sleeping socks.	Paint-box.
Light coat and waistcoat for Persian Gulf.	1 revolver and 20 cartridges.
1 light riding coat.	1 sandwich-case.
Pepper-and-salt riding breeches, strapped with black moleskin, and gaiters.	1 medicine-box, with quinine pills, pain killer, seidlitz powder.
Flannel shirt.	2 spare note-books.
3 silk handkerchiefs.	5 circular notes, etc. Insect- powder.

No. 2.—White Gladstone, 18" × 11" × 9", weight 35lb.

1 black coat and waistcoat.	1 sleeping suit.
1 pair light trousers.	Pepper-and-salt waistcoat.
Patent leather shoes.	2 black scarves.
8 white collars.	Clothes-brush. Cards and card- case.
4 pairs white cuffs.	Flannel shirt.
1 flannel vest.	3 silk, 3 cotton handkerchiefs.
2 pairs linen drawers.	1 towel.
1 pair socks.	

Sponge and tooth-mug.	}	Writing-case. Bible. Diary.
Soap and case.		French Dictionary.
Housewife.		Bradshaw. Circular notes, etc.
Filter. Fraser's Etna.		Insect - powder. Lamp and
Brush and comb. Shaving and dressing case.		candles.

No. 3.—Small hand-bag (50 cartridge size), weight 3lb.

1 pair of swan-neck spurs.	}	1 small paint-box.
1 knife with corkscrew, etc.		1 spring measure, Chesterman's.
1 pocket Colt and 12 cartridges.		1 railway key.
1 pair wire goggles.		1 magnifying glass.
1 flask.		1 matchbox.
1 pair pillar compasses.		1 cone menthol.

No. 4.—Canvas bag, with strap and padlock, weight 30lb.

Bed-sack. Provisions.	}	Stirrups, irons, leathers and
1 saddle. 1 bridle. Girths.		holsters.

No. 5.—Bundle of rugs, weight 18lb.

1 Scotch Maud shawl.	}	1 ulster, with soft cap, silk scarf,
1 red Rampur chudder.		and warm gloves in pockets.

No. 6.—Clothes in wear at starting.

Flannel shirt. White collar and cuffs.	}	Terai hat, gray, 2 tops, single brim, with guard-cord.
Linen drawers. Warm socks.		Silk handkerchief.
Large loose leather waistcoat.		Note-book.
Pepper-and-salt coat and trousers.		Watch, money, etc.
Spring-sided boots with boxes.		Pince-nez specs.
Dog-skin gloves. Black scarf.		Knife, etc.
		Bank-note and ticket case.

} In pockets.

Large kurjin, 56" × 26".	}	} 3lb.
Depth of pocket, 24".		
Small kurjin, 45" × 17".		
Depth of pocket, 16".		

} 11lb.

Alpaca coat.	}	} 3lb.
Thin trousers.		
Pillow at Kiev.		
Extra provisions, Teheran, 5lb.		

GEORGIAN MILITARY ROAD.
TIME-TABLE SHOWING RUNNING OF THE COACH.

Names of Stations.	DISTANCE.		TIME OF			Height in feet above sea.	Number of Horses in Coach.	REMARKS.
	Verss.	Miles.	Arrival.	Halt.	Departure.			
VLADIKAVKAS	A.M.	H.M.	A.M.	2,368	4	The time is actual as occupied on 26th and 27th Sept. 1 mile N. of Kasbek. Kasbek Peak, 16,546. 1 mile S. of Kasbek. Summit 'Mountain of the Cross.' Hotel under repairs. No sleeping accommodation available. Started with 4 horses, and 2 added on road. Started with 6 horses, and 2 taken off at watershed. Fare: 1st class, inside, 18 roubles; and in cabriolet, outside, 2nd class, 12 roubles.
Balta ...	12½	8½	8 55	0 20	7 15	2,754	6	
Lars ...	17½	11½	11 10	0 20	11 30	3,682	7	
Kasbek	14½	9½	P.M.	0 50	2 30	{ 6,000	6	
			A.M.	4 50	5 05	{ 5,740		
Kobi ...	17½	11½	7 08	0 10	7 18	{ 7,957	2	
			8 45	0 15	9 0	{ 6,973		
Gudaour	16	10½	8 45	0 15	9 0	4,961	2	
Mlète ...	14½	9½	11 0	7 10	6 10	3,621	2	
Pasanaour	18½	12½	A.M.	...	...	...	...
Ananour	21	14	8 30	0 15	8 45	{ 2,335	6	
Douchète	16	10½	10 35	0 15	10 50	{ 3,420		
			12 10	0 55	1 05	{ 2,918		
Tsilkane	17½	11½	2 15	0 25	2 40	{ 3,400	4	
Mtsakhet	14½	9½	4 45	...	...	{ 1,831	
TIFLIS...	20½	13½	...	...	...	1,535	4
Total	200½	134	...	...	...	1,495	...

Time occupied: 33 hours 30 minutes. Halts: 11 hours 10 minutes. Time in transit: 22 hours 20 minutes, at an average rate of 6 miles an hour.

NOTE.—The time-table from June to October provides for a start at 8 a.m. from Vladikavkas, and an arrival at Tiflis at 8 p.m., with a halt of 8 hours at Mlète. The total time being 36 hours, the total halts 11½ hours, and the running time 24½ hours.

MILITARY ROAD, CAUCASUS, *September 26, 27, 1887.*

A. LE M.

APPENDIX C.

'CAUCASE-MERCURIE' STEAMBOAT SERVICE—CASPIAN SEA AND VOLGA.

I.—Meshedessa Line.

Day.	Arrival.	Departure.	Miles.	Stations.	Arrival.	Departure.	Day.
Friday	...	10 a.m.	...	Astrakhan	3 p.m.	...	Wednesday.
Saturday	Noon	1 p.m.	223	Petrofsk	7 p.m.*	7 a.m.†	*Monday. †Tuesday.
"	8 p.m.	10 p.m.	294	Derbent	9 a.m.	Noon	Monday.
Sunday	5 p.m.	...	476	Baku ...	...	1 p.m.	Sunday.
Monday	...	2 p.m.	...	" ...	6 a.m.	...	"
Tuesday	9 a.m.	11 a.m.	672	Asunada	8 a.m.	11 a.m.	Saturday.
Wednesday	8 a.m.	10 a.m.	849	Tchikislar	11 a.m.	1 p.m.	Friday.
"	3 p.m.	...	897	Astrabad	...	6 a.m.	"
"	3 a.m.	7 p.m.	...	" ...	4 p.m.	...	Thursday.
Thursday	3 a.m.	...	977	Meshedessa	...	8 a.m.	"

II.—Krasnovodsk-Mikhailovsk Line.

Day.		Arrival.	Departure.	Miles.	Stations.	Arrival.	Departure.	Day.
Tuesday	Friday	...	10 a.m.	...	Astrakhan	3 p.m.	...	Saturday ... Wednesday.
Wednesday	Saturday	Noon	1 p.m.	223	Petrofsk	7 p.m.*	7 a.m.†	*Thursday ... Monday. †Friday ... Sunday.
"	"	8 p.m.	10 p.m.	294	Derbent	9 a.m.	Noon	Thursday ... Monday.
Thursday	Sunday	5 p.m.	...	476	Baku ...	...	1 p.m.	Wednesday Saturday.
Friday	Monday	...	2 p.m.	...	"	6 a.m.	...	"
Saturday	Tuesday	9 a.m.	11 a.m.	672	Asunada	9 a.m.	11 a.m.	Tuesday ... Sunday.
"	"	8 p.m.	...	718	Krasnovodsk	...	Midnight	Monday ... Friday.

III.—Enselli Line.

Thursday	Friday	...	10 a.m.	...	Astrakhan	3 p.m.	...	Monday.
Friday	Saturday	Noon	1 p.m.	223	Petrofsk	7 p.m.*	7 a.m.†	*Saturday. †Sunday.
"	"	8 p.m.	10 p.m.	294	Derbent	9 a.m.	Noon	Saturday.
Saturday	Sunday	5 p.m.	...	476	Baku ...	...	1 p.m.	Friday.
Monday	...	...	1 a.m.	...	"	9 a.m.	...	Thursday.
"	...	1 p.m.	3 p.m.	597	Lenkoran	2 p.m.	9 p.m.	Wednesday.
"	...	5 p.m.	11 p.m.	617	Astara ...	5 a.m.	Noon	"
Tuesday	...	6 a.m.	...	680	Enselli ...	...	10 p.m.	Tuesday.

IV.—*Baku Line.*

Day.	Arrival.	Departure.	Miles.	Stations.	Arrival.	Departure.	Day.
Sunday	... }	10 a.m.	...	Astrakhan	3 p.m.	...	Sunday
Thursday	... }					...	Wednesday
Friday	... }					...	*Friday
Monday	... }	1 p.m.	223	Petrofsk	7 p.m.*	7 a.m.†	Monday
Friday	... }					...	†Saturday
"	... }					...	Tuesday
"	... }					...	Friday
Tuesday	... }	10 p.m.	294	Derbent	9 a.m.	Noon	Friday
Thursday	... }					...	Monday
Saturday	... }					...	Thursday
Sunday	... }					1 p.m.	Sunday
			476	Baku	...	...	Wednesday

V.—*Alexandrofsk Line.*

Wednesday	... }	9 a.m.	...	Astrakhan	6 a.m.	...	Wednesday
Thursday	... }	Noon	200	Alexandrofsk	...	3 a.m.	Tuesday
"	... }	Midnight	...	"	4 p.m.	...	Monday
Friday	... }	...	380	Petrofsk	...	9 p.m.	Sunday

VI.—*Nijni and Astrakhan Line.*

A regular river service on the Volga, three times a week—on Thursdays, Sundays and Tuesdays—from Nijni Novgorod through Kasan, Simbirsk, Samara, Wolgsk, Saratov, Kamischin Tsaritziu, to Astrakhan (1,143 miles); the return boats leaving Astrakhan on Wednesdays, Saturdays, and Mondays.

A. L. M.

APPENDIX D.

TRANS-CASPIAN RAILWAY.

ASUNADA—KIZIL ARVAT—ASKHARAD—MERY—CHARDJUI—AMU DARIA.

Time-Table of Postal Passenger Train, No. 3.

FARE.		DISTANCE IN VERSTS.		Names of Stations.	Arrival.	Duration of Halt.	Departure.	Time between Stations.
II.	III.	From Asunada.	Between Stations.					
R. k.	R. k.			ASUNADA ...	...	...	6 0	1 10
0 70	0 30	28	26	Michailovsk ...	7 10	0 25	7 35	1 0
1 33	0 68	48	22	Mulla Kara ...	8 35	0 15	8 50	1 20
2 31	1 18	82	34	Balla Ishm ...	10 10	0 30	10 40	1 15
3 13	1 60	112	30	Adin ...	11 55	0 15	12 10	0 45
3 55	1 82	127	15	Pereval ...	12 55	0 4	12 59	0 50
4 0	2 5	143	16	Ahtcha Kuma ...	1 49	0 16	2 5	1 15
4 86	2 48	174	31	Kasandjik ...	3 20	0 30	3 50	0 39
5 31	2 71	190	16	Uzun Su ...	4 29	0 1	4 30	0 55
5 96	3 5	213	23	Ushak ...	5 25	0 15	5 40	1 12

B = Buffet, C = Crossing Station, E = Engine Station.
The Russian verst = $\frac{1}{3}$ English mile. Thus, for example, 998 versts = 666 miles.

Time-Table of Postal-Passenger Train, No. 3 (continued).

FARE.		DISTANCE IN VERSTS.		Names of Stations.	Arrival.	Duration of Halt.	Departure.	Time between Stations.
II.	III.	From Asunada.	Between Stations.					
R. k.	R. k.	243	30	KIZIL ARVAT	6 52	0 58	7 50	1 5
6 81	3 48	270	27	Kodg	8 55	0 5	9 0	1 0
7 54	3 85	294	24	Bami ...	10 0	0 10	10 10	1 15
8 24	4 21	324	30	Artichman ...	11 26	0 5	11 30	0 48
9 9	4 65	344	20	Suntcha ...	12 18	0 1	12 19	0 24
...	...	354	10	Bagharden ...	12 43	0 32	1 15	1 10
9 93	5 7	381	27	Kelyata ...	2 26	0 4	2 29	1 0
10 69	5 46	408	25	GEOK TEPE	3 29	0 16	3 45	0 54
11 39	5 82	428	22	Bezmein ...	4 39	0 6	4 45	0 48
11 99	6 13	448	20	ASKHABAD	5 33	0 57	6 30	1 25
12 58	6 43	480	32	Giaurs	7 55	0 10	8 5	0 42
13 48	6 89	497	17	Akhsu	8 47	0 3	8 50	0 55
...	...	518	21	Baba Durmaz	9 45	0 10	9 55	0 45
14 54	7 43	536	18	Artyk ...	10 40	0 20	11 0	1 20
15 5	7 69	568	32	Kaaghka	12 20	0 15	12 35	0 44
16 0	8 18	586	18	Arman-Sagait	1 19	0 1	1 20	0 51
...	...	607	21	Dushak	2 11	0 29	2 40	0 48
17 10	8 74	627	20	Takir	3 28	0 1	3 29	0 57
...	...	651	24	Tedjen	4 26	0 24	4 50	0 54
18 34	9 37	673	28	Geok Syur...	5 44	0 6	5 50	1 0
...	...							

B = Buffet, C = Crossing Station, E = Engine Station.

The Russian verst = $\frac{1}{3}$ English mile. Thus, for example, 998 versts = 666 miles.

Time-Table of Postal-Passenger Train, No. 3 (continued).

FARE.		DISTANCE IN VERSTS.		Names of Stations.	Arrival.	Duration of Halt.	Departure.	Time between Stations.
II.	III.	From Asunada.	Between Stations.					
R. k.	R. k.	698	25	Djudjuklou ..	6 50	0 10	7 0	1 0
...	..	723	25	Dort Kouyou ..	8 0	0 20	8 20	1 0
20 36	10 41	746	23	Karabata ..	9 20	0 5	9 25	1 0
21 1	10 74	770	14	MERV ..	10 25	1 5	1 30	1 0
21 69	11 9	796	26	Bairam Ali ..	12 30	0 20	12 50	0 45
22 41	11 45	813	17	Kurban Kala ..	1 35	0 5	11 40	0 50
...	...	831	18	Keltchi ..	2 30	0 10	2 40	0 55
23 43	11 97	853	22	Ravnina ..	3 35	0 5	3 40	0 50
...	...	872	19	Utch Haji ..	4 30	0 20	4 50	1 20
24 55	12 55	901	29	Peski ..	6 10	0 5	6 15	1 20
...	...	931	30	Repetek ..	7 35	0 25	8 0	1 10
25 21	13 40	954	23	Karaul Kouyou ..	9 10	0 5	9 15	1 5
26 86	13 73	976	22	Barghany ..	10 20	0 5	10 25	1 5
27 48	14 4	990	14	CHARDJUI ..	...	...	...	...
...	...	998	8	AMU DARIA ..	11 30	...	...	...
28 10	14 36							

B = Buffet, C = Crossing Station, E = Engine Station.
 The Russian verst = $\frac{1}{3}$ English mile. Thus, for example, 998 versts = 666 miles.

CHARDJUI, October 12, 1887.

A. LE M.

APPENDIX E.

ROUTE FROM RESHT THROUGH TEHRAN TO BUSHIRE.

Names of stations.	DISTANCE IN				Length of each stage.	Hours of journey.	Height above level of sea.	Prices paid in kranas for transit.	Extra tips: drivers, guides, syces.	Nature of conveyance.	Remarks.
	Farsakhs.	Miles completed.	Miles on map.	Miles							
Enseli ...	...	...	...	...	...	85	...	...	...	...	On Caspian, which is 85 feet below mean sea-level.
Piri Bazar ...	4	15	11	...	...	...	2	...	...	Steam launch and boat.	
Resht ...	1	5	5	17	5	100	8 (a) (b)	...	...	Carrriage or horses.	
Kodoom ...	6	18	18	...	...	200	15+12+2	1	...	(a) Carrriage with 1 horse. (b) 2 servants' horses.	Along the Safed R.
Rustemabad	5	18	19	...	...	600	15+1	1	...	3 horses.	
Mensi ...	5	16	17	54	12	1,300	15+1	1	...	"	
Pachinar ...	5	16	13	...	...	1,000	15+1	1	...	"	Shahrud R.
Mesreh ...	5	16	21	...	...	...	15+1	1	...	"	No horses available.
Kazvin ...	5	32	21	60	12	4,790	15+1	(c) 6+1	...	"	(c) Extra horse sent back.
Hissa ...	3	...	11	...	...	...	...	...	...	...
Gazi-i-sang ...	5	...	19	...	...	...	...	...	...	...
Kurdan ...	2	...	20	...	...	...	...	6	...	Tarantass and 3 horses.	* Tarantass carriage. A spring phaeton is 50 kranas. +25 fs. x 1 kr. x 3 horses.
Sulamanieh ...	3	94	14	...	...	...	30* + 75† + 6	6	...	...
Mianjub ...	3	...	9	...	...	...	...	...	...	...
Teheran ...	6	20	20	95	15	3,810	...	...	...	...
Total	61	230	218	226	44	...	230	18	...	...	From Resht to Teheran it is 209 miles, in 3 stages, at a cost of 230 kranas; or, with extra tips, 248 kranas, or say £7½.

ROUTE FROM RESHT THROUGH TEHRAN TO BUSHIRE (continued).

Names of stations.	DISTANCE IN			Length of each stage.	Hours on journey.	Height above level of sea.	Prices paid in kranas for transit.	Extra tips: drivers, guides, syces.	Nature of conveyance.	Remarks.
	Farsakhs.	Miles com- pleted.	Miles on map.							
Teheran ...	...	...	...	...	...	3,810	...	15 *	...	* Post-office official for Chapparr ticket.
Robat Karim ...	7	21	28	...	...	3,543	21 + 1	1	3 horses.	Cross river flowing S.E.
F ¹ / ₂ ...	6	28	23	50	10	...	18 + 1	1	"	"
Kushk-i-bairam ...	4	...	20	...	...	...	12 + 1	1	"	"
Ramatabad ...	7	60	29	...	...	...	21 + 1	1	"	"
K ¹ / ₂ ...	4	...	14	62	10	3,482	12 + 1	1	"	"
Passangun ...	4	18	16	...	...	3,460	12 + 1	1	"	"
Bagh-i-shah ...	...	...	...	...	...	3,625	...	...	"	"
Sinsin ...	7	17	21	...	...	3,220	21 + 1	1	"	Great Salt Desert to E.
K ¹ / ₂ ...	6	21	20	57	10	2,900	18 + 1	1	"	"
Kohrud ...	7	26	24	...	...	7,000	21 + 1	1	"	"
Kohrud Pass ...	...	...	...	7	...	8,800	...	...	"	"
Soz ...	5	14	13	44	12	7,500	...	3 †	"	† Extra for forage at night.
Bideshk ...	2	3	6	...	...	...	21 + 1	1	"	"
Morchakar ...	6	23	18	...	...	5,360	18 + 1	1	"	"
Gaz ...	6	28	27	...	...	...	18 + 1	1	"	"
L ¹ / ₂ ...	4	14	14	66	12	5,400	12 + 1	1 + 3 ‡	"	‡ Extra distance.
Marg ...	4	9	7	...	...	...	12 + 1	1 + 3 §	"	§ Night forage.
Mayar ...	6	20	18	...	...	5,450	18 + 1	1	"	"
K ¹ / ₂ ...	5	20	20	48	9	5,500	15 + 1	1	"	"
Carried forward	90	322	325	327	63		286	40		

ROUTE FROM RESHT THROUGH TEHRAN TO BUSHIRE (continued).

Names of stations.	DISTANCE IN			Length of each stage.	Hours on journey.	Height above level of sea.	Prices paid in krans for transit.	Extra tips : drivers, guides, syca.	Nature of conveyance.	Remarks.
	Farakhs.	Miles com- pted.	Miles on map.							
Brought forward	90	322	325	327	63	...	286	40	3 horses.	Village curiously perched on isolated rock.
Maksud Beg	4	16	16	...	...	...	12+1	1	"	
Yezdi-i-khast	6	22	22	...	...	6,500	18+1	1	"	
Shulgistan	6	18	18	...	...	6,600	18+1	1	"	
Abadeh	5	21	22	78	12	6,100	15+1	1	"	
Surmek	4	14	19	...	...	6,100	12+1	1	"	
Khan-i-khora	7	24	24	...	...	...	21+1	1	"	
Dehbid	5	16	19	55	9	7,000	15+1	1	"	
Murghab	7	25	24	...	...	6,000	21+1	1	"	
Kawamabad	6	20	23	...	...	5,550	18+1	1	"	
Sizand	2	8	11	53	10	...	6+1	1+3*	"	*Extra forage at night.
Poozeh	4	16	12	15	3	5,150	12+1	1+2†+4§	"	†Naksh-i-Rustum, 2 hours' halt. §Persepolis, 2 horses.
Bundamir R.	...	...	...	...	...	...	...	...	"	Pui-i-khan Kor. R., flowing S.E. into the Daria-i-Niris Salt Lake.
Zergoond	5	20	23	...	4	5,150	15+1	1	"	
Shiraz	5	18	16	38	5	5,100	15+1	1	"	
Total	156	560	574	566	106	...	497	62		From Teheran to Shiraz it is 566 miles, in 11 stages, at a cost of 497 krans; or, with extra tips, 559 krans, or say £17.

ROUTE FROM RESHT THROUGH TEHRAN TO BUSHIRE (continued).

Names of stations.	DISTANCE IN			Length of stage.	Hours on journey.	Height above level of sea.	Prices paid in krans for transit.	Extra tips; drivers, guides, syces.	Nature of conveyance.	Remarks.
	Farsakhs.	Miles com- piled.	Miles on map.							
<i>K'hdn-i-Zinjan</i> ...	8	27	23	26	7	6,100	} 135* + 6	1	3 mules.	Forest of stunted oaks.
Dasht-i-arjun ...	3	10	14	...	3½	6,600		...	"	"
Kala Mushir ...	1	4	4	...	...	...		...	"	"
Kotal Pirizan ...	1	4	4	...	...	7,250		1	"	"
<i>Mian Kotal</i> ...	3	10	4	24	6½	5,500		...	"	"
Kotal Doktor ...	3	10	4	...	4½	4,100		...	"	"
<i>Kasras</i> ...	3	10	10	20	3½	2,750		1	"	"
Kamarsj ...	5	18	18	...	5½	2,900		...	"	"
Kotal Kamaraj ...	...	...	2	...	...	3,300		...	"	"
<i>Konarkat'eh</i> ...	3	12	9	30	3½	...		1	"	"
Kotal Malu ...	...	8	5	...	...	1,800	...	"	"	
Daliki ...	5	7	11	...	5	250	...	"	"	
<i>Borazyoon</i> ...	4	12	9	26	4	...	1	"	"	
Kushab ...	3	6	7	...	...	100	...	"	"	
Schif ...	5	16	16	...	7	†	...	"	"	
Bushire ...	4	15	8	37	2	...	6	1	Steam-launch.	†On Persian Gulf.
Total ...	49	163	148	163	52	...	147	6		From Shiraz to Schif it is 140 miles, in 6 stages, with mules, at a cost of 141 krans; or, with extra tips, 146 krans, or say £4½.
Grand Total ...	266	953	940	954	202	...	874	86		From Enselli, on the Caspian, through Teheran to Bushire, on the Persian Gulf, it is 955 miles, in 21 stages, at a cost of 874 krans; or, with extra tips, 960 krans, or say £30.

A. LE M.

PERSIA, October 26—November 28, 1887.

APPENDIX F

ABSTRACT OF STAGES, TIME, COST, ETC.

Date.	STAGES.		Miles.	Hours of Travel.	Tickets.	Expenses.
	From	To				
From 8 p.m. on 14th Sept. to 5 p.m. on 24th Sept.	London	Berlin	666	26	£ 5 2 11	£ s. d. 0 16 6
	Berlin	Warsaw	393	15	3 15 6	1 0 0
	Warsaw	Kiev	538	29	3 1 0	2 16 0
	Kiev	Rostov	699	42½	3 16 0	2 10 0
	Rostov	Vladikavkas	435	27½	2 8 0	2 0 0
10 days.			2,731	140	18 13 5	9 2 6
From 5 p.m. on 24th Sept. to 5 p.m. on 7th Oct.	Vladikavkas	Tiflis	134	33½	1 2 0	{ 0 18 0
	Tiflis	Surame and back	175	14½	1 8 0	{ 1 6 0
	Tiflis	Baku	342	17½	2 13 0	{ 4 5 0 1 17 0 6 15 0
13 days.			651	65½	5 3 0	22 1 0

ABSTRACT OF STAGES, TIME, COST, ETC. (continued).

Date.	STAGES.		Miles.	Hours of Travel.	Tickets.	Expenses.
	From	To				
From 5 p.m. on 7th Oct. to 7 a.m. on 24th Oct.	Baku	Asunada	220	21	£ 1 2 0	£ 2 0 0
	Asunada	Amudaria	665½	53½	2 12 0	8 0 0
	Amudaria	Bokhara	75	17½	2 10 0	} 27 0 0
	Bokhara	Amudaria	75	17½	2 10 0	
	Amudaria	Asunada	665½	53½	2 12 0	8 0 0
	Asunada	Baku	220	22	1 2 0	2 0 0
16½ days.			1,881	186	12 8 0	47 0 0
From 7 a.m. on 24th Oct. to 3 p.m. on 26th Nov.	Baku	Enselli	204	46½	1 1 0	8 7 0
	Enselli	Teheran	230	44	7 10 0	4 17 0
	Teheran	Shiraz	560	107	17 0 0	23 2 0
	Shiraz	Bushire	163	52	4 10 0	11 4 0
33½ days.			1,157	249½	30 1 0	47 10 0
13 days.	Bushire	Bombay	1,923	197	12 0 0	12 0 0
86 days.	London	Bombay	8,343	837½	77 15 6	137 15 6

BOMBAY, December 9, 1887.

A. LE M.

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