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From Teheran towards the Caspian

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At Sierra Leone a railway is now being constructed in a south-easterly direction with a view of tapping the country at the back of Liberia. But here, as in the case of the Gambia route, political considerations are of paramount importance; for no doubt the best commercial route, geographically speaking, would have been a line run in a north-easterly direction to some convenient point on the navigable part of the upper Niger. If such a railway were ever constructed, it would connect the longest stretch of navigable waterway in this region with the best harbour on the coast. But the fact that it would cross the Anglo-French boundary is a complete bar to this project at present.

Proposals for connecting Algeria with the upper Niger by rail have often been discussed in the French press, the idea being to unite the somewhat divided parts of the French sphere of influence by this means. If the views here sketched forth as to the necessity of selecting more or less populous districts for the first opening up of lines of communication into the interior are at all correct, these projects would be simple madness. For many a year to come Algeria and the Niger will be connected by sea far more efficiently than by any overland route, and I feel sure that when the details of these plans are properly worked out we shall not find the French wasting their money on such purely sentimental schemes.

I must now conclude, and must give place to the other geographers who have kindly undertaken to read papers to us on many interesting subjects. All I have attempted to do is briefly to sketch out some of the main geographical problems connected with the opening of Central Africa in the immediate future. Such a review is necessarily imperfect, but its very imperfections illustrate the need of more accurate geographical information as to many of the districts in question. Many blunders may have been made by me in consequence of our inaccurate knowledge, and, from the same cause, many blunders will certainly be made in future by those who have to lay out these routes into the interior. In fact, my desire has been to prove that, notwithstanding the vast strides that geography has made in past years in Africa, there is yet an immense amount of valuable work ready for any one who will undertake it.

Possibly, in considering this subject, I have been tempted to deviate from the strictly geographical aspect of the case. Where geography begins and where it ends is a question which has been the subject of much dispute. Whether geography should be classed as a separate science or not has been much debated. No doubt it is right to classify scientific work as far as possible; but it is a fatal mistake to attach too much importance to any such classification. Geography is now going through a somewhat critical period in its development, in consequence of the solution of nearly all the great geographical problems that used to stir the imagination of nations; and for this reason such discussions are now specially to the fore. My own humble advice to geographers would be to spend less time in considering what geography is and what it is not; to attack every useful and interesting problem that presents itself for solution; to take every help we can get from every quarter in arriving at our conclusions; and to let the name that our work goes by take care of itself.

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## FROM TEHERAN TOWARDS THE CASPIAN.

By Lieut.-Colonel HENRY L. WELLS, R.E.

TEHERAN, the capital of Persia, occupies a depression on the lowest slopes of the Elburz range of mountains which, running east and west, separates the entirely dry province of Irak from Gilan and Mazanderan, provinces situated on the

southern shores of the Caspian, and consequently deriving abundance of moisture from the fogs and rain produced by the sun's action on that inland sea. In the latter region the forests recall those of the Indian Terai, and, like them, are infested by tigers and intersected by ricefields. The fogs that roll almost perpetually southwards from the Caspian would, if unchecked by the Elburz, impart their refreshing influence to the arid plains of Persia; but they are vigorously met by the hot, dry air of the central desert, and the mountain-tops of the intervening watershed become, as it were, a battle-field for the ceaseless contests of the two great genii of damp and drought. In summer the climate of the upper mountain slopes is most enjoyable. The sides facing north have a fauna and flora like those of Central and Northern Europe; facing south, they remind one rather of Italy and Spain. All who can, quit the city of Teheran during June, July, and August, to take up their abode in the picturesque villages of the southern slopes of the Elburz range. The most frequented summer resorts are situated at a distance of 7 or 8 miles from the city, and at an altitude varying from 1000 to 1500 feet above it. There are in all some 400 Europeans in Teheran, including members of the various legations, *employés* of the Indo-European Telegraph Department, the English and Russian banks, and the tramway, sugar and glass manufactories, as also hotel-keepers and owners of shops. The head-quarters of the English for the summer months is the village of Gulahek, which was presented to them by Fath 'Ali Shah at the commencement of the present century. It is situated at a distance of  $6\frac{1}{2}$  miles from the city and 920 feet above it—that is, at an altitude of 4800 feet above the sea.

A German capitalist has lately obtained a concession for a light electric tramway or railway to connect the various summer resorts with the city, and the enterprise promises to be lucrative. There is already a railway,  $4\frac{1}{2}$  or 5 miles in length, from the south-eastern gate of Teheran to a favourite shrine; and a road fit for wheeled vehicles is in course of construction to the Caspian, so that ere long the capital will be reached from the seashore with comparatively little difficulty.

On June 18, 1895, at 7 a.m., three of us left Gulahek for Mazanderan. The lofty Tughal mountain—a branch of the Elburz—which lies north of Teheran, is so covered with snow in the early summer that the track across its summit, the most direct route to the north, cannot be used before August. Therefore we had to skirt the mountain range in an easterly direction along its base till a suitable pass was reached. Such we found in the Jager Rud, or river, which, rising near the Elburz watershed, flows south until lost in the great desert. The *détour* was picturesque. On our left were rocky heights still crested with snow; in the far distance, behind many intervening ranges, peeped the cone of Demavend, the crater-lip of which has an altitude of 19,400 feet above the sea; in the mid-distance, the morning sun threw lovely tints upon the barren hills; in the foreground, the ripening crops of barley, with patches of luxuriant lucerne and sweet-scented beans, showed the extent of the fertilizing streams. Blue jays and brilliant bee-eaters sat in the trees along the roadside, whilst quails and buntings made a merry noise in the adjoining crops.

About 2 miles east of Gulahek is Sultanetabad, one of the Shah's summer resorts. Another one, Niaveran, is situated a mile further up the slope. These palaces are surrounded by groves of mulberry, poplars, and willows; here, too, thickets of cherry and apricot afford good harbour for woodcock in winter. We followed an avenue of prim *navend* trees, a kind of witch elm, common in Persia, in shape, for all the world, like trees from a toy-box, but very bright and pleasing in colour. Their matted branches give absolute protection to small birds, and must account for the numbers which escape from the hawks infesting the country.

Save for the existence of a few isolated gardens east of Sultanetabad, the limits of cultivation were now attained. On the border waste lands flourish the flowered chickory, and pale yellow and pale pink hollyhocks, through whose wan petals the sunshine has a pretty effect. There is also a picturesque thistle, with flowers varying in hue from ultramarine ash to French grey, which take the form of perfect spheres. In contrast with ripe corn these produce a wonderful effect. Another greyish-blue plant, very common on the edges of the cornfields, has a blue foliage, and the younger sprouts of spiky leaves are of a bright metallic colour. Once beyond the limit of water-supply, all is barren except in spring-time. The remainder of our two hours' ride over the spur which forms the watershed between the Teheran drainage-area and valley of the Jager had, consequently, but little interest.

We commenced ascending the right bank of the river through a deep gorge. The way led over a very rough though well-cared-for mule-track. After four hours in the saddle we reached the picturesque village of Uchan, situated at the junction of two branches of the river, at an altitude of 5800 feet. The valley opens out to a quarter of a mile in width at this place; and the stream, beside which our camp was pitched, has a stony and rocky bed, over which the waters roll in a deafening torrent. Behind us was a narrow strip of cultivation, bordered by poplars, walnuts, and willows, while above were seen the mountains, rising to some 11,000 feet, along the base of which we had travelled from Lashkerek. The air at Uchan was perceptibly cooler than that at Gulahek; between the two places there is a short cut by a steep and difficult pass known as the "Talhouse." On June 19 we started, on mules with a muleteer guide, up the left branch of the Jager river, for general purposes of exploration, as well as to visit a coal-mine belonging to the Teheran gas company. The track, well preserved hitherto, practically disappeared beyond Uchan, but reappeared after two miles at the village of Pachemp. By a bridge in course of construction and other signs, we became aware that the Shah was expected to pass shortly in this direction, *en route* to Lar and Kujur, favourite camping-grounds of his Majesty. The scene was very beautiful. In this upper part of the river's course, the banks lend themselves to cultivation better than below Uchan, and the peasants, like hill-men in all countries, have taken advantage of every available square inch of ground. The crops were all fresh-looking; the wheat was hardly yet in ear; the lucerne, in flower, stood quite  $2\frac{1}{2}$  feet high, and men clad in picturesque rags were cutting it. In the patched garments of these peasants was displayed every shade of blue, from indigo to ultramarine ash, the shades being somehow all harmonized by wear and tear. Occasionally a man might be seen wearing a tunic of old crimson plush, which at threadbare points had a plum-coloured sheen.

At the borders of the tiny fields and beside the roaring torrents were clumps of luxuriant stuff, with handsome leaves and large white flowers of the umbellifera class, the size of a saucer. This plant emits a noisome odour when touched. There were plenty of pretty flowers, and quantities of barberry, briars, and dog-roses in full bloom. Above the cultivation the valley was bounded by frowning cliffs of conglomerate and ironstone, in the crevasses of which were patches of frozen snow, whence rushing streams issued across our path.

At Saigon, a small village, we left the king's highway, a track 7 feet broad, but we could trace it for many miles, till it was lost behind a spur surmounted by a white dome, known as the shrine of Aborek. The track we now had to follow was only just passable for laden mules. However, after moving for two miles up the side valley, we arrived at the large village of Lalan. Making for certain black patches which marked the entrance to the coal workings, visible in the distance,

and almost at the summit of a range of mountains fronting us, we managed, after a hard and hot climb, to reach the door of the manager's hut, a grimy one-roomed abode, having on one side of its walls prints of a religious character, and on another guns, rifles, and game-bags. Zakhary, the owner, we found a remarkable man in his way. He is a Chaldean Roman Catholic from the neighbourhood of Urumia (or Urmi), and thus a subject of the Shah, and he spoke in raptures of his native country. Grizzled hair, a calm handsome face, and beautiful teeth made up a countenance not soon forgotten. Above all, his cheerfulness and contentment with his lot most favourably impressed us. He has one fellow-Catholic with him, whose children welcomed us in Chaldean. Zakhary himself, whose own belongings were shortly to join him, spoke excellent French. He has twenty Turks, from the neighbourhood of Tabriz, employed on the works, the Persians refusing to labour underground. The miners are paid 5 *krans* for 650 lbs. (a Persian measure known as *kharwar*),\* and can earn up to that sum (or about two shillings) a day. Zakhary has to procure rice, dried fruit, with bread stuff for their consumption, and sells them these articles at cost price, plus carriage. Three mules, to fetch provisions, are provided by the gas company, and these carry broken tools to the city for repairs, making up their loads with coal.

There is a forge at the mine, and hutting for the miners; also an iron-roofed store to protect the coal "got" in the winter from the action of snow and rain. From Zakhary's account, the climate at the mines, which are situated on the southern slope of a range running east and west, is most salubrious. It is only in March and April that rain and mists are annoying. In summer it is not hot, and in winter the snow does not lie for any length of time. Our informant only quits his home twice a year, to attend the festivals of Christmas and Easter respectively in Teheran.

South of the manager's hut is seen a rocky ridge, said to harbour leopards. On the mountains behind the mines are pastures for moufflon, and wild rhubarb abounds. To the east there is a glorious view of Demavend towering into the sky.

The quality of the coal did not impress us much, for it "comes out" as dust; but for the production of gas, in which it is said to be very rich, this does not greatly matter. It is found in sandstone, and it seems likely that it only exists in pockets, *i.e.* is the remains of lacustrine deposits. The seams are vertical, *i.e.* have a "dip" of 90°. They vary from 1 foot to 5 feet in thickness. The "strike" seems to be east and west. One working into which we went was pronounced unsafe, and nothing was going on there, pending the arrival of timbering from Mazanderan. This gallery ran horizontally in from the face of the hill, and wound about, following the seam or pocket. The whole of the roof was coal, and in one place a shaft had been sunk to get at the coal below; this was now full of water.

Zakhary had ingeniously arranged a syphon for the emptying of this shaft. One of our servants nearly fell into it, having followed us along the working without a light; in fact, but for our timely return, to find him on the brink of the shaft, he must have been lost. Two men lost their lives owing to the falling of the roof at the mouth of a working last year—otherwise there have been no accidents. There is said to be no fire-damp, but as no working has yet been pushed more than a hundred yards into the hill, it is possible it may yet be met with.

Zakhary went to Europe to learn printing, and then took to brewing—not a

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\* Wollaston gives this at 725 lbs; perhaps 625 to 675 lbs., of which 650 is the mean, is more strictly correct.



useful education for a miner. His statement that the whole mountain near his mine is full of coal is not to be relied on. We bade him adieu after promising to revisit him in the shooting season, and started homewards, making the 14 miles to be covered one long race. In camp we were joined by two friends, who had delayed their departure from Gulahek a day later than ourselves, and also by a personage who announced that he was the Shikarchi Bashi to the Shah. The last, a spare wiry man, with small bright eyes and somewhat sly expression, withal an incessant talker, introduced himself by saying that he had been sent to see that we got good sport, and received due honour and hospitality at the hands of the population. It was only by feigning inability to comprehend his egotistical chatter that we contrived to rid ourselves of this intrusive *attaché*; so that, after the first day's proceedings, he changed his tactics, and favoured us but little with his company, except at the hour of starting in the morning. At such time he would appear accompanied by his henchman, both decently mounted. His occupation, apparently self-imposed, was to go ahead and turn out the greybeards of every village through which we passed, all of whom appeared, bringing a lamb as an offering. Had we accepted these lambs, we should have been possessed of a large flock before reaching Mazenderan. What the Shikarchi Bashi made out of the transaction, it was difficult to gather. He probably told each headman that he had persuaded the *sahibs* not to take the lambs, and therefore merited a small sum for his good offices. As regards any service to ourselves, he never came near our camp when we reached the ibex-ground at Sheristanek; and the same thing happened on our entering the bear country in Mazenderan.

From Uchan our road led up the Egil river, a tributary of the Jager, and followed the actual bed of the stream for some distance. The valley is rugged and less picturesque than that of the main stream. We passed Egil village, which has an evil reputation, as it is said to harbour the much-dreaded "stranger-biter" (*gharib gez*), or poisonous bug.

We breakfasted in a lovely spot beyond a village named Ahah (altitude 6700 feet), beneath the shade of walnuts, with a roaring torrent in front. From Ahah the watershed which divides the sources of the Jagerud and Sheristanek rivers has to be crossed by those who wish to get into the valley of the latter. This takes two and a half hours of mountain roads. The summit of the watershed has an altitude of 8700 feet. Except for the first 600 feet, the road presented no serious difficulty, and our muleteer, who lost an animal by falling over the mountain-side, was himself to blame for the mishap.

From the watershed there is a wonderful view of bare mountains; not a tree is to be seen anywhere. The contorted and variegated strata of the mountains to the north-east, in which direction we were going, are suggestive of an enormous slate quarry, about the size of an English county, with altitudes varying from 4000 to 10,000 feet. To the south, and close by, lie the northern slopes of the Touchal range, the southern side of which forms so conspicuous a feature in the Teheran landscape. The track, rising to nearly 12,000 feet, by which the distance from Gulahek to Sheristanek may be traversed in eight hours in the late summer, was visible, with large patches of snow lying across it.

From the watershed down to the Sheristanek valley was a comparatively dull march, though relieved by an occasional peep at the terraced fields and the sight of the Shah's red-roofed *chateau*, situated at the head of the valley. The river appeared a perfectly white roaring torrent. The *chateau* looked prim enough, but badly placed in what must be a stifling hole.

On reaching the valley, we found the crops all green and luxuriant, the foliage of the poplars and walnuts in perfection, and the roaring river even more

picturesque than when seen from a distance. Four miles down the valley we reached our camp at the extremity of the cultivation, altitude 6300 feet. Here the torrent enters a wild rocky gorge, foaming and boiling with a deafening noise, and yet in the swirls behind the stones trout are harboured, as we proved when whipping these eddies with a fly. How trout come to be in this river, or why they should exist in this and not in the Jager, or any other river which has a similar course, viz. from the Elburz range into the great central desert, is an unexplained mystery. On the 21st we halted, one of our party going after ibex, the others fishing. Another animal of our caravan met its death here by falling down a precipice when turned out to graze. A tall coarse sword-grass, poisonous to horses, mules, and asses, grows on the watershed between the Jager and Sheristanek rivers. The animals, unconscious of its dangerous properties, eat of it with deadly effect, unless happily prevented from doing so.

On the 22nd our road lay for half a mile down the Sheristanek river, to where it joins the Laura, a stream three times the size of, and, if possible, more rapid and turbulent than, the first-named. Its ochre-coloured waters dashed onwards, swollen with melted snow. The Dcab, or junction of the two streams, is at a wild romantic gorge, in which they are lost to sight amid precipitous crags of red rocks. When united, they bear the name of the Kerij river. There is no road out of this Kerij, nor indeed out of the Sheristanek valley, more practicable than that by which we entered, *viâ* Uchan. We now followed the left bank of the Laura, passing northwards through gap and gorge, in red sandstone and conglomerate, standing rugged and bold with vertical "dip." Further up-stream, where the river-banks are edged by a few trees, the views are very picturesque. Where the strata are less hard, they have weathered into slopes of fine *detritus*; and down them the peasants come at a great rate, almost as if they were snow-slides. Eight miles up the Laura we encamped at *Gachisar*, literally, "head or source of gypsum," where the geological character of the country changes, and the mountains have rounded contours, with some grass, but still not the vestige of a tree. Here, at an altitude of 6700 feet, we passed a very cold night. On the 23rd, when we started across the Kendevan pass, ominous white clouds were overhanging the mountains to the north.

At Gachiser, the main stream of the Laura is crossed by a one-arch bridge, and its right bank is followed for about three-quarters of a mile. Then its valley is abandoned, for it turns sharp east. The gorge, down which a small tributary flows, is followed for another  $1\frac{1}{2}$  mile. This gorge had still snow lying in it where the road takes huge zigzags up the rounded slope of the mountain to the north. In an hour and three-quarters from Gachiser, the summit of the watershed between the Caspian and the central plateau of Persia is reached. At an altitude of 10,000 feet, the sandy loam on the south slope of the watershed is covered with flowers; many of the vetch tribe and wild fennel grow here in large clumps. The wind at the top of the pass was bitterly cold; the driving mist was freezing on the posts placed at intervals to keep the traveller from losing the track. There is a small refuge near the summit built in brick; in fact, the whole road shows that an amount of care is bestowed on it such as is observable on no other track in Persia. The zigzags for the descent on the Caspian side are required for a shorter distance than for the ascent from the south. In three-quarters of an hour from the summit we were following the course of one of the branches of the Touchal river, in a country clearly under the influence of the refreshing rain-clouds from the Caspian. Grass, yellow irises, ferns, and succulent water-plants fringed the streams. Further up the mountain-sides, clumps of magnificent columbines, of bluish-purple with white centres, and scarlet poppies, with blooms the size of breakfast-cups and

buds the size of walnuts, formed lovely masses of colour. Lavender, and many varieties of a sort of white campion, of the most delicate form, with the flowers arranged with curious regularity, were to be recognized amongst many other beautiful plants which it would require a botanist to classify and describe.

A wetting mist hid all distant features. We descended rapidly, and found the slopes further down clothed with scrub of oak, hornbeam, and sycamore, interspersed with wild pear and apple, buckthorn, and brambles. Here and there more open patches showed hawthorns and other flowering shrubs. The ground between them was literally carpeted with flowers. The presence of the tall yellow spikes of a flowering plant, similar in character to those observed in the hedgerows and brakes in the west of England, prepared us to find cowslips, periwinkles, crowsfoot, wild strawberries, and a crowd of other flowers that fringe the woods at home, besides quantities that were new to us. Wild roses and sweetbriars with blooms of every hue, from darkest pink to white, scented the air. The impression that we were following the drive to some domain on the coast of Devon constantly recurred. We saw also a beautiful shrub of handsomer growth, but with a flower resembling in shape that of the laburnum, only a richer chrome in tint. Another was quite beautiful, like honeysuckle both in leaf and flower, only growing as a rounded bush of graceful form. There were quantities of everlasting pea with dark crimson flowers, and here and there the giant poppy, already described, blazed in deep scarlet grandeur. The roar of a torrent replaced that of waves. We could fancy ourselves at Mount Edgcombe and that, when the mist lifted, Plymouth breakwater or the "Mewstone" would appear in the distance. The mist did eventually lift, to disclose the Chel-haus river boiling below, with precipitous cliffs of ruddy rock clothed in forest wherever trees could hold. These formed the foreground to a magnificent view of gorge, rock, and wood, leading the eye to distant spurs, overtopped in the far distance by a snow-capped range of great altitude and rugged outline. The moisture in the atmosphere gave the soft cobalt tint to the distant mountains so grateful to eyes long used to the glare and the crisp outlines of dry inland Persia. Our camp was pitched on the right bank, about 300 feet above the river, so we were spared the deafening din of its surging torrent, and able to hear the familiar notes of a blackbird which rang out in the stillness of the evening. About a mile south of our camp was the village of Valiabad. The younger brother of the Nasru's-Saltaneh, who came to visit us, thoughtfully brought with him his two *shikaris*, as well as presents of rice and sheep. Talking on the prospects of sport, we were told of bear and stag in the neighbouring forests, and of ibex and moufflon on the hilltops; moreover, that salmon was to be found one day's march further down-stream. The *shikaris*, father and son, were accompanied by a *mirza*, to represent the governor himself, and see that the villages sold us good provisions. These men were of a distinctly Mazanderani type, somewhat darker in complexion than the ordinary Persians. Their jet-black hair was curled in ringlets; moreover, they had brighter eyes and expressions, and were of handsomer face, than the inhabitants of the plateau. They informed us that a certain part of the country was the Shah's preserve, the remainder that of their own immediate master; but that we, having the royal permission to shoot, were privileged to avail ourselves of the whole. We tried for trout that evening, but, after reaching the river with great difficulty, we found it unfishable. On the 24th, owing to the report of three of our party who made a reconnaissance, we decided that the road towards the Caspian was too steep and dangerous for horses, and proceeded to negotiate it on our baggage mules.

Looked at from our camp, the road was found to rise gently as it wound northwards along the face of steep slopes and overhanging precipices. From it no fence



or wall prevents your seeing the abyss, some 1000 or 1500 feet in depth. We looked to our surcingles. Perched on the top of a pack-saddle as high as if riding a 16-hand horse, but with no command over your quadruped, you soon come to the conclusion that such a position is far more dangerous than it would be if one were riding one's own horse, even if he were somewhat fresh, for, at all events, he would not insist on always keeping along the outer edge of the track, as pack-mules obstinately do. When we had once started, the road proved to be less risky than it looked, as it had a width of 7 or 8 feet, and was in good repair. The view from it into the abyss beneath is superb. Numerous cascades, hundreds of feet in height, fall over the bare rock faces of the lower precipices. Issuing from glades hundreds of feet below the road, these cascades form a picture of great magnificence. From where they commence the mountains are more or less clothed in forest to their summits. Nothing can be seen or heard of the torrent that is eating its way into the strata far, far below.

Forty minutes' trotting on our mules brought us to a point whence the road, rounding a spur, dives zigzagging down the crumpled side of the gorge in the Hazar champ, or 1000 twists. From hence is obtained the loveliest of the many lovely views of the Chel-haus chasm. Thence it can be seen for some 20 or 25 miles of its length, viz. from the snow-clad watershed which marks the source of the river to the south, to beyond the Takht-i-Shah (which is hereafter to be described) on the north. Nothing in Kashmir, the Himalayas, or Switzerland resembles it. Maybe it may find a parallel in the rifts in California. Here, close to the road, a rough kind of pagoda has been erected to shelter the Shah when he comes this way, and entice him to stop and admire the loveliest scene in his dominions. Was this building the outcome of his Majesty's own wish, or the result of an inspiration on the part of the Austrian engineer who constructed the road some twenty-six years ago? The zigzags below the pagoda are so steep as to make riding impossible, and the excuse to dismount may be appropriately made, notwithstanding that a stout fence of stonework pillars, with wooden beams, now precludes all danger of falling into space. Towering isolated rocks, which here overhang the track, would each, in a more frequented country, have its distinctive name, and be recognized as the "Eagle's nest," the "Cathedral rocks," or the "Cheddar cliff," respectively. About half a mile below the pagoda a boring or tunnel, 15 feet in length, has been made in the live rock. Gasteiger Khan, the Austrian who built the road, apparently made the most of this, to the Persian mind, 'extraordinary feat in engineering. On the south side of the tunnel are two inscriptions; and a bas-relief in alabaster has been let into the eastern side. This slab represents his Majesty, Nasiru'd-din Shah, shooting from horseback at a leopard or lion, whilst hounds and hawks pursue other game both in the foreground and on the horizon. In the rear of his Majesty is seen an escort drawn up with military precision. On the north side and over the centre of the arch of the tunnel, Gasteiger has immortalized himself in a Latin inscription, setting forth his distinctions and titles. The strings of mules that bring charcoal, dried fish, and the main rice supply from Mazanderan and the shores of the Caspian to Teheran pass this way.

We soon got into less rocky ground, where the slopes are covered with forest of sycamore, oak, and hornbeam, with underwood of medlar and crab-apple. Butterflies flit about; a lovely large one with black wings is very remarkable. From far below is heard the chop, chop, chop, of the charcoal-burner, while a thin wreath of smoke marks the spot where his devastation is going on. In two places small rills of water cross the track, and here and there rude limekilns show where the stone had been burnt to make mortar for the pillars of the protecting parapet.

One hour and twenty minutes from the pagoda, and we are at the end of the next great spur, and 400 feet below the former. Here the zigzags begin again with a vengeance, and we decide to stop for breakfast. Gasteiger Khan has chosen this point as another suitable halting-place for royalty, and an elevated platform with a rude stone seat gives an excellent place to spread our carpet. The view from this platform (named the "Takht-i-Shah," or King's throne) is in its way as fine as that from the "pagoda." Looking up-stream, you seem to be absolutely in the centre of the valley or causeway. One thousand feet below, still invisible in its tortuous chasm, runs the course of the river. Picturesque precipices, fringed with forest, scored with cascades, and rich with verdure wherever grass can grow, lead the eye up to gentler slopes and park-like clumps accidentally spared by the charcoal-burner, whose fire is ever at work, but is unable to more than temporarily unclthe these verdant mountains. Such fairy glades and cool grotts did we look into across the chasm! What a place for *shikar*! But what a chance of breaking your neck and of losing your quarry if you killed it! Whilst we were thus soliloquizing, the sound of three shots rang out from across the chasm, and the sense of distance and the vastness of the scene was brought home to us by the fact that our three pairs of eyes could not see the smoke of the shots, much less the game or the hunter. A passing peasant informed us that the sportsman was one Hidayat by name, and that he was after ibex, of which he had killed two on the previous day. How this man had got news from such a distance, for there was no way nearer than round by Valiabad, was a puzzle to us. He looked too much a man *ingenui vultus* to have invented his facts for our benefit; yet, in spite of his manner and appearance, we very much doubted them. Looking down-stream, the rift is observed through which the Ogham river comes to meet the Chel-hauz, and the latter shows itself, a foaming white streak, for a few short twists of its madding course. There is no sign of a definite opening through which the river can escape to the sea; ridge interlocks ridge, and snow-capped mountains rise into the distant sky, apparently leaving no means of exit. After breakfast, our baskets were filled with hart's-tongue, spleenwort, *Adiantum nigrum*, and polipodium ferns. Many varieties of seedum were seen in bloom, one species being almost as large as a house-leek. Roman laurel and grass-fern were plentiful.

The morning of the 25th broke cloudless and bright. Two of our party were preparing to make an exploration seaward, to trace the egress of the waters to which our attention had been drawn, when the two shikaris of the Nasru's-Saltaneh arrived in camp with the news that they had marked two bears up-stream in the Shah's preserves, and that they were sleeping amid brushwood and tall grass in one of the mountain valleys, only a few miles from our recently traversed road. The information seemed so authentic, and the men who brought it gave such straightforward replies to our cross-questions, that all other arrangements were put aside in favour of a proposed bear-hunt. Accordingly, we filed out of camp, and took the road to the Keravend pass, revisiting the hill which had attracted us by its luxuriant flowers, but on the summit of which the main object was now a bevy of tawny-coloured vultures awaiting an opportune moment to assail the carcass of a horse. We were soon joined by the *Shikarchi-Bashi* and four beaters, or keepers of the royal preserves; but they professed ignorance as to the presence of the bears, and the first-named functionary took upon himself to deny the truth of the report about them. His action did not, however, shake our confidence in the veracity of the Nasru's-Saltaneh's men.

Having come out of the scrub on to the grass of the upper mountain slopes, we were sitting at luncheon by a stream, when our informants were seen to conduct the *Shikarchi Bashi* over a neighbouring crest; and ere we had completed

our repast by partaking of the conventional cup of coffee, one of them returned to announce that the bears were still in their old place. Our first impulse then was to toss for places and shots. We were four in number. Two, who had previously shot big game in India as "strokes," merely tossed who should accompany them. It was settled that "stroke" No. 1, with his "bow," should remain beside the ravine at the head of which the bears lay, and that "stroke" No. 2 and "bow" No. 2 should accompany the beaters, and, making a *détour*, head the game down the ravine. This was all very well to talk about, but when it came to going up the side of the mountain at anything like the pace the beaters set, "bow" and "stroke" Nos. 2 found it a most difficult proceeding. The young *shikari* Ali was leading at a prodigious pace, and had to be spoken to very roughly, even threatened with punishment, ere he would slacken it. At length it was evident that, if the ravine head was reached, "bow" and "stroke" Nos. 2 would be so blown that it would be hopeless for them to try and shoot; so they took up a position behind rocks commanding the brushwood clump where the bears were said to be lying, as well as the opposite slopes—in fact, similar to that occupied by "stroke" and "bow" Nos. 1, only some 250 yards higher up. Between the two positions, on the opposite slope, were other clumps of brushwood, and the bears were as likely as not to be in them. The energetic beaters were soon seen throwing stones into the brushwood, and for some moments without result. Then suddenly out dashed a lovely fluffy brown bear, and made for the waterway down the ravine. She was followed by a youngster of a year's growth, about the size of a large sheep-dog. In colour the young one was dark brown. The beaters caught sight of the youngster, though they had not seen the old one, and set up frantic yells. Immediately after breaking cover they were lost to view, but the old one soon reappeared, making straight for No. 2. "Stroke" No. 2, having won the toss for the first shot, waited till she was within 70 yards, where she paused and turned half round, apparently to look for the youngster. The beast was then hit hard in the shoulder, and eventually fell plugged with four more bullets than were necessary for her destruction. The youngster now appeared running across the stony side of the mountain to the left front. It was a difficult shot, as he was going a good pace and rather uphill. The result was he was missed clean, and by the time the guns were reloaded there was nothing to be seen but the ears of the beast as it crossed the ridge within easy range. The youngster pegged away gaily over the mountain, and was lost to view. The behaviour of the natives around us, when the dead bear was hauled out of the thicket, supplied a good illustration of the excitability of the Persian character. One youth completely lost his head, and it was only when our own servants arrived that we could get the carcase slung on a stick and carried to a mule for transport to camp.

The Persians had no idea of the meat or skin of a bear being of the slightest value, and it seems that when the Shah shoots one he throws the body, skin and all, into the nearest river, after having shown it to his wives and his other women. There was great difficulty in getting the beast skinned, but liberal *bakhshish* eventually prevailed. The *Shikarchi Bashi*, meanwhile, was taking the credit of the whole affair, and pointing out how well *he* had arranged the beat, and how that all presents that were to be made should be made through him. This meant that no one else would get a *sou*. Eventually by plain speaking he was subdued, and retired, not to appear again for the next three days, *i.e.* till there was a further chance of extorting lambs from villagers.

On June 26 two of our party started for our projected trip to Lower Mazanderan, past the pagoda, and down the Takht-i-Shah, a road already described beyond

the latter point. The face of the mountain is again rock, and the road twists round the contortions of the strata in a very ingenious way. About 3 miles from Takht-i-Shah, Gasteiger Khan seems to have run out of patience, or, more likely, of funds, for he makes a dash for the bottom of the gorge by zigzags such as no laden beast but a mule could get over. Just at the end of these a beautifully clear tributary joins the Chel-hauz on its right bank, and here we watered our tired animals. The river itself was disappointing; rushing and plunging as madly as ever, its turbid waters gave no prospect of fly-fishing, and it seemed doubtful whether even salmon could be hoped for. We had reached a new flora of fig-trees, alders, and elms, with thorny shrubs for undergrowth. Beside the river, patches of corn, ripe for the sickle, were being cut by men and women. The latter made no pretence of covering their faces, and their crimson or scarlet bodices and petticoats, though generally ragged, were extremely picturesque. As a rule handsome, they had, like most women condemned to hard work out-of-doors, a sad expression. Here the small fields were more or less fenced; and the mountains, less precipitous than at Hazar Champ, were clothed with forest to their summits, except where patches of cultivation occupied moderately level spurs. Now and again the encampments of the reapers, hard by the boiling river, showed where they ate, drank, and slept in the open, a tree felled by fire forming a bridge of ingress and egress with some otherwise isolated field. At the foot of the Hazar Champ, the Ogham Rud falls into the Chel-hauz. Up the rocky valley of the former river there is a road to the mountainous district of Hazar Be-ar.

Three miles below the aforesaid confluence of the Ogham Rud, the Maka Rud, with its gentle current, falls in on the left bank of the main river. The Maka Rud valley is most picturesque, more cultivated and less rugged than any we have yet seen. Half a mile below the bridge that crosses this tributary, a green sward hard by the river, with a lovely view in front and picturesque rocks behind, lured us to encamp. Here two alder trees, the one from the right bank having fallen over, as it were, into the arms of the one on our side of the river, formed the piers to a rustic bridge, leading to a small farmer's homestead or huts.

Whilst our tents were being pitched, we crossed over to eat our lunch under the shade of these trees, and were soon joined by a ragged but picturesque individual, who gave us a *salâm* of welcome, and showed great interest in our proceedings. He, like all Mazanderanis, was of more civil and gentlemanly instincts than the ordinary Persian. Being one of the landed proprietors of the district, we dubbed him the Laird of Rudbarek, from the name of his domain. He was one, he said, of three brothers who had inherited the freehold of the mountains on either side, and of the cultivated ground on both sides of the river below the confluence of the Maka Rud, and that they paid taxes to the Nasru's-Saltaneh. The Laird was now threshing and winnowing his crop of barley, and anxious to sell us forage, milk, and butter-milk. If only he had been better clad and cleaner, our friend would have been quite an enviable personage. Accompanying us as he did during the remainder of that day and the greater part of the following, we got to know him very well. Indeed, from the first he seemed to have no reserve with us, and we treated him accordingly; moreover, as he was a keen sportsman, we had many subjects of conversation in common. He had shot bears close by his domain, and followed the Mazanderan stags every winter, when they were driven down from the upper ranges. Looking at the lovely glades high up on the mountain-side, he pointed out spots where he had killed extra fine animals, with antlers of twelve points, and more. Strange to say, he knew nothing about preserving skins, and the fact that they could be utilized as a warm covering for himself and children seemed to him quite a revelation. Stags' horns, he said, were in demand, and

hucksters came round regularly to buy them, as well as salted salmon. He was much interested in our rods, flies, minnows, and tackle, and quite expected to see us haul out lots of fish, though August, he admitted, was the time when the rivers get clear and the pools yield their supplies, whether to the spear at night or to line by day. No hooks on lines are used on these occasions. The Laird said that he got on an average sixty salmon a season, varying from fourteen to twenty-five pounds each. We started whipping the milky waters of the river as soon as the sun got behind the mountains, our native friend showing us the pools where the salmon lay, and the spots where the brushwood and trees along the bank would allow of a fly being thrown. These two requirements for success did not often coincide, and the Laird looked quite crestfallen when told that some deep swirl was unapproachable with a fly. At length, as a fly would not entice, a minnow was put on, and the ground gone over again. Just as it was beginning to get dusk, at a lovely spot where the river, passing a huge rock, formed a magnificent run, a fish was hooked. The Laird, though delighted that this proof of his veracity had at length been vouchsafed, was not a bit over-excited, managed the landing-net like an old hand, and eventually brought a salmon trout to bank, weight about fifteen ounces. The fish was free when landed; probably it was accidentally hooked, and had not seen the minnow in the turbid water. In any case, it was the first salmon trout that had been killed with a rod in a Persian river flowing into the Caspian.

The next day, the 27th, we made an expedition northwards, down the river for a two hours' sharp ride. The scenery was magnificent. The river, ever headlong, had a more open valley, allowing of groves of stately alders here and there. The cultivation climbed higher up the slopes. Villagers in all directions were gathering the harvest, and stacking the corn on platforms raised to such a height that the cattle could find shelter underneath, whilst the straw could not be stolen. Wild grape-vine, figs, and pomegranates were in all the nooks, from which rills of water in many places crossed the road. Thick hedges of thorny stuff guarded the way on either side, and gave an impression of there being some sense of care and industry in the tillers of the soil, though this was dissipated by the sight of clumps of thorns dotted about amidst the crops. This charming foreground was even surpassed by the more distant views. We could now see far above the mountains that shut in the river. On its right bank forests clothed them as far up as the snow and cold of winter permitted. Above the forests grassy rounded slopes, fit pastures for deer, ibex, and moufflon, carried the eye to summits where snow still clung even in the month of June.

On the left bank the country was less steep, so clusters of mud huts could be seen here and there. Veritable snowy ranges formed the background far away to the south.

Further north, as the valley opened out the vegetation became more sparse, as though we had reached a belt where the rain-clouds seldom touched, but passed over to break on the higher ground. Further still away to the north, thick forest was again visible, clothing all the mountains, which rose to a considerable altitude. We lunched in a grove of ancient alders on an island in the river near to the mosque of Bandi, with its roof of picturesque shingle, showing we were near a forest land, and one where the ordinary mud roof of Persia was unable to cope with the rainfall.

Reluctantly we returned northwards; time would not permit of our pushing down to the sea. That evening a try was again made for fish, but without success. The 28th found us climbing up the Hezar Champ, and a terrible climb it proved. The black butterflies were gay as ever, and a Bohemian wax-wing visited us at lunch, which we ate in the shade of Gasteiger Khan's tunnel.

That night we pitched our tents near our former camping-ground of Valiabad, and the next day pushed over the Kendevan pass and down the Laura valley to



where the Sheristanek falls into it at Doab. The next morning the *Shikarchi Bashi* appeared, but not till one of our party had started over the mountains by the short cut for home, hoping to get a shot at ibex on the way. The rest of us were honoured with a full parade of lambs at every village through which we passed, and on July 1 we reached our homes at Gulahek.\*

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## THE MONTHLY RECORD.

### THE SOCIETY.

**The New Session.**—The first meeting of the New Session will take place on Tuesday, November 10. It was hoped that Dr. Nansen might have been able to come to England and open the session with an account of his remarkable expedition. Unfortunately, he will not be able to leave Norway till towards the end of January, when it is expected that he will address the Society. The first paper of the session will be an account of the expedition under Mr. Jackson, which is pushing its way and carrying out scientific observations in Franz Josef Land; the paper will be by Mr. Arthur Montefiore Brice, as will be seen from the programme inserted in the present number. This will be followed before Christmas by papers on Uganda and Unyoro, by Lieutenant S. Vandeleur, and on the Sources of the Niger by Colonel J. K. Trotter. Other interesting papers, as will be seen, are in preparation for the meetings after Christmas. During the session special meetings will probably be held in connection with the 400th anniversary of the voyage to America by Cabot and of the route to India by Vasco da Gama. For other special features reference is made to the Programme.

**Special Medal to Dr. Nansen.**—At a recent meeting of the Council, it was decided to award a special gold medal to Dr. Fridtjof Nansen, in recognition of the value of the geographical and other scientific work which has been accomplished by his North Polar Expedition. Dr. Nansen has already received a Royal Medal from the Society.

### EUROPE.

**Geographical Work in Finland.**—The Finnish Geographical Society at Helsingfors has recently sent us their publications for the years 1894, 1895, and 1896, which show a record of solid geographical work of a very satisfactory character. There appears to be an awakening to the value of geographical study in Finland, which is accompanied, not only by the production of such memoirs as the volumes under notice contain, but by an earnest effort to adopt whatever is good in the geographical teaching of other countries in the schools of Finland. The papers in the *Vetenskapliga Meddelanden af Geografiska Föreningen i Finland* are

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\* For a general illustration of the country traversed by Colonel Wells, the reader is referred to map of a Route along the Alburz Mountains, between Tehran, Astrabad, and Shahrud, by Lieut.-Colonel Beresford Lovett, R.E., to be found at page 120, vol. v., *Proceedings* (New Series) of the Royal Geographical Society. The section of country now treated may be identified by the names Gatchasir and Waliabad on that map, and is between long. 51° and 51° 40'.