



# The Geographical Journal.

No. 2.

AUGUST, 1901.

VOL. XVIII.

## CENTRAL KURDISTAN.\*

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THE outline of the geographical features of Eastern Turkey is well known, and the highlands of Kurdistan and the plateau round the great Lake of Van have been described by many travellers.† I propose, therefore, to take a section of the mountain districts south of the lake, not so well explored, but interesting from its strikingly varied mountain scenery.

Kurdistan is but a geographical expression for the country inhabited principally by Kurds, and is spread over several administrative provinces of the Turkish empire, ranging along the Persian frontier up to the Trans-Caucasus and west to the borders of Asia Minor. The Kurds are essentially a race of mountaineers; they leave the Mesopotamian plain to the Arabs, and their country commences with the first outliers of the hills rising from the edge of the Tigris basin.

Central Kurdistan consists of the mountainous districts round the headwaters of the Bohtan and the Great Zab, two of the largest of the Tigris tributaries; the former is sometimes called the Eastern Tigris, and at its junction is little inferior in volume to the main stream, while the latter is the largest affluent that the Tigris receives throughout its course. The lake or inland sea of Van has itself no outlet, and is pent up along its southern shores by a series of lofty ranges extending from the Persian frontier many miles to the westward. South of these ranges the dreary outline of treeless brown hills, varied only by

\* Read at the Royal Geographical Society, April 29, 1901. Map, p. 248.

† Lake Van is about 5260 feet above sea-level. It has a periodic rise and fall of about 8 feet, lasting five years each movement. Its water is bitter and undrinkable containing chiefly carbonate and sulphate of soda.



MAP OF  
CENTRAL KURDISTAN

BY  
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Scale of Miles



Nat. scale 1:1,000,000 or 15.78 miles = 1 inch.

Heights in feet.

Su - River  
Chai - Stream  
Dagh - Mountain  
Gedik - Pass.

the rugged summit of some extinct volcano, which constitutes the scenery of the Van plateau, gives place to lofty mountain ranges and deep wooded valleys draining westward into the main stream of the Bohtan. Farther south a continuous range of high rounded hills divides this from the Great Zab basin, where the scenery becomes still grander, comprising lofty Alpine ranges, rocky gorges, and wooded cliffs.

The hills south of Lake Van are not a continuous range, but are divided up by various streams which rise north of the general line of the watershed, and then force their way back through the main ranges towards the Tigris instead of to the lake. The principal mass lies in the centre of the south shore, the Agherov Dagh, rising generally to 11,000 feet. It is snow-capped except for a few months in the year, and rises with but little margin from the shore, forming a fine background, enhancing the setting of the lake, and redeeming the dreariness of the northern shore. Over the eastern corner of the lake the range culminates in the Ardost peak, with steep rocky slopes overlooking the fertile valley of Vostan with its celebrated orchards and perennial streams.

East of Ardost the continuity of the range is sharply broken by the valley of the Shattakh stream and other tributaries of the Bohtan, rising among a mass of lower hills quite denuded of vegetation now, and with a surface mainly composed of sheets of rock. A curious isolated peak rising to 11,500 feet, the Bashit Dagh, then appears towering above the others, and having on its summit the tomb of a celebrated Kurdish sheikh, to which pilgrimages are annually made and sheep sacrificed. A low irregular line of hills connects Bashit with the watershed dividing from the Great Zab, and completes the circle round the headwaters of the Bohtan, which are formed by the many streams of the upland basin of Nurdz converging to one point a little north of Merwanen, below which they enter a succession of deep gorges.

The range dividing the Bohtan from the Zab presents a continuous line of great rounded hills for a considerable distance, beginning at the Persian frontier. These summits with their many springs and streams, taken together with the Nurdz basin, form an unrivalled pasture-ground for the numerous flocks of the neighbouring Kurds, nomad or sedentary. The long winter is very severe, and although some villages exist in Nurdz and a little cultivation is carried on, its chief wealth is in its pasturages, which can only be occupied in June, when the snow is melting and the young grass has come up. The Chukh pass on the Van-Bashkala road crosses at 9500 feet, and some of the summits west of it rise to 12,100 feet, while a more prominent peak south of Merwanen, the Kokobulend, to probably 13,500 feet. There is no general name for the whole range, but each rounded summit or minor peak has some local name given it by the tribe who pasture their flocks near by; usually

such names have a pastoral origin, as Av-i-Berkhan, "the water for lambs;" Givri Chevrosk, "the hare's ear;" Dola Beranan, "the little goat's leap;" and so on.

A remarkable feature are the "yailas," or small upland plains shut in among the higher summits, often giving 3 or 4 miles of level grassy pasture, watered by springs and streams of icy-cold water, which disappear into deeper valleys in the lower slopes. The Tuzek and Nebinov yailas are near Merwanen, and a little to the south-west is the specially remarkable "yaila" of Farashin, "the joyful pleasant place," the largest of all, in which are the headwaters of the Khabur, a tributary of the Tigris. From about the middle of June to the end of September these



KURDISH TENT ON A "YAILA" IN NURDUZ.

yailas and pasturages are occupied by the various tribes, each having its area carefully delimited, which it occupies year after year, often after much discussion and possible bloodshed. Roughly speaking, it appears that the strongest man with the most sheep generally manages to appropriate the best pasturage. The scene in early June as the tribes begin to arrive is one of much animation and beauty. Great drifts of snow still lie about, and almost before they have completely melted, a perfect carpet of varied flowers comes springing out of the ground; among others the alpine gentian, various kinds of tulip, ranunculus, iris, and such old friends as the English primrose and cowslip are to be seen. These, with the vivid green of the young grass, the brilliant sunshine,

and bustling animation of pitching the tents and camp life generally, make a brilliant scene typical of Kurdish life.

Practically, the whole of the tribes occupying Nurduz and Farashin are comprised in the great group of Hartoshi Kurds, divided into twelve subsections, most of whom live in villages in the winter. But there is an important nomad portion under Hajji Beg, the most powerful chief, who occupy Farashin in the summer, and migrate to the Tigris plains near Zakho in the winter; these are true nomads, always living in their tents.

At the higher elevations on the Van plateau, the tribes find the distance too great to migrate to the Tigris valley, and spend the winter in villages. These are generally a collection of half-underground mud hovels, which are really looked on as a temporary resting-place until the season becomes more favourable, and tent-life, the true life of the nomad, can be resumed. The Kurd is seen at his best in tents, tending his flocks and engaging in a pastoral life, always ready to dispense hospitality with an open hand and welcome the stranger with a bowl of "airan," the thick curdled milk mixed with water which forms their staple drink. Many of the villages on the Van plateau and in Nurduz are completely deserted in summer for tents; the few household effects are readily removed, the door is left swung open, and the house takes care of itself. A few men may be found left to tend any patches of cultivation and gardens close by, but otherwise not a soul is to be seen.

The wide basin enclosing the pasture-lands of Nurduz has a gateway to the westward, with a lofty range on either hand like pillars guarding the narrow opening. A spur from the Agherov Dagh runs south until over the river gorge near Shattakh, and there terminates in the rocky mass of Arnost mountain; this, with a long flat-topped ridge known as the Maidan Tash, both rising to about 11,000 feet above sea-level, with very abrupt rocky slopes, overhangs the little town and villages of Shattakh. The other pillar, across the valley, is formed by a long spur of the Zab range jutting out south of Merwanen and terminating in the Gilolokan mountain, which towers over Shattakh from the south, and is also quite 11,000 feet above sea-level. Shattakh itself, by the river-bank, is but 4900 feet, so that the huge dimensions of this gap, 5000 feet deep and  $9\frac{1}{2}$  miles across, can be realized.

Owing to their confined situation at the foot of such steep slopes, the numerous small villages clustering round Shattakh as a centre suffer a good deal from destructive avalanches, which have been known to bury an entire village. About the centre of the Nurduz basin the river makes a sharp bend to the north-east, entering a series of deep rocky gorges with slopes well wooded with oaks, and here and there small villages with terraced cultivation on some favourable part of the

hillside. In this gorge, also, is the celebrated Armenian monastery of Hokotzvank, which contains the tomb of Tiridates. Shattakh village is at the junction of a fine stream, coming down a wooded valley from the north, which affords easy access to the Van plain. Like many of these streams, this has its origin in a huge spring which gushes out of the rock and is known as the Kani-spi, or white spring. The Bohtan itself and this stream swarm with fine trout, which are usually caught at night by a couple of men, one holding a torch to attract the fish, and the other wading about with a barbed spear ready to impale the fish when he sees them.

Around Shattakh the valleys first become wooded, junipers being



PASS LEADING DOWN INTO SHATTAKH.

found first on the slopes from 6500 to 7500 feet elevation, below which all the lower levels are thickly covered with oaks, which may be called the national tree of Kurdistan. In the districts within easy reach of the Van plateau trees have been ruthlessly exterminated for firewood, in many cases dug up roots and all; while throughout the country trees are stunted from the prevalent custom of cutting the small branches with their leaves in autumn and storing them as winter fodder for sheep and cattle. In the valleys the most striking tree is the walnut, which gives a welcome green effect to the predominating tints of grey rock or brown hills. Sycamore and ash are found by the streams. On all the upland pastures of the country the slopes are

covered with low shrubs of gum tragacanth, or "gavvan," growing about 18 inches high, which burn very readily if a light be applied, and are generally used for kindling. The gum is never extracted in this part of the country, but is so in South-West Persia. Wild rhubarb plant exists in considerable quantities on these hills also, and is brought into Van for sale in the early summer.

Grey bears and the wild pig, especially the latter, are to be found in fair numbers in the Shattakh valleys, and do much damage to the crops at night. The lynx is also found in the deeper and wilder gorges, but is very rare. On the open uplands round Nurduz the wild sheep and moufflon are found in considerable numbers, and the ibex, or wild goat, on the crags and cliffs. The stone marten and tree marten are to be found, and are much sought after for their skins; also a grey squirrel is very common in these Bohtan forests. In addition to the red-legged and grey partridge, which are found in extraordinary numbers on these slopes, is the giant partridge, or "Ur Keklik," which is rather larger than a blackcock, and is generally in pairs or single, found at elevations not less than 8500 or 9000 feet.

The Shattakh gorge continues for some miles below the village, and affords some strikingly grand cliff scenery, the left bank especially showing sheer masses of rock forming spurs of Gilolokan; while on the right, high up the slope, watered by plentiful springs, is the large Armenian village of Gachit and some others, each with a rich patch of garden and orchards, with wheat and millet on small terraces on the steep slope. The gorge opens near the small village of Khumara; but only on the left bank do the hills recede and the country become more open, while on the far bank rises a huge wall of grey limestone for quite 2000 feet, supporting the southern slopes of the Arnost mountain. The rough summits of the Agherov range and Arnost afford in places grazing for the flocks of numerous sections of the Miran nomad Kurds.

A little above Khumara, on the left bank, the Yezdinan stream joins from the upland pastures of Kavalis district, similar to Nurduz, but smaller, and on the other slope of the Gilolokan range; the lower course of this stream is through a remarkable gorge bordered by huge walls of rock, and sheltering a few villages of Alan Kurds, a section of the Hartoshi. On a splendid crag which overhangs the junction of the streams are to be found the traces of an old castle known as the Kelli-Ziril, said to be of great antiquity, and from the peculiar rock scarping, like that of Van citadel, was probably an outpost guarding the approach to the lake plateau in the Chaldean times when Van was a capital city.

Below Khumara the river valley is strikingly beautiful, having on one side even wooded slopes and occasional rocky ravines, with a few villages of Hawishtan Kurds among the trees, in the centre the

foaming torrent of the Bohtan tumbling over boulders, and on the other side the steep buttresses of Arnost, with a few Armenian villages, each in a dark green patch of gardens and cultivation, halfway up the nearly inaccessible slope. A few miles further down on the left bank, a large tributary called the Masiro, or "river of fishes," joins from the high uplands forming the watershed with the Great Zab. A wide gap occurs here in the ranges following the left bank of the Bohtan, and on its far side abruptly rises the stony flat-topped mass of Harakol



IBRAHIM BEY, CHIEF OF TAKURI KURDS.

Dagh, terminating in an enormous crag at its south-eastern corner. Curiously enough, the Masiro does not come through this gap, but instead has carved for itself a very deep gorge through the main ridge, cutting a fragment from it in the shape of a remarkable flat-topped mountain called Awrakh, whose summit is ringed round with cliffs, and only accessible by a rugged path on the south. The end of the range from which this has been severed is a great wall of cliffs, with oaks and junipers clinging wherever they can get foothold. This



gorge is known as the Tang-i-Balian, and affords some splendid cliff scenery. On the many pasture lands round here are to be found in summer the tents of the various sections of the Miran tribe of nomads under Mustapha Pasha, who has great wealth of flocks, and goes for the winter to the Tigris plain about Jezire. In point of numbers, they come next after the Hartoshi among the large nomad tribes of this part of the country.

In recent years both these tribes, at least the nomad portion, have discarded the distinctive Kurdish dress of a short jacket of thick goats' hair, a black and red turban, with gay waistcoats and flowing sleeves, and have taken to the Arab headdress, with handkerchief kept in place by looped strands of camel-hair, and flowing robes like the Bedouin. This is by no means an improvement, and when I saw Hajji Beg, the Hartoshi chief, in his tents in Nurdúz, he was attired in a black Stambuli frock coat.

Beyond the gap dominated by Harakol, separated only by a low col, a wide basin opens, draining south-east by the various tributaries of the Hazil river, which spread out fanlike between narrow shale spurs covered with oak forest and converging towards the mouth of some fine gorges, through which the stream passes to join the Khabur near Zakho. This curious district is entirely uninhabited, except when the nomads pass through in their migrations, and a few Kurds gathering oak-galls. The Bohtan now enters another deep pathless gorge, the Ghelli-Herin, and then the hills trend back, and the valley becomes more open, although the river keeps in a deep ravine sunk below the general level of the open country. This is the district of Bohtan, or Bohtan Berwari, and is among the most fertile and productive parts of Kurdistan. This zone is sufficiently elevated to escape the great heat of the middle Tigris basin, is watered by countless springs and streams, and is yet sufficiently warm to produce rice, cotton, figs, and pomegranates, and a great variety of fruits. The extreme severity of the winter on the upland plateau is here avoided, and the half-underground hovels of that region give place here to a better style of house, usually two-storied, with wooden verandah. The Kurds are here divided into a number of small sections, each under its own bey, and are not nomad.

A large northern tributary joins from the district of Mukus, which is separated from Lake Van by the main Agherov range, and shut in on either hand by lofty spurs from it. The Mukus stream has its origin above the village in the Bash Bulak, a splendid spring of clear cold water (mentioned by Layard), which has a great volume in the early summer, but becomes much reduced in the autumn. The local idea that it is an outlet of Lake Van is obviously wrong, as the barometer shows it at a much higher level. Mukus, or Meuks (Armenian), is a compact district with many Kurd and Christian villages in seven smaller valleys

radiating from the main one, and was the ancient Roman province of Moxene, which name is still preserved in its present title.

One of the hills overlooking Bohtan Berwari from the south bears the Kurdish name of Nuh-i-Giran, or descent of Noah, and a tradition points to it as the resting-place of the Ark, the fertile valley of the Bohtan at its base being the first country entered. It may be as well to note, in connection with this, that not far to the south, overlooking Jezire on the Tigris, is the Jebel Judi, or Jew's mountain, to which Mohammedan tradition points as being the veritable resting-place of the Ark also. There are no historical remains in these districts in the shape of cuneiform inscriptions, and the Kelli Ziril, near Khumara, mentioned above, is



VILLAGE OF MUKUS.

the only probable remnant of the Vannic period. But in Nurduz are numerous examples of the remains of some historic race which occupied that country, in the shape of stone forts built of immense rocks roughly shaped and joined without mortar, which must have taken considerable skill and labour to place in position, and must be more than the work of mere shepherds. Most of them in Nurduz are now nearly level with the ground, but I was fortunate in obtaining a photograph of one near Elk, in the Khabur valley, which has seven tiers of great blocks, and the building is roughly 12 yards square, with no trace of door or windows now to be found. These forts were placed commanding all the principal passes into the upland pastures, and some were on the

"yailas" themselves. Their use was apparently to defend the pastures and flocks against raiding-parties of some foes, as doubtless these uplands have for many ages been used for little else than a summer grazing-ground. The only modern Kurdish idea I could determine was that the forts were built by a race of giants, who handled these stones like pebbles, and were finally brought into subjection by Solomon the Great. There are also in the tea-room a few flint, or rather obsidian, implements and fragments of pottery of a very ancient date, prior even to the Chaldean times, found in a tumulus near Van by the expedition of Dr. Belck and Lehmann in 1898.

Passing to the other side of the main watershed, into the upper basin of the Great Zab, the scenery becomes much bolder and more striking; the high rounded summits, with their "yailas," give place to splendid rocky pinnacles, and the Zab valley is a deep gorge of striking grandeur, joined by others scarcely less beautiful from the ranges on either hand. What is perhaps most striking is the extraordinary depth of the river gorge between the lofty summits on either side, and in a day's journey the actual horizontal distance is only a few miles after almost as much climbing of perpendicular slopes or stair-like paths.

The Zab rises in an uneventful way among the low hills along the Persian frontier, close to the point where the Chukh Dagh merges in the frontier hills; its earlier course is down the broad valley of Albak among open meadows, passing the small town and seat of government at Bashkala, at the foot of the hills to the north. A few miles below this the valley quickly narrows, and the first of a long series of tortuous gorges is entered, from which the river never manages to escape even for a brief moment, until but a comparatively short distance before its junction with the Tigris; it is always a mountain torrent pent up between rocky walls, with little room even for rough bridle-paths along its banks. South of Bashkala, along the frontier ranges, the country is fairly open, and contains the curious plain of Gavar, 25 miles long and 5 broad, which lies close under the Jelu ranges to the east, and from its formation appears to have been once a lake. The southern end is now a reedy lake, fed by some fine springs, and the whole plain usually becomes flooded on the melting of the snows and during the autumn rains. The centre of the plain is occupied by several Nestorian villages, which cultivate the fertile soil, and round the edges are many Kurdish villages of the Doshki, Heriki, Biliji, and Deri section of the Hartoshi, whose interests are chiefly pastoral. The plain level is 6500 feet above the sea, with an extremely severe winter climate, and is drained by the Nihail stream, a tributary of the Zab, which it joins soon after it enters the main gorges. To the south, just below the junction of this stream, with scarcely any transition stage in the shape of minor outliers, rises the great mass of the Jelu mountains, with a summit line of splendid crags and pinnacles,

which show up even bolder and loftier when contrasted with the rounded contours of the hills to the north, and by the isolation of the general mass towering far above the frontier hills.

The hills to the north above Nurduz and Bashkala are very deceptive as regards their height, as they are without prominent peaks that catch the eye, and it was rather a surprise when the boiling-point thermometer gave the height of the Tozo summit above Bashkala as 12,100, while some rocky crags of the Welitan mountain near by were 1000 feet higher, or 13,100. The main gorge of the Zab is too narrow and precipitous to contain many villages, and consequently the inhabited districts are in the several valleys joining the main stream in succession



KOCHANNES, RESIDENCE OF MAR SHIMUN, THE NESTORIAN PATRIARCH.

at right angles. At first most of these are on the right bank of the main stream, the first below Bashkala being the Kurdish valley of Shivelan, draining the Harifta mountain, which rises to about 11,500 or 12,000 feet, and is a southern offshoot from the main watershed. The valleys now become much deeper and narrower, with precipitous sides, on which a few oaks may be found; and draining the west slopes of Harifta is the Berwari valley, with six villages of Nestorian Christians. Below this is the valley of Kochannes, draining the wide upland pasturage of Berchilan, over which towers the rocky cluster of peaks forming the summit of Kokobulend,\* the culminating point of all the

\* This peak seems undoubtedly the same as that called Karnessa-ou-Daoleh by

watershed range. The village of Kochannes is interesting as the residence of Mar Shimun, the patriarch of the Nestorian Christians.

A few miles lower, and separated by a broad col, in which are the two prominent rocky peaks of Chaila and Berichaila, comes the valley of Julamerk, with broad easy slopes at its upper end, with many streams irrigating ricefields and finding a narrow rocky exit at its lower end into the rift of the Zab valley. Julamerk was formerly the residence of the Mir or chieftain of Hakkiari, which is the general name for all these mountain districts bordering the Zab. The place is now the centre of Turkish government, and the few remains of an old castle on a prominent crag overlooking the village are all that reminds one of the old Kurdish rulers.

Nearly opposite the mouth of the Kochannes valley is that of Des on the left bank, to be described later, and opposite Julamerk the rocky gorges of Uri, Erik, and Kiyu, too precipitous to afford room for any habitations except a small village in the last named. Leaving Julamerk, the Zab makes a wide bend to the west, and passing over a broad col in some southern outliers of Kokobulend, the small Kurdish valley of Selai is entered, which drains through a deep rift into the main stream, but whose upper basin has some pretty villages among walnut trees and terraces of cultivation. Across the deep river-gorge is the mouth of the large valley of Tal, with several Christian villages, up which a track leads to Amadia, shorter than that following the western bend of the river. Bending somewhat to the north the wide upland basin of Lewin is entered, with several minor valleys, and supplying the largest tributary of the Zab on this bank. The hill formation remains the same throughout in these valleys, the upper basin of rolling hills sometimes steep, of shale formations with little rock showing, and with a countless number of springs and streams. Nearer the Zab, overhanging the river itself, hard rocky formations abruptly supervene, and the scenery quickly changes to wild crags and gorges, giving a far more striking effect. The upper part of Lewin is thus a very pleasant upland, with many Kurd and Christian villages with orchards and gardens. Lower down the stream enters a fine gorge leading into the main stream.

Below Lewin, on the right bank, are the valleys of Upper and Lower Tiari, and on the left bank the long valley of Salebekkan and Tkhuma, which complete all the districts of the Nestorian Christians. At the head of Lewin valley the main watershed becomes parted in a curious way in the centre by the Farashin upland, in which the Khabur, a large tributary of the Tigris, rises. This stream, formed by many springs and rills in Farashin, soon enters a deep narrow gorge, well

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Layard. The name Koko Bulend is given by the people on its southern slope, the Kurdish nomads on the other side probably having other names for it (Layard's 'Nineveh and Babylon' (1853), p. 422).

wooded, with some splendid crag scenery on its border slopes. The valley is first occupied by the villages of the Gavdan and Mamkhoran Kurds, and further down, round Elk and Beit-es-Shebab, by the Zshiriki. The most remarkable feature in these ranges is an immense wall of rock which commences in the Awrakh Dagh overlooking the Bohtan valley, continues south-east, bordering the basin of Hazil, and finally crossing over into the Khabur valley near Elk. It is known as the Dahazir ridge, and although at first there are broken places where the rock has fallen away and passages lead through, yet on the crest overlooking Elk, it is a perfectly unbroken wall several hundred feet high, facing out to



GROUP OF NESTORIAN CHRISTIANS.

the south-west, with a summit line nearly straight. The Khabur forces its way through this line, but on the far bank the ridge, still a straight wall of grey rock, soon attains the same elevation, and continues over into a tributary valley of Lewin, where it ends rather abruptly, although traces of the same formation exist, connecting up across the Zab with Jelu mountains. The crest line between the Khabur and the Zab attains to an elevation of about 10,500 feet, and only a single pathway leads across it by what is called the Deria-i-Zir, or Golden Gate, a name given also to the whole ridge, not from the existence of any precious metal, but from the fact that in former times a powerful chief held up any parties of nomads or caravans passing through, and made them pay a golden toll.

Turning now to the left bank of the Zab, there is first the Jelu Dagh, overlooking Gavar plain and the Zab valley. The general name given by the Turks to the whole range is the Jelu Dagh, but the various peaks and crags have local names, which require care to identify, as Kurd and Christian have each their own names, and it was only after making a complete circuit of the range and asking many guides that the final names could be determined. At the eastern end of the main range is Galianu, a long ridge of friable rock and shale of very steep contour, but possible of ascent after a difficult climb. The boiling-point thermometer gave the summit as 12,115 feet, and the view was superb to the south-west over rugged crags and gorges, in which the middle course of the Zab could be traced, and beyond, just visible in the haze, the commencement of the Mesopotamian plain.

To the south across a deep wide chasm was the rocky line, streaked with snow, of the summits of the Sat Dagh, which rise slightly higher than Jelu itself; and eastward the Gavar and Bashkala plains with the frontier hills were spread out to view. There is a small isolated peak at the extreme end of the ridge, on the summit of which was said to be a cuneiform inscription; but the rock is very friable, and if there ever was one there, it has now become worn away. At the extreme summit of the pinnacle, reached by some steep steps and holes cut in the rock, are the remains of a building, partly cut out of the rock and only a few feet square, which might have been a hermit's cell, but most probably was a watch-tower to give alarm of possible enemies from Gavar. The Nestorians claim it as the summer residence of Balak, their national hero of pre-Mohammedan days, who is said to have stabled his horses either on the rocky pinnacle or on the steep slope beside, which is a manifest impossibility. A rocky cleft severs Galianu from the main group, the central figure of which is the sharp peak of Geliashin, or the Blue cliff in Kurdish, which may be also identified as the Tura Shina of Layard, Shina in Syriac meaning "a cliff," and the name "the mountain of the cliff." Another Syriac name is Tura Khwara, or the White mountain. On all sides, except a narrow ridge on the south-east, are sheer precipices of several hundred feet, and after three attempts, in each of which I was brought up against lines of huge cliffs, I finally discovered that a steep path to the summit existed on the south-east side, but it was too late then to attempt it. The only guides procurable were very misleading, making any statement, if they thought it would please, and were very difficult to verify. The summit ridges swarm with ibex and moufflon, and many of the giant partridge were also seen. Judging from Galianu, the summit of Geliashin must be at least 1500 feet higher, or 13,500 feet above sea-level.

From Geliashin a razor-edged ridge of limestone rock runs nearly due west for a few miles, and terminates in a very sharp-pointed peak known as the Suppa Durek, or Lady's Finger (mentioned by Layard),

a prominent landmark in the confused outline of crag and pinnacle west of Geliashin. A col which gives access by a stair-like path from the Zab valley into Jelu district now intervenes to the west, beyond which runs a rugged watershed range of lesser elevation, but containing the sharp peak of *Khisara*, quite inaccessible except by the wild goats, and enclosing the rocky gorges of *Kiyu* and *Uri* draining to the Zab, and overlooking *Jelu* and *Baz* to the south.

A little south of the main ridge of Geliashin, and forming part of the group, are two masses of rock, one the *Tura Dauil* (David's mountain), and facing it across a deep chasm-like valley, the other called *Nakhira Shirka*, both rising to about 11,000 feet. The north slopes of



MAIN JELU RANGE FROM THE N.W., SHOWING GELIASHIN PEAK IN THE CENTRE, AND SUPPA DUREK ON THE RIGHT.

Geliashin and Suppa Durek are perhaps the grandest, as the ground falls away in a splendid succession of crags and precipices into the head of the valley of *Des* or *Deezan*, and the stream-level of the Great Zab, only 12 miles off, but 9270 feet lower.

Below the crest a small glacier nestles under Geliashin on the north, giving rise to the *Des* stream, called in Turkish the *Kar Su*, or Snow water, and in Syriac, *Mia Khwara*, or White water. *Des* is the first, on the left bank of the Zab, of the Nestorian Christian valleys, each of which comprises a little community or canton by itself under its own *malik*, the spiritual head being the Patriarch *Mar Shimun*, who lives at *Kochannes*, in a similar valley on the far bank of the Zab nearly



opposite Des. The valley of Des, especially in its upper part, affords the most picturesque and varied crag scenery imaginable, and of its seven villages some are not visible from the track by the stream, but are perched on some favourable terrace of ground to obtain more room than the narrow chasm affords, and escape the summer heat and malaria below. A village so situated has its "chumbi" or suburb in the valley itself, consisting of a few houses and mills, with walnut trees and scanty patches of cultivation in the bends of the little stream.

The valley is not without its historical interest, as at the junction with the Zab are the ruins of a fine castle called the Mudebbir Kale, after a celebrated Mira of Hakkiari of some fifty years ago, while higher up is the Suringa Kale, a prominent crag, the scene of a protracted struggle between the inhabitants of Des and the forces of Bedar Khan Beg, a Kurdish chief of about the same period.

Quite at the head of the valley, on a rocky cliff, is the tiny church of Mar Giwergis, or Saint George, in which a service is only held once a year, on the saint's name day. On the north-eastern slopes of Geliashin are some smaller glaciers, giving rise to streams going down to Gavar; and under Galianu on that side is a large circular pool or moraine formed by ice-action.

On the south, in the cleft under Tura Dauil, is a large mass of snow, over which a precipitous path from Jelu to Gavar leads, and this is all the permanent snow remaining at the end of summer; but, seen from Gavar at the end of June, the Jelu mountains were a fine sight, with all the crags and precipices jewelled with ice-crystals, masses of snow, and huge icicles.

The south side of Jelu is drained by the Rudbar-i-Shin, a large mountain torrent which forces its way through difficult gorges in a wooded country between limestone ridges, to join the Zab below Amadia, and whose course is not unlike the Zab, in that it is joined by several lateral valleys on either hand, each forming a separate canton of its own.

Just south of the main range is the Christian district of Greater Jelu, draining down into a northern arm of the Rudbar-i-Shin, and whose principal centre is Marta Mar Zaia, or the village of a Saint Zaia. The fine crag of Tura Dauil overhangs the village, and is a limestone wall of striking appearance, distant barely 2 miles, but the summit 4500 feet above, with quite 1000 feet sheer precipice. A little only of the Geliashin ridge is visible, but sufficient to show near the top of the cliff a rectangular opening, the mouth of a cave, lighted by a curious shaft in its rocky roof, and called by these imaginative people the cradle of Mar Zaia. In the village is a fine church, in which hang some lacquered jars, votive offerings brought by Nestorian missionaries returning from China, where they ministered and made converts before the Mohammedan era; while close by are later offerings of

American clocks and other articles, presented on a safe return from a long European tour.

The inhabitants of Jelu, in distinction to those of the other valleys of Tiari and Tkhuma, are wonderful travellers, making begging tours to all parts of the world. Consequently, people talking a little English are easy to find, but it was rather disconcerting to be addressed in a strong American accent by a man who had been through the recent Spanish war as an American sailor, but who had just returned to tend



VALLEY OF DES, SHOWING SUBINGA KALE.

his home farm, the sense of attachment to this little canton in a valley under Geliashin being stronger than the delights of civilization. One old fellow, who had finished his travelling days, said he knew London well, but the only name he could just then remember was Bow Street. Another was returning with a comrade from a successful tour in the Brazils, when his friend died off Lisbon, leaving £175, which was handed over to the Turkish consul at Lisbon until proof of next-of-kin relationship was established. The man was starting for Lisbon this

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spring. This gives a good idea of the extraordinary way in which these people exploit the whole world in their tours.

Farther down the valley from Jelu is the district of Baz, with a group of villages surrounded by orchards and little terraces growing maize and millet, which form the principal food, wheat having to be imported from Gavar. These are an industrious people, quite different from the jovial beggars of Mar Zaia, and are famous for their skill in carpentering and working iron, to carry on which they go to Mosul and other large towns.

West of Baz is the little basin of Tovi, containing a Kurd village of that name; and beyond rises a fine mountain, the Ghara Dagh, or Ghara de Bazin, with precipitous sides, but open rounded summit, used as summer pastures, or "zoma," by the people of Baz, and also those of the Christian districts of Tkhuma and Salebekkan, draining down to the Zab on the far side of the mountain. South of the Jelu ranges, but separated from them by a wide deep gap, is the Sat Dagh, or Ser-i-Sati in Kurdish, not quite so striking in its lonely grandeur as Geliashin, but rising somewhat higher to about 14,000 or 14,500 feet, as far as I could estimate from Galianu, the summit being a line of rugged pinnacles and crags, rather higher at its western end. On the upper part of its northern slope could be traced some level pasture grounds, used by the Heriki Kurds, with abundant patches of snow between the crags late in autumn. To the north-west are thrown out some spurs of bare rock, which terminate over the valley of the Rudbar-i-Shin and the Kurd village of Oramar in some stupendous cliffs, which are just masses of greyish white rock without any relieving touches in their whole extent except the black shadows of the gorge of the Rudbar-i-Shin and its tributaries. A little oasis in this grey desert is formed by the orchards and gardens of Oramar, perched on a fertile terrace overlooking the gorge below, the centre of a Kurdish tribe of the same name, and famous for its grapes, which are a large white variety of oval shape, and fully equal to their reputation. Figs and pomegranates are also grown, and testify to the mildness of the climate. The Heriki are a large tribe with seven sections, some purely nomad, and others sedentary.

The nomads occupy part of the Persian frontier hills and the Sat Dagh in summer, and go down to the Mosul plain for the winter, crossing the Zab near Zebur. The chiefs usually have tents, but many other members of the tribe make booths of oak boughs at each halting-place, all the country down to the edge of the plain being well wooded with oaks and affording the necessary shelter. Their whole worldly goods consists of their horse, some sheep and goats, a few cooking-pots, and the inevitable Martini and belt of cartridges. The sedentary portion live in villages in three deep, almost inaccessible gorges on the south side of Sat Dagh, the general name of the district being also

Heriki. A branch of the Rudbar-i-Shin rises on the north side of Sati, and winds round through the gorges separating it from Jelu, and in the lower part of which is the Christian district of Ishtazin, and higher up on more rounded slopes the Kurdish district of Bashtazin. Some idea of the bold contour of the country and the depth of the Ishtazin gorge may be gathered from the fact that Galianu towers nearly 9000 feet above the stream-level at the lower end of the gorge, and is but 6 miles distant from it. The path leading from Jelu to Ishtazin enters the main gorge through a rift barely 8 feet wide, with perpendicular walls of rock. The Ishtazin villages, with their orchards and gardens, are situated on some spurs less rocky than further downstream, and



VALLEY BELOW SHEMSDINAN, TYPICAL OF COUNTRY THERE.

provide a welcome note of green contrasting with grey rocks towering on either hand. Below Oramar on the left bank a large stream joins from the western side of the Sat Dagh, up whose valley are the large villages of Sati and Deh, partly Kurd and partly Nestorian, the whole of this side of Sat Dagh overlooking the valley being a huge wall of rock nearly 6 miles long.

The Rudbar-i-Shin finally joins the Zab through a remarkable chasm called the Tang-i-Balinda, 3 miles long, through which not even a foot-track can be followed, although it is possible to scramble along the steep slope overlooking it. It here receives a large tributary from the north, rising in the Tkhuma hills, and called the Yahudi Chai, or

Jew's river, in which are the secluded mountain districts of Nervi and Reikan. As the name implies, besides the Kurds are many Jews among the inhabitants, probably a section of the fairly numerous Jewish population who live in villages round Akra and Begil to the south beyond the Zab. They have been here for centuries, and appear to be refugees from the ancient Nineveh (the modern Mosul), and, if their history could be traced, would be found quite as interesting as that of the Nestorians themselves. Many of them trade as small pedlars among the Kurds, and wander all about the mountain districts from Bashkala to Amadia and down to Mosul.

The Sat Dagh is an isolated mass separated from the Persian frontier hills by the lower end of the plain of Gavar and the upland valley of Khumara, and from the other ranges to the south by the deep valley of the Shemsdinan river, a tributary of the Zab formed by streams from Khumara and the Zerzan districts on the frontier. The whole district is known as Shemsdinan, with the centre of Turkish government at Neri, a large village prettily situated in a side valley off the main gorge ensconced amid walnut groves and orchards. The district is devoted to the cultivation of tobacco, which finds a ready sale in Persia, being of the variety suitable for smoking in the *kalian*, or Persian pipe. The trade is entirely in the hands of the influential Kurdish Sheik Sadik, who lives in Neri itself.

The scenery in this rocky gorge is quite in keeping with the districts just described, with the steep slopes of Sat Dagh, thickly wooded with oaks, and seamed by three rocky valleys, in which are hid the villages of the Heriki Kurds. On the south side rise the dark rocky masses of the Bash-i-Rua range, culminating in a fine peak known as Guraimiz Gavdan, the whole summit being a mass of black rocky crags and pinnacles, and the slopes almost inaccessible.

Such is a description of a portion of Central Kurdistan, fascinating in the grandeur of its wild gorges, grey cliffs, and oak-clad slopes, the home of the Kurds, the direct descendants of the Karduchii, who hurled rocks on Xenophon's troops as they forced a passage through their gorges, and whose wild secluded valleys form backwaters in which have come to rest remnants of Nestorians and Jews thrown aside by the various tides of conquest that have rolled over these historic lands.

NOTES ON THE GEOLOGY BY MR. F. OSWALD, WHO TRAVELLED IN THE COUNTRY  
ROUND LAKE VAN WITH MR. LYNCH IN 1898.

Unfortunately, very little is known about the geology of Central Kurdistan. Ainsworth, in the *Journal* of this Society in 1841, gave a geological section along the Zab valley from Amadia to Bashkala, and both he and Loftus described the section from Jezireh to Bitlis. Since that date hardly anything has been done to increase our geological knowledge of the region; the following general conclusions are based on these sections, on some notes of a journey between Van and Sert, on my own observations in 1898, in the Gözelderah, on the south coast of Lake Van,

and on the descriptions by Loftus and Rodler of the geology of the Zagros, the south-easterly continuation of the Taurus ranges.

Broadly speaking, Central Kurdistan may be divided into four geological zones. The northernmost zone consists of marble, mica-schists, and clay-slates, of Palaeozoic, or possibly Triassic age; they occur along the south coast of Lake Van, and form the axis and watershed of the Taurus. To the south of these ancient rocks there follows a great series of grey limestones and shales of Cretaceous age, frequently containing ores of lead, iron, and copper; still further south lies a belt of massive white Tertiary limestones, partly Eocene, with Nummulites, but mainly Lower Miocene, with occasional seams of lignite, *e.g.* near Sheranis and Herbol, north of Zakhō; these limestones compose the broad undulating country of the lower Bohtan river. Finally, these rocks are overlaid by Upper Miocene red sandstones, with gypsum and rock-salt, which occur near Sert and Hazo, and especially form the foothills of the Taurus and Zagros, sinking into the broad plains of Mesopotamia.

Major Clayton, in 1887, recognized the dolomitic character of the Jelu mountains; it is not improbable that these strata are of a Triassic age. Ainsworth found abundant "madreporites" in the corresponding beds on the right bank of the Zab, but unfortunately did not identify these fossils. No Jurassic rocks have been found either in the Taurus or in the Zagros, although they are well known in Azerbaijan and the eastern border ranges of Russian Armenia.

There are many instances of a varied nature of igneous or plutonic rocks in this part of the Taurus, such as the tuff-crater of Sheikh Ora, breached by the waters of Lake Van; the basalt flows in the valley of Guzel Dere and the Bitlis Chai; the zones of serpentine; the intrusions of porphyrite in the Shirvan district, where there are ancient disused gold-mines; and, finally, the granite masses of Selai and Berichaila, near Julamerk.

In this highly-mountainous country, subject to earth-movements from a very distant geological period, many great faults have occurred, but none greater than the one which marks the southern limits of the depression of Lake Van and the Plain of Muah. It is even a greater line of dislocation than the great fault separating the Grampians from the central Lowlands of Scotland. There could hardly be a more striking contrast between the high rugged peaks of ancient marbles and schists south of Lake Van, and the broad Armenian plateau to the north, consisting of Cretaceous and Tertiary strata, flooded by lavas and dominated by great volcanoes.

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Before the reading of the paper, the PRESIDENT said: The paper to be read this evening by Major Maunsell is on a very interesting part of Asia, and one of which we have had no account for at least the last forty years, and many parts of which are still unknown, and that is the central part of Kurdistan and the valley of the Tigris.

After the reading of the paper, the following discussion took place:—

EARL PERCY: I have been asked to make a few remarks upon this paper to-night, but I do not know that I can contribute anything of real value, because I do not think the haphazard impressions of an ordinary traveller are worth comparing to the scientific observations of a trained explorer like Major Maunsell. But, at any rate, I think I may congratulate him on behalf of the members of this Society for the very interesting and exhaustive paper which he has read, and on the magnificent photographs with which he has illustrated the lecture. He has described, I think, almost all the main districts of the Nestorian country, as well as the upper waters of the Bohtan river and the Great Zab. I do not know much about the

upper waters of the Bohtan river, because my first meeting with Major Maunsell was later on, when I was going into the Kochannes country; but there are several points upon which I think we should like some information, if Major Maunsell would give it. He has hazarded one or two historical and archaeological comments, which I think are open to doubt. For instance, he has alluded to the stone implements found in the neighbourhood of Van; but I do not know of any trustworthy argument that can be deduced from the fact of stone implements being found in that neighbourhood, because we know they were used by populations living close to a very high state of civilization. I remember, for instance, in one of the deserts in Lower Egypt, coming upon a large mound of flint instruments, which are supposed to date from a very late period, when the dwellers on the banks of the Nile were in a high state of civilization. He has also alluded to the Jews, and said they were probably refugees from the city of Nineveh. I do not know that one can make any very confident assertion on that point, but I think it is open to question whether they were not the original settlers who were transferred after the fall of Samaria. Certainly there is a very distinct statement, I think, if I remember rightly, in the Second Book of Chronicles, to the effect that many of the ancient dwellers of Samaria were transferred to the "cities of the Medes" beyond the Tigris. There is one other point upon which I should like information, but I do not know whether any traveller in that district has gone into the question—that is, the geology. Of course a great deal of that country is composed of igneous rocks, such, for instance, as the range between the valley of Tâl and the valley of Tkuma. I do not know whether I am right in supposing that the "Jelu" peaks are of dolomite formation. I remember a book which may be familiar to many of the members of this Society by Mr. Binder, who travelled in the country in 1886, in which he describes a visit he made to the country. I think he is talking of the mountain range which goes by the name of "Ohella" and "Berechella," and he asserts that on that range he found a considerable tract of apparently fossilized forest. I do not know whether Major Maunsell, in the course of his travels, ever came across any traces of that kind; certainly I never did, but it would be very interesting to discover how far that had been done. I think Major Maunsell's map will be of very great value, because I know myself, from having been twice in this neighbourhood, the extreme difficulty that I experienced in getting any map of the least value at all. The whole of the northern part of the map has been very carefully and elaborately done, and my only difficulty in looking at it for the first time was that so many of the names used by the Nestorian population are quite different from the names given on the map. There is one part of the country upon which Major Maunsell has not said anything, because I think he, personally, has not travelled there. He has taken us as far down as the village of Oramar. Quite close to that village there is one of the finest peaks in the whole country; but it would be excessively interesting to know what is the nature of the country below that, between Oramar and Rezan, that is part of the tract which the Oramar Kurds take in the course of their annual migrations. My own belief is that the country south of Oramar consists of a very low rolling plateau; certainly the Rudbar-i-shin itself flows at a very much lower elevation than the surrounding country. The Diza plain is at a level of about 6500 feet, and the village of Ishtazin lies about 1000 feet lower, that is about 5500 feet, and at Oramar the level of the stream is only 3300 feet, therefore there is a very rapid drop, and that explains to a great extent the extremely narrow and deep gorges which make travelling in that part of the country so difficult. I do not know that I have any other observations to make, and I can only congratulate Major

Maunsell on my own behalf, and I hope on behalf of the Society, for the most interesting and instructive paper he has read.

Major MAUNSELL: I should like to answer a few queries put by Earl Percy. As regards the petrified forest on the pass between Kochannes and Julamerk, I passed over that route, and could find no trace of it whatever; I do not think any could possibly exist. The country is mostly of shale formation, and, as far as I know anything of geology, I do not think such a thing would exist there. As regards the country between Oramar and Rezan, the formation is of flat-topped limestone ridges, with streams in deep narrow rifts, and much lower than the Sat-Dagh. The central ridge seems to be plentifully wooded on both sides, and towards the Rudbar-i-Shin has come fairly open, easy spurs on which are about a dozen villages, whose inhabitants come into Gavar in the summer, and later on go to the top of the Sat-Dagh. The Rudbar-i-shin leaves this country by a rude gorge which is almost impassable. As regards the general geology, I am afraid I can only speak as an amateur, but the country around Lake Van is remarkable for its various igneous formations. All round the Lake of Van are extinct volcanoes. On the western side is the great crater of Nimrod, which is 5 miles in diameter, but now extinct. On the north is the crater of Sipan Dagh, 13,700 feet; and away to the north-east towards Ararat is another large volcano, the Tendurek Dagh, which is still said to smoke slightly. But directly you reach the south shore of Lake Van an entirely different formation supervenes; there are no volcanic masses of any size until you get to the peak of Guraimiz Gavdan, which seems of an igneous formation, as well as the whole of the extremely rugged range which contains it. Most of that which contains the various "yailas" is shaly formation, and gives rise to easy-rolling slopes, which are suddenly broken by the great rocky wall of Deria-i-Zir and the Jelu mountains. As regards the settlement of the Jews, I went chiefly by the local tradition related to me in Mosul, and also in Akra, that they came from Mosul, the ancient city of Nineveh; but I do not know at what period they were brought from Palestine. The stone implements were dug up by the German expedition of Dr. Belck and Dr. Lehmann, who seemed to think that they were of a far more ancient date than what is called the Vannic Chaldean period.

The PRESIDENT: It only remains for us to thank Major Maunsell for his interesting paper. We have had accounts of this region before, and I can remember the paper that was read by Mr. Taylor, although it is more than forty years ago, and the very interesting discussion which followed, in which Sir Henry Rawlinson told us a great deal about the history of the country. Major Maunsell has shown us and described to us the beauty of the scenery, but I think this is enhanced by the extraordinary historical interest connected with the region between Lake Van and the valley of the Tigris. I remember Sir Henry Rawlinson expressing his opinion that this region is the Ararat where the ark rested, and not the peak in Armenia, the honours of which are only derived from a much more modern tradition. The country is also extremely interesting from the march of Xenophon through it after he left the valley of the Tigris. I believe a part of the country was also possessed by the Crusaders, and there are points connected with it of the deepest interest, such as the history of the marches that were made across it in the times of the Eastern Emperors; and, to go back to much earlier times, there are the remnants of the old religions of the East which remain in these valleys. The religion of the Yasidis is connected with the ancient bird which occurs so frequently in remote Persian history. It was called the *Malik Thus*, and was supposed to have been a peacock made either of bronze or of silver; but nobody knows the real history of that religion. All these historical points immensely enhance the interest connected with this magnificent scenery; but it is late now, and we have only time



to pass a very cordial vote of thanks to Major Maunsell for having given us such an excellent idea of the magnificent mountains of this part of Kurdistan. I am sure you will pass this vote of thanks unanimously. And I think we ought also to thank Earl Percy for his friendly criticism of this paper, through which a great deal of additional information, especially respecting the geology and archaeology of the country, was brought out in Major Maunsell's reply.

## NORTHERN BOLIVIA AND PRESIDENT PANDO'S NEW MAP.\*

By Colonel GEORGE EARL CHURCH.

THE Royal Geographical Society is indebted to his Excellency Colonel José M. Pando, President of Bolivia, for a new and interesting map of the north-eastern part of that country, transmitted to us through his Excellency Señor F. Avelino Aramayo, the Bolivian minister to the court of St. James.† It includes the extensive explorations made personally by Colonel Pando between the years 1892 and 1898, and throws much-needed light upon an attractive section of South America, which, from the days of the Incas, has seemed to challenge exploration. It lies to the east of the cradle of the Inca empire, from which no man can look across Lake Titicaca at the magnificent range of white-bonneted peaks which marks the line of the inland Andes without an almost irresistible inclination to break through one of its gaps and plunge down the slope into the Amazon valley, to solve the mysteries which lie hidden there. The Inca Rocca, the successor of Manco Capac, entrusted to his son, Yaguarguaque, an expedition of 15,000 men to conquer this region, then called Antisuyu. He easily penetrated from Cuzco to Paucartambo, and thence, with great difficulties, to Tono—the first coca plantations of the Indians, but went no farther. Even the great Inca Yupanqui could not resist the temptation; and, according to Garcilaso de la Vega, sent a numerous, well-equipped army which reached the Tono river, spent two years in building rafts, descended the river Mayu-tata, or Amaru-mayu, and conquered the countries to the east of Cuzco as far as the plains of Musu, now known as Mojos.‡ It is probable that this expedition did not reach the falls of the Madeira, but on arriving at the level country, at about 12° S. lat., struck to the south-east and crossed the Beni river into the Mojos territory, keeping a short distance from the base of the foothills of the Andes in the more or less open lands.

\* Map, p. 248.

† The geographical world will learn with pleasure that, continuing his services to science, President Pando concluded a contract, on February 15, 1901, for the survey of that part of the Andean plateau belonging to the Department of Oruro and La Paz, between Lake Titicaca, the Desaguadero, Pampa Aullagas, and towards the east to the summits of the inland range of the Andes.

‡ In the *Proceedings of the Royal Geographical Society* for June, 1883, will be found a most interesting paper on "The Basins of the Amaru-mayu and the Beni," by Sir Clements R. Markham.