

The GEOGRAPHICAL JOURNAL

Vol LXXII No 4



October 1928

PRE-GHAL IN WAZIRISTAN: *A paper read at the Meeting of the Society, 4 June 1928, by*

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THE North-West Frontier of India is formed by a confused mass of mountainous ranges running roughly south-west and north-east from near Karachi on the sea to Chitral in the extreme north. The Afghan border, which is usually known as the Durand Line, follows a tortuous course through or along or below these ranges. For administrative purposes this mountainous tract, or rather such portion of it as is on the Indian side of the Durand Line, is divided into two Provinces—Baluchistan and the North-west Frontier Province; the latter, with which we are chiefly concerned this evening, being the more northerly of the two.

The North-west Frontier Province consists of five Districts and five Agencies. Reading from north to south the Districts are those of Hazara, Peshawar, Kohat, Bannu and Dera Ismail Khan. The Agencies are Dir Swat and Chitral, which is one unit, and the Khyber adjoining the Peshawar District, the Kurrum adjoining the Kohat District, North Waziristan adjoining the Bannu District, and South Waziristan adjoining the Dera Ismail Khan District.

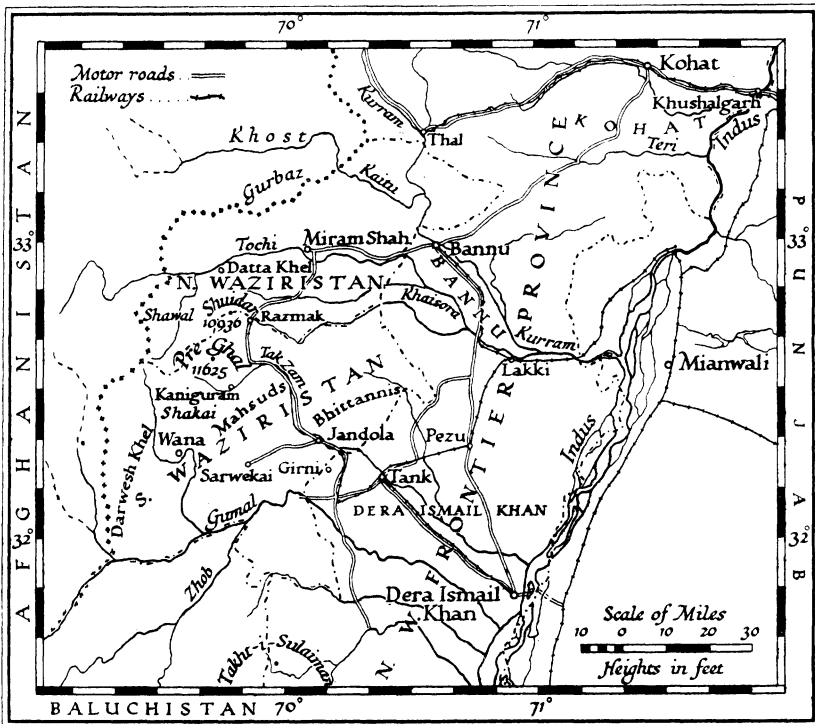
Roughly speaking the Districts comprise the fully administered country in the plains and foothills and the Agencies the unadministered tribal territory in the mountain ranges. There is a fixed line known as the administrative border on the eastern side of which revenue is collected and the law fully administered, and on the western side of which political control of varying intensity is exercised over the tribes.

Waziristan—that is the country comprising the North and South Waziristan Agencies—lies at the southern end of the North-west Frontier Province where it adjoins Baluchistan. It consists of a series of river valleys running from west to east and debouching into the plains, a mass of high mountains in the centre from which the rivers are chiefly fed, and a large plateau in the south. The rivers reading from north to south are the Tochi, the Khaisora, the Shaktu, the Tak Zam and the Gumal. The high mountains consist of a confused mass of ranges with two prominent peaks, Shuidar 10,936 feet and Pre-Ghal 11,556 feet, and the plateau bears the name of Wana.

The greater part of the country is barren in the extreme. In the Tochi

valley and on the Wana plain there are large stretches of fertile land, but otherwise cultivation is almost entirely limited to "Kaches" or the deposits of alluvial soil that collect in the bends and bays of the streams and river-valleys. The natural resources of the country are confined to rope and matting made from the "mazri" or dwarf palm, which grows on the lower hills, and timber and edible pine nuts from the vicinity of Pre-Ghal and Shuidar.

The lower ranges of hills are entirely bare—confused jagged ridges of many-coloured rock. At about 2500 feet the gurgura, a bush bearing an



Waziristan and its approaches

edible berry, the wild olive and other shrubs begin to appear. At about 4000 feet the holly-oak starts and continues up to nearly 8000 feet, getting bigger and thicker as the country rises. Above 8000 feet are fine forests of conifers.

The rainfall averages about 12 inches a year on the foothills and about 50 inches on the higher ranges. This falls half between December 15 and May 15 and half between July 1 and September 15. After good rain the hill-tops and sheltered slopes above 4000 feet often become beautifully green for a short period.

The Waziristan hills form part of what has been called the Sulaiman system, a term which appears to include all the Frontier ranges between the Hindu Kush and the sea. The system takes its name from the Takht-i-Sulaiman, one

of the points of a striking double-peaked mountain which lies just outside Waziristan between the Dera Ismail Khan District and Baluchistan. The Takht-i-Sulaiman, or Throne of Solomon, is so called from a shrine on its summit marking the place where Solomon is supposed to have halted to allow a bride newly brought from India to enjoy a last view of her native land. Pre-Ghal is the highest point in the system south of the Kurran valley with the one exception of Zarghun, near Quetta, which is about 200 feet higher.

Waziristan, as its name implies, is the country of the Wazirs, a large Pathan tribe of probably half a million souls. The Wazirs are divided into two main sections—the Darwesh-Khel or Wazirs proper, and the Mahsuds. The latter, who are about a quarter of the whole tribe, occupy the central and most hilly portion of the country. The Wazirs are all round them on three sides in the Khaisora and Tochi Valleys, in the uplands of Shawal and Shakai, and at Wana; while on the east a small tribe called the Bhattannis intervene between them and the plains. A virile race in a hard and barren country which cannot possibly support them, the Mahsuds have long subsisted at the expense of their neighbours—both by raids, which have often penetrated far into the settled districts of the Frontier Province, and by gradual encroachment of the lands of the less warlike Wazirs and Bhattannis on their borders.

Our relations with the tribes in Waziristan date from the visit of Sir Herbert Edwardes to Bannu and Tank in 1847 and 1848. In 1849, by the annexation of the Punjab we inherited from the Sikhs the onerous responsibility of protecting the settled population of the Bannu and Dera Ismail Khan Districts from their raids. The history of Waziristan in general and the Mahsuds in particular from that time onwards is a series of punitive expeditions culminating in extensive operations in 1919, due to the intolerable state of disorder which followed the Great War and the Third Afghan War.

From 1919, however, a new phase starts. The troops that went into Waziristan stayed there, until early in 1923 Razmak was occupied as a permanent measure and connected by good roads with both Bannu and Tank. Razmak lies beneath the slopes of Shuidar at an altitude of about 6300 feet on the boundary of Wazir and Mahsud country and completely dominates Makin, the home of the Abdullais, the section of the Mahsuds which offered the stoutest resistance during the fighting of 1919 and subsequent years. The effect of the occupation of Razmak and the construction of roads has been magical. The standard of living and general condition of the tribesmen has very much improved, and they have begun to realize that there is much more to be made out of co-operation with Government than by unceasing resistance. Whereas three or four years ago the Mahsud was intensely jealous of the privacy of his mountainous retreats and strongly objected to any attempt to penetrate them, he is now beginning to be quite anxious to show officers round his country and to clamour for roads in the most remote valleys. The motive is almost entirely economic. Raiding being now difficult, if not impossible, the tribesman has to seek other means of livelihood, and of these road-making is one of the most lucrative.

It was this change in spirit that rendered possible the visit to Pre-Ghal I am about to describe. Ever since September 1924, when I took over charge of

the South Waziristan Agency—which comprises the country of the Mahsuds and the Wazir tracts of Wana and Shakai—it had been one of my chief ambitions to climb Pre-Ghal, a point hitherto inaccessible to Europeans, not on account of any difficulties of the terrain but because of the hostile and intractable attitude of the Mashud tribesmen living round it. One Sunday in the hot weather of 1927, while rambling in the hills round Razmak with some Abdullai Maliks and Khassadars, they suggested to me a visit to the mountain. I took them at their word, and towards the end of August summoned some of the leading maliks of Makin and entrusted to them the necessary arrangements.

Before proceeding further it will be convenient to describe the constitution of the Mahsud tribe. The tribe is divided into three main sections—the Shaman Khel, the Bahlolzai, and the Alizai. These sections are again divided into numerous sub-sections. There is no chief or nawab of the Mahsuds as a whole. The big sections have their leading Khans, but their influence is usually only local, and it is with the chiefs or maliks of the sub-sections that Government mainly deals. Each sub-section has a number of maliks of more or less importance, but nearly every adult male has a voice in tribal affairs. The Mahsuds as a whole are extremely democratic. Every man thinks himself as good as his neighbour. The influence of the maliks depends almost entirely on their personality; the tribesmen in general are extremely jealous of them and expect to share in any benefits which Government may confer upon them. It is this spirit that renders the Mahsuds so difficult to deal with. On the visit to Pre-Ghal I was accompanied by nearly three hundred tribesmen, because practically every family in the surrounding villages insisted on being represented. If I had announced my intentions more publicly and given longer notice, it is probable that every Mahsud sub-section would have insisted on sending a contingent—as Pre-Ghal belongs to the Mahsud tribe as a whole—and the numbers would have swelled to over a thousand. As it was our escort was chiefly confined to those sub-sections of the Bahlolazis through whose country we passed, namely the Abdullais, the Band Khels, the Haibat Khels and the Jalal Khels.

Government deals with the Mahsuds through their maliks and tribal jirgas or councils of elders. The maliks are paid allowances and held responsible for the good behaviour of their tribesmen, and every effort is made to uphold their authority. To assist them in their duties tribal levies or Khassadars are appointed from each section and paid a monthly wage. These Khassadars, besides assisting the maliks in the control of their sections, furnish picquets to keep the roads safe and provide escorts for officers touring.

The Mahsud as an individual is an attractive character. The youth is extraordinarily good-looking while the bearded elder is almost always handsome. He is normally cheerful and fond of a joke; he is capable of unlimited endurance, and generally speaking is straightforward and honest. He is not a good liar or flatterer and prefers to call a spade a spade. On the other hand, he is intensely jealous, vindictive and quick-tempered, and becomes a fiend when roused. The blood-feud and the struggle for existence in a land of such poverty lead to constant murders. Except on the Government



Looking over Shazval



Khar Sar and Spinkai Sar from Maisera Sar



Lowarai Punga and Pre-Ghal



Pre-Ghal from head of Sra Tizha Algad

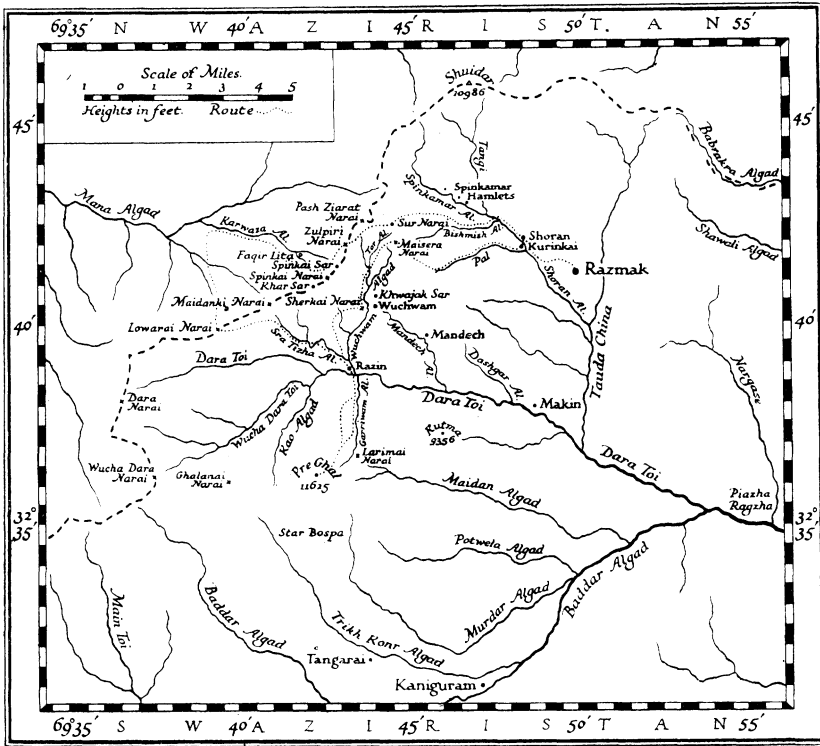
roads, which are more or less sacrosanct, every Mahsud carries a rifle and is constantly on the look-out for a possible enemy.

I arranged to leave Razmak on September 7. Though there were many who would willingly have come, I asked only one British officer to accompany me—Captain R. North, then of the King's Royal Rifles and now of the Indian Army. The success of the expedition was not a certainty, and in the event of any untoward incident occurring a larger number of companions might have proved an embarrassment. Nailo-Tahsildar Maulvi Abdul Mana'an, a subordinate Indian official of the Agency, made all the arrangements for rations and transport. We took with us a considerable quantity of flour, rice, ghi, tea, sugar, tinned milk and biscuits for our escort, not to mention some Keating's Powder for ourselves, as Waziristan, though comparatively free from other vermin, is famous for its fleas. These abound in enormous numbers, especially in the spring, when they force the inhabitants to leave the caves in which in the lower altitudes they spend the winter months and live in tents or grass huts which can be moved about. Our camp kit consisted only of light beddings, as it was quite warm enough for us to sleep out if necessary.

We left camp about 7 a.m. and followed up the Shoran Algad to just below the main collection of Abdullai hamlets known as Spinkamar. Here we turned to our left and climbed very gradually up the pebbly bed of the Bishmish Algad. Algad is the local word for the course of a mountain torrent, dry, save for occasional springs, except after rain. We passed on our way the Bishmish village belonging to the Abdullais, a scattered collection of towers and houses amongst terraced maize fields, gay here and there with bright mauve patches of wild sage. Above this hamlet we left the bed of the Algad and climbed steeply up the hill-side, soon leaving the region of scrub oak and emerging on to grassy alps studded with clumps of blue pine and isolated oak trees. Here are the summer grazing grounds of the Spinkamar villagers. The road undulates over the crest of the ridge, and the highest point on it—about 8800 feet—is well to the west very close to the watershed separating the Dara Toi basin from Shawal. The pass by which we crossed over the top of the ridge from the Spinkamar basin into the Dara Toi basin is known as the Sur Narai, or Red Pass. From here we descended slowly down a beautifully green valley beside an intermittent stream, with a forest of spruce and blue pine on one side and on the other grassy slopes starred with gentian and edelweiss. Our direction was roughly south-south-west. After about 2 miles we reached the marshy source of a stream flowing towards Wuchwam village just below a small saddle in the Shawal watershed known as the Pash Ziarat Narai. From this point we climbed to the crest of the watershed and wandering along beautifully wooded slopes—still spruce and blue pine with some fine oaks—at 10.30 a.m. we reached the Zulpiri Narai (8950 feet) where our track crossed a rocky hill-top. Just above this Narai we had a magnificent view of Shawal—the whole of which was spread out like a map before us—a great basin all thickly wooded except for a bare patch in the middle where Wazir towers and cultivation could be seen.

We had with us at this time seventy or eighty maliks, including nearly all

the Abdullai maliks, with a few Band Khels, Haibat Khels, Shingis, Nazar Khels, Bibizais, Guri Khels and one Jalal Khel, Balikai, who was to be our host for the night. They had intended to take us by a direct route past Wuchwam to Razin in the Dara Toi, but when we reached the top of the Sur Narai, suggested going *viâ* the Lowarai Punga instead. I gladly accepted, knowing that we should see more of the country. The object of this manœuvre became clear when we arrived at the Zulpiri Narai and the maliks began to describe the points which they alleged marked the boundary between Mahsud and Wazir country. This boundary included a large portion of the southern rim of the Shawal basin. I promised the maliks to put on record



Capt. Hay's routes north of Pre-Ghal based on the Survey of India, with names added by the author

the names they had quoted without committing myself to any expression of opinion.

I would note here that there is bitter hostility between the Wazirs and Mahsuds on the subject of their boundaries, especially in the vicinity of Razmak, and there has been serious fighting between them on the subject. I have remarked before that the Mahsuds are always encroaching, and it is extremely difficult to lay down where the *de facto* boundary is at any given time. Each side claims much land to which it certainly has no title of any kind, but in between there is always a pretty big strip to the ownership of which both parties can put up a very specious case. In the present instance

the real boundary probably runs along the watershed, the whole of Shawal being Wazir and the Dara Toi basin Mahsud.

Shortly after leaving the Zulpiri Narai we descended sharply down the Shawal side of the watershed to the bottom of a narrow ravine leading down from the Spinkai Narai, which lies between Spinkai Sar—a hill surmounted by a sheer white cliff facing south-east and a regular landmark as seen from Mahsud country—and Khar Sar, a conical well-wooded height of a dull-brown colour. The track leading over the pass appears to be of little importance. It is at about this point that the nature of the forest entirely changes; from here onwards for miles there are deodars, mostly of a small variety, and practically nothing else except occasionally a few blue pines. I noticed a great many young trees growing up.

Before descending from the watershed we passed a resin-pit where the deodar wood is burnt and the resin allowed to run out into a small basin. It is used medicinally for sheep, camels, etc., as a cure for skin diseases. The local word for it is “Ranzara”; it sells at about a rupee a seer (2 lbs.).

We now descended the ravine, which soon widened into a small valley, for several miles in a west-south-westerly direction. At about 8100 feet we came to a spring just below a camping site called Faqir Lita. The spring and the valley are known as Karwaza. From here we followed a marshy stream thick with flowers between alternate forests, and grey fantastic cliffs with toy deodars growing out of their clefts and crannies. Farther down we passed a number of terraced fields which the Mahsuds claimed as theirs. Apparently they were made by Marwats, but since that tribe left the country, probably two centuries ago, they have not been cultivated except very occasionally by a Mahsud or Wazir whom necessity has compelled at the risk of his life to endeavour to raise a small crop on them.

From the Sur Narai to the Lowarai Punga not a sheep or goat was seen, although grazing was abundant. I am told that in the spring Mahsud or Wazir flocks do occasionally graze here surrounded by an armed guard with their rifles held ready to fire. Apart from our own party not a single human being was seen, except three grey-bearded unarmed Wazirs, who were crossing the Lowarai Punga to visit some Mahsud friends.

We must have gone some 3 or 4 miles down the valley, which descended very gradually. At a point at which the aneroid read 7850 feet we turned due south, and a short ascent brought us on to a broad undulating plateau covered with deodars. Other trees were entirely absent. There were many open places carpeted with brown grass and withered gentian plants, this portion of the country having obviously had much less rain than the vicinity of the Sur Narai. We found only one small spring. We passed a fairly large cemetery at which all our escort stopped and prayed, and a camping site which did not appear to have been recently used.

An hour's walk brought us to the Lowarai Punga, a huge clearing some 3 square miles in extent, which appeared at some very ancient date to have been terraced for cultivation. It was covered with beautiful turf somewhat greener than the country through which we had just been passing. It slopes up gradually from south to north to an altitude of about 8000 feet, and the country then falls away steep and well-wooded to the Shawal basin. At the

top of the Punga is the tomb of Bahlol, eponymous ancestor of the Bahlolzai section of the Mahsuds. The tomb lies close beside a deodar, and consists only of a rough heap of stones surmounted by a number of long poles bearing small white flags and enclosed by a low wall of loose stones. The main route from the Dara country to Shawal crosses the watershed close by. We halted near the shrine for an hour and a quarter, and it was only here that there appeared to be any likelihood of trouble occurring.

We had had a few alarms and excursions before. When we turned up the Bishmish Algad below Spinkamar a man was seen running excitedly towards us. He announced that the Turan Khels of Mandech had collected a lashkar or tribal gathering to block our way. We went on unconcernedly and very shortly met the leading Turan Khel Malik Kal Khan, who said that with great difficulty he had persuaded the lashkar to assist our passage instead of opposing it. A letter was also received from the Shamak Khels of Dara saying they would not allow us to visit their country, but of this, on the advice of the maliks with us, no notice was taken. It should be explained that these threats did not really denote any hostile intention. All the persons concerned wished to signify that the expedition could not take place without their good-will, and that they expected a share in any of the rewards which might be given as a result of it. On the top of the Sur Narai a Bibizai rudely assaulted one of our sowars, claiming his pony. A few minutes' uproar arose until the Bibizai was almost literally sat on by the rest of our party. At the Spinkai Narai a shot was heard close at hand, and everybody stopped for a minute. We were relieved to learn that the bullet had found its billet in a pig.

The trouble on the Lowarai Punga was of a different kind. The trip had been arranged principally by the Abdullais of Makin ; our route lay largely through Nano Khel country. The Nano Khels—Haibat Khels with a few Umar Khels and Malik Balikai Jalal Khel—insisted that they and they alone should have the honour (with benefits to follow) of taking us up Pre-Ghal. This the Abdullai Maliks with Aziz Khan Shingi and Haiyat Khan Nazar Khel, who were mainly responsible for our safety, could not allow. A frightful din arose. With some difficulty I managed to persuade the disputants to go and shout at each other at some distance away, and we ate our lunch in peace. The Aimal Khel Maliks (Abdullais and Nazar Khels) then came and assured us that nothing on earth would make them abandon the trip. It had become a point of honour, and if necessary they would take us round by another route through their own country. Eventually the whole matter was settled amicably and all concerned made a self-denying ordinance not to mention the word " bārid " (boundary), *i.e.* not to assert a claim of ownership to any of the country through which we might pass.

The question of boundaries between the various sections is a very delicate one and not to be broached lightly in Mahsud country. Except in the case of villages or cultivation it is never safe to ask to what section any piece of ground belongs. The fact is that the boundaries in uninhabited country are not really properly defined ; everybody thinks you have come to select a site for bungalows or a line for a road and is anxious to establish his claim to compensation at the earliest possible date. This leads to violent altercations and has been known to cause really serious trouble.

After leaving the Lowarai Punga we hardly heard a high word during the rest of the trip. We turned back at an acute angle from the route by which we had come and for two miles ascended in a north-easterly direction by a well-defined track over the same undulating deodar country. We then descended sharply down a nala bed. This route is known as the Sra Tizha route from a remarkable dome of red rock which is passed on the way. At about 7800 feet conifers ceased to predominate and the familiar oak scrub reappeared with an occasional edible pine or deodar. The descent was easy. About half-way down we made a long halt for prayers by a small spring. The nala soon changes to a broad Algad, called the Sra Tizha Algad. Shortly before it reaches the Dara Toi it is joined by the Wuchwam Algad, and at the point of junction there is cultivation and a tower belonging to Malik Bagh Gul Umar Khel. Here we left the Algad and climbing up a slope on the right bank crossed a ridge and descended to the village of Razin, where we were to spend the night. The distance traversed during the day was about 24 miles.

Razin is a village of some thirty families of Toji Khel Jalal Khels. The leading man is a minor malik called Balikai—a good fellow with a great sense of humour and a loud voice. The main village, which consists of a number of mud houses with a tower or two, is on the left bank of the Dara Toi with a fairly wide stretch of maize fields lying between it and the stream. I made its altitude about 7100 feet. The stream contains plentiful water. On the opposite bank are a number of sheds to which the people of the village retire in the hot weather, presumably to escape the fleas which have accumulated in their proper houses. The most remarkable feature of the Dara Valley at this point is the cliffs of snow-white rock which overlook it. On one of them, facing Razin, is a black streak like a huge snake with its head downwards as though it was descending towards the village. There is some old legend connected with this.

Balikai had sent his women and children to one of the sheds on the opposite bank and placed his house at our disposal. A room had been made ready for us in his tower, but as it was very small and had to be reached by a perfectly atrocious type of ladder, we preferred to take up our quarters in the house proper below the tower. This was full of an extraordinary assortment of bags, skins and other receptacles hanging from the roof or reposing in corners, and was by no means void of fleas; but it was entirely open on the side towards the Toi, so we had plenty of fresh air and a lovely view of Pre-Ghal towering up immediately above us, while later on we were able to watch the whole process of the cooking of a Mahsud meal.

Our party by the time it reached Razin numbered about two hundred, many Khassadars and others who had been out picqueting having joined us. We found tea ready, and having refreshed ourselves proceeded to settle down in our quarters. A succession of sheep and goats now began to arrive, escorted by local Maliks and "mutabars"—this being a common form of hospitality and a sign of respect. These were all accepted and, with the rations we had brought ourselves, were distributed amongst our lashkar.

Our host produced a huge goat which he wished to slaughter and put into the pot in our presence. We, however, insisted on its being slaughtered

outside. A large fire was now lit and on it were placed two huge earthenware vessels (Katau) full of water, two iron degchies (Deg), and a huge iron grilling utensil (Katorai). The ribs (Pashtai) of the goat were threaded on two sticks and stuck into the ground by the fire to roast. Pieces of liver and other dainty portions (Larmun) were dealt with by means of the grilling instrument. The rest of the meat was cut up and boiled in the earthenware pots, while the degchies were reserved for rice.

Our host, with his relations and friends, sat round the fire and did not finish their meal till nearly midnight. Ere this we had satisfied ourselves and retired to bed and such sleep as the fleas would allow us. A curious thing we found about the fleas was that though their passage over our bodies caused great annoyance their bites were practically innocuous.

A party had been sent out the previous night to occupy the summit of Pre-Ghal early in the morning and prevent any possible enemy reaching it before us. We ourselves set out at 6.20 a.m. and descending to the Toi, or stream, followed it down for a short way and then turned to our right up the Garriwam Algad. Conifers were plentiful at about 7600 feet, consisting at this point of spruce and blue pine. We did not see a single deodar on Pre-Ghal. Silver fir is abundant towards the top.

The Algad gradually became narrower and the sides more precipitous. We passed a huge fallen tree blazing hard; our advance party had set it on fire to keep themselves warm during the night. Some 4 miles up the Algad at an altitude of about 8475 feet we came to plentiful water. Here we turned off up a side nala and were soon climbing up a very steep slope covered with grass and flowers and flanked on either side by sheer grey cliffs. A long and stiff pull, sometimes up grassy slopes sometimes over rocky outcrops, brought us to the crest of one of the main spurs of the mountain at about 9825 feet. From here we went straight up the spur with much clambering over rocks: it was hard work but the going was nowhere really difficult or dangerous. We reached the top at 10.5 a.m., three and three-quarter hours after leaving Razin; the aneroid read 11,625 feet, showing little difference from the height recorded on the map, viz. 11,556 feet.

On the very summit is the shrine of Pre-Ghal—a grave enclosed by a rough wall of stones with the usual tall poles surmounted by little white flags; attached to the shrine is a small square building for the shelter of pilgrims.

The mountain is often incorrectly called Pir Gul or Pir Ghal. The correct name is Pre-Ghal. The Mahsuds say this name has nothing to do with the word "Ghal," meaning in Pashtu a thief. Pre-Ghal is a term denoting a very holy man, and they say that the tomb is that of a saintly Faqir who in very ancient times led a hermit's life in the forests of the mountain. An isolated height like this must have been a holy place from time immemorial, and it is possible that the real meaning of its name should be sought in the language of some people who possessed the country before the Pathan invasion. The Hindus have legends about the mountain which they say is sacred to Shiva.

There is no custodian of the shrine, which is chiefly frequented by sonless men and barren women, as prayers offered there are said to be efficacious for the production of offspring, especially male offspring.

The top of the mountain consists of three points. The most easterly, which is the highest, is treeless and covered with a squat and very thorny shrub like gorse; the central one, which is the lowest, is well wooded on its northern side; the most westerly one is bare like the highest point, and is known as Kam or lesser Pre-Ghal. Except for the summit and a few precipitous faces the whole mountain is well wooded, but on the upper slopes about two trees out of three are dead skeletons, and many of them by the force of wind or snow have been knocked sprawling down the slopes. This is everywhere noticeable where the forests consist of spruce and silver fir, and is due to the fires which resulted from the long drought of 1920-21. The deodar forests do not seem to have been affected. Besides the conifers there are some fine oaks on the mountain and also in places thick jungles of wild cherry.

The flora of the mountain appears to be very similar to that of the lower Himalayas, except that some of the varieties are smaller and paler. Some specimens were collected and sent to Mr. Ronald Good, of the British Museum, who has kindly identified them.

There were various herbs, which the tribesmen sought for eagerly. One was a flower like a small "everlasting" with a very sweet smell, called *Kasturai*. They collected large bunches of this, to be taken home to their families and used like lavender to perfume clothes or decorate the house. Another is called *Karaska*. It looks and smells like celery, and has a long tapering root containing a sort of white pith which is used as a flavouring for tea, and is also said to be an antidote for indigestion. Another has a heart-shaped leaf like a violet, and is called *Mirsalai*; its root is very sweet-smelling. Bits of it are dried and threaded as necklaces for small girls. A fourth is called *Miralam*. It is a tall reed-like plant with a long white root containing glutinous substance; this is eaten by mothers to improve the supply of milk. Another, which is a sort of small yellow vetch, is called *Momirai*; the stalk of it rubbed on the eye produces much inflammation but improves the sight.

Bears are said to be plentiful, and panthers are also found. Owing to our enormous escort it was very improbable that we should see any game, but a party who came up to meet us from Badar on the south side of Pre-Ghal had shot a female "Markhor," a kind of wild goat, on the way. Oorial, or wild sheep, are said to be abundant. Bird life was remarkable by its absence, and practically no butterflies were seen; but there was no lack of other insects, such as bumble-bees, wasps, flies, etc.

Of the geological composition of the mountain I am not competent to write. The cliffs were mostly of a uniform dull grey colour, and in the nala bottoms were many lumps of speckled rock, with the appearance of granite. The higher strata of rock were certainly igneous.

The view from the top was superb, and must be unspeakably magnificent on a clear day in the cold weather, when it is said the Indus can be seen. As it was the plains and Wana were obscured by haze, above which only the topmost peak of the Takht-i-Sulaiman appeared like some strange aerial islet. The range of the Safed Kok was hardly visible, but otherwise the country was spread out like a map, from the confines of Baluchistan to the Kurram, and

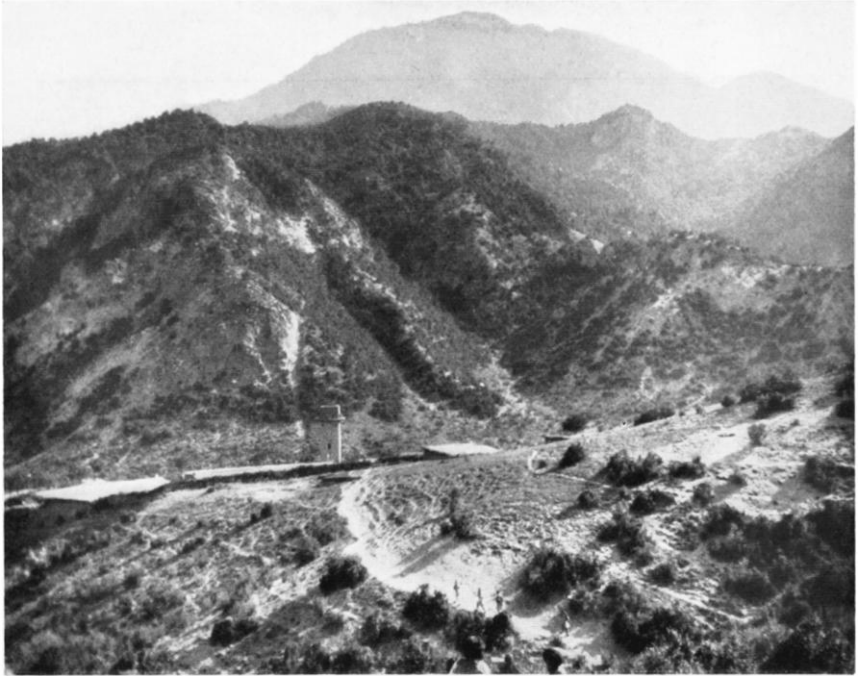
from Girni and Gabar to the hills of Gardez and Khost. The whole of the Dara Valley and Shawal were displayed in detail; the road could be seen winding up the upper half of the Razmak plateau; Piazhra was visible, and the green maize fields of Maidan and the Badinzai Tangi could almost be counted. Kaniguram was hidden behind a ridge, but the whole of Badar with the Tangarai and Mishti Valleys laid bare its innermost secrets; beyond it Shakai stretched broad and yellow, and the Khaisora villages tried in vain to conceal themselves behind a curtain of haze. The Kotkum hills and Bobai stood sentinels over an invisible Wana. Westwards were great forest-clad slopes, backed by a series of long ridges stretching far into Afghanistan.

Immediately to the south of the summit and about 2000 feet below it is a beautifully green plateau known as Bospa. This, according to the Mahsuds who accompanied us, is the highest point on the mountain which any European has previously been allowed to reach, and that many years ago. The tribe regard the mountain as their "Takht" or throne, the sanctum of their country and the symbol of their inviolable independence. Their voluntary disclosure of its mysteries is a notable sign of their changed attitude towards the British Government.

Many tribesmen were on the summit when we arrived, including a party of Malikshahis from Badar, who had spent the night there. For some months they had been adopting a threatening attitude over certain grievances, but they now presented an enormous goat and asked in a reasonable manner for redress. Naib Tahsildar Abdul Manaana, who very bravely undertook a climb for which he was fitted by neither build nor habit, reached the summit some time after us, and when we were all collected our party must have numbered between two and three hundred persons. A thorough picnic spirit prevailed, many of the Mahsuds with us never having climbed the mountain before.

We spent some two hours on the top and began our descent from the western extremity of Kam Pre-Ghal. From here the position of the Ghalanai and Bosh Narais could be seen, and also the actual track of the Machi Narai. Descending in a southerly direction we reached a small saddle connecting the central mass of the mountain with a subordinate ridge. Here we turned due east down a fairly open valley, which fell steeply away beneath the southern face of the mountain-top. Flanked by battalions of silver fir we waded waist-deep through a sea of flowers with occasional snags in the shape of stinging nettles. A thousand feet from the top we struck a plentiful spring of very cold water, and for the next 2 or 3 miles we walked beside a babbling stream with a disconcerting way of disappearing and coming up again. It was some time before we realized we were in the Garriwam nala by which we had begun our ascent in the morning; it starts at the western extremity of the mountain-top, runs all round the south and eastern sides of it, and finally flows into the Dara Toi on the north. When we had descended some 2000 feet the Badinzai Maliks from Tangi, who had joined us the previous evening, left us and climbed up to a small saddle on the spur a few hundred feet above us, which they called Larimai Sar. They were on their way to Larimai village, which lies at the head of the Maidan Algad.

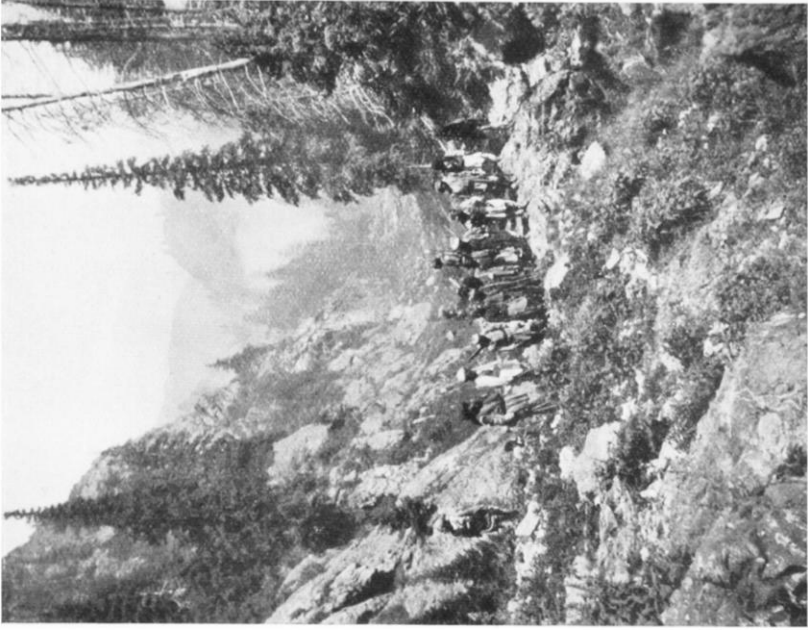
Hitherto the valley had been fairly open and running in an easterly direction; it now turned northwards and dropping by a narrow defile



Razin village and Pre-Ghal



The Dara Toi valley at Razin



In the Garriwam Algad



On the ascent of Pre-Ghal

through a feature of solid rock emerged into the lower and darker slopes of the mountain. In the defile were a series of "Zowas" or sheer drops over closely-wedged irregular rocks, and the going was somewhat difficult. When the valley broadened out again it was full of rocks and boulders instead of grass and flowers, and the whole height of the slopes on either side was covered by thick forest.

It was here we passed the "Sarwai Gola" or "Tunnel Rock," a natural curiosity which, like some logan-stone in England, impressed the people much more than the scenic magnificence of the country. A torrent rushing down the mountain-side has encountered a rocky outcrop, and instead of cleaving it with a gorge has only pierced its lower portion, leaving a natural arch of stone. The tribesmen relate that this was a miracle performed by some holy man, possibly old Pre-Ghal himself, with a push of the hand, and treat the place with superstitious reverence, making little heaps of stones on the rocks in the valley below.

At 3.15 p.m. we reached the spot in the valley where we had turned off in the morning, and we arrived back in our quarters at Razin at 4.30 p.m. without further incident. After getting in I was pestered with a series of alternate deputations from the Nano Khels and Aimal Khels regarding the route to be followed on the return journey the next day. We had been brought to Razin by the Aimal Khel Abdullais and had caused a certain amount of inconvenience to the local Nano Khels. The Nano Khels now wished us to return the next day *viâ* Makin, in order that they might get their return in kind for the maize-cobs looted from their crops in the Dara Toi. The Abdullais had previously suggested taking us through Makin secretly by night when their women and children would not be on view; to this I objected that they had brought us to the Nano Khel villages by day and that it was only fair on the Nano Khels to take us through their own village by day. Finally they acknowledged that lower down in the valley there was a settlement of Hindustani Fanatics through which we would have to pass, and that their leading Mulla Shahbadan had begged them not to bring us that way and that this was their reason for avoiding the Makin route. Eventually it was amicably decided that we should return on the morrow *viâ* Wuchwam and the Sur Narai.

On September 9 we left Razin at 6.15 a.m. by the road by which we had come. A few hundred yards above the Wuchwam Khula we turned to our right up an opening called the Dalali Khula and struck a good track running up the hill-sides in a north-easterly direction and known as the Khanna Punga road. The ascent was very gradual, sometimes winding in and out of spurs and sometimes passing up nalas lined with thick oak forest. The holly-oaks here attain a great size—their trunks being often 10 feet or more in girth. Conifers there were none, except an occasional deodar. Great precipitous citadels of dark-grey rock were a feature of the country—one of them was said to have been chosen by wild bees as an impregnable store-house for their honey.

Passing the Khanna Punga somewhere on our left, after 5 miles we reached the Sherkai Narai at an altitude of about 8600 feet. Here the track crosses a subordinate ridge and drops by a steep but short descent to Wuchwam,

a straggling village of some thirty or forty mud houses and a few towers, lying amongst maize fields at the foot of a fantastically shaped eminence known as Khwajak Sar. Leaving the main village on our right we turned up the stream which waters it and made our way between maize crops with dwellings here and there, till we reached the junction of two streams—one the Sperka Algad, flowing down from Pash Ziarat, and the other, that on our right, the Tor Algad, which comes from the Sur Narai. We followed the latter, but soon left it, taking a steep and direct route to the top of Maisara Sar (9332 feet according to the map), from which we were able to survey the line of our travels during the last three days. The sowars and camels followed an easy path to the Sur Narai *viâ* the Tor Algad.

Razmak was now in sight and our expedition was drawing to its close. Proceeding down the ridge in a south-easterly direction we crossed a narrow saddle, from which the fields of Mandech were just visible, and then descended by the Pal towards the Shoran, which we joined just below the ruins of Kurinkai. The going during the descent was easy, and most of our path lay through thick oak scrub. We reached the camp at 11.30 a.m., and nothing remained except to reward those who had assisted us—a proceeding which occupied most of the afternoon.

Much of the country over which we passed probably had never before been trodden by a European. The nearest approach appears to have been during the third Mahsud expedition in 1894, when Mandech, Razin and the Bospa plateau were visited.

A great feature of the trip was the good temper of the Mahsuds with us and their eagerness to show us all the sights. On the way some of them inquired whether we had come to make a map or to find a site for a summer station, but it was not till a few days after our return that I learnt what many of the tribesmen thought was the real reason of the expedition. I was holding a jirga with the same Malikshahis who had met us on the top of the mountain. There was present amongst them the father of two boys who had been more or less accidentally killed a few months previously in a small skirmish in which some irregular forces of the Government had been concerned, and they were asking for compensation for their death. "Of course," they said, "having no sons you do not know what a father feels," and then added, smiling, "But we all know why you went up Pre-Ghal."

The following plants have been identified by Mr. Good and Mr. Norman :

<i>Ranunculaceæ</i> —	<i>Leguminosæ</i> —
Thalictrum pauciflorum Royle	Medicago sativa L.
Aquilegia viscosa Gouan	<i>Rosaceæ</i> —
Clematis sp.	Prunus Padus L.
Cimicifuga sp.	<i>Saxifragaceæ</i> —
<i>Caryophyllaceæ</i> —	Parnassia nubicola Wall.
Melandrium cabulicum Boiss.	<i>Crassulaceæ</i> —
Dianthus crinitus Smith	Sedum Ewersii Ledeb.
<i>Geraniaceæ</i> —	<i>Onagraceæ</i> —
Geranium aconitifolium L'Herit.	Epilobium angustifolium L.
Impatiens sp.	Epilobium minutiflorum Haussk.

Umbelliferae—

- Bupleurum falcatum L.
 Vicatia coniiifolium DC.
 Two incomplete specimens.

Dipsaceae—

- Dipsacus inermis Wall.

Compositae—

- Conyza japonica Less.
 Prenanthes Brunoniana Wall.
 Lactuca hastata DC.
 Anaphalis Royleana DC.
 Cirsium arvense Scop. ?
 Ligularia sp.

Gentianaceae—

- Gentiana nubigena Edgw.
 Swertia cordata Wall.

Scrophulariaceae—

- Leptorhabdos Benthamiana Walp.
 Euphrasia officinalis L.

Labiatae—

- Nepeta spicata Benth.
 Leonurus sibiricus L.

Chenopodiaceae—

- Chenopodium Botrys L.

Thymeleaceae—

- Daphne oleoides L.

Euphorbiaceae—

- Euphorbia pilosa L.

Urticaceae—

- Urtica dioica L.

Cupuliferae—

- Quercus dilatata Lindl.
 Quercus Ilex L.
 Quercus semicarpifolia Smith.

Liliaceae—

- Allium rubellum Boiss.

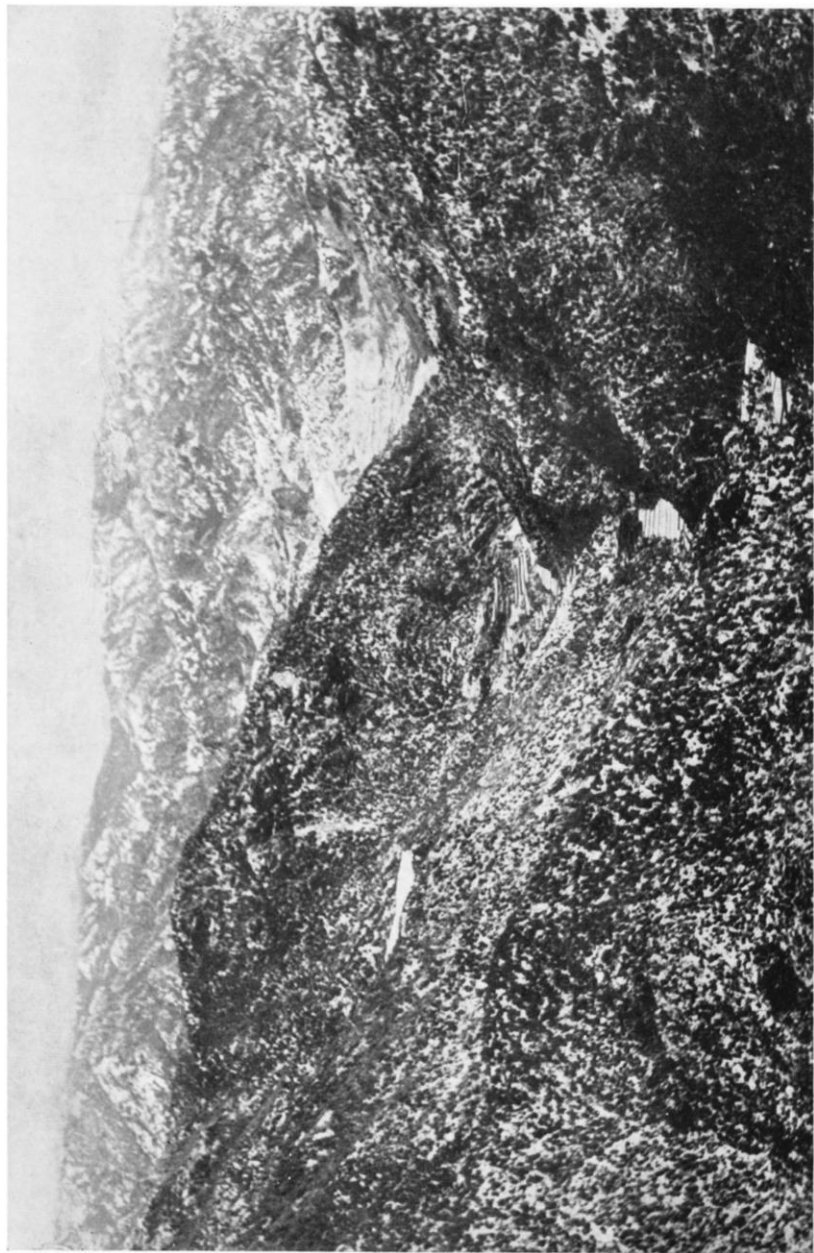
Local Pashtu names of different kinds of trees are : Deodar : Almanza ; Blue pine : Nashtar ; Edible pine : Zanghozai ; Spruce : Sirup ; Silver fir : Sra Sirupa ; Wild cherry : Karlawa ; Walnut : Watak ; Willow : Wila. A large oak found at high altitudes : Qalandar Tsirai ; the Common Holly-oak : Sperka Tsirai ; a Holly-oak with larger leaves than the common one : Ghwara Tsirai.

The following is a glossary of Pashtu geographical terms used in the paper :

Algad	Torrent bed.
Kamar	Cliff.
Khar	Mud-coloured.
Khula	Mouth (of stream or torrent bed).
Lita	Earth (<i>i.e.</i> soil).
Narai	Saddle or pass.
Punga	Open level grazing-ground on top of ridge or hill.
Sar	Head or peak.
Spin	White.
Sur(m) Sra(f)	Red.
Tangi	Defile.
Tizha	Rock.
Toi	Running stream.
Wam	Field.
Ziarat	Shrine.
Zowa	Steep fall in a defile.

DISCUSSION

Before the paper the PRESIDENT (Col. Sir CHARLES CLOSE) said: Captain Hay, who is to address us this evening, was in charge for three or four years of the North Waziristan Agency, a region to the west of Dera Ismail Khan on the North-West Frontier of India. Whilst there he had the opportunity—or rather, made it—of visiting the Mahsud country, and in the course of his journeys he visited many places which have not previously been seen by a European, and had the great luck to be able to climb the mountain of Pre-Ghal the highest



Phot. C. H. Stockley

Upper Dara Toi from the east



Phot. C. H. Stockley

Razmak plateau from the north

peak in that neighbourhood, being between 11,000 and 12,000 feet. Captain Hay is one of the first Europeans to have climbed that mountain, and he was accompanied by Major R. North and by several hundred natives. I ask him now to give his lecture.

Captain Hay then read the paper printed above, and a discussion followed.

Major-General LE GRAND JACOB: I must congratulate Captain Hay, who has given us a very interesting lecture, not so much for the actual feat of climbing Pre-Ghal, which after all is not a great mountaineering feat, but on the political state of the country which enabled him to do it. That is the most important part of his lecture. I had a good deal of experience of Waziristan during my eight years' service there at different times. It is about thirty years since I first came into contact with that country. I left it about eighteen months ago when I was commanding in the Waziristan district. Ever since we annexed the Punjab and first come into contact with the Wazirs and Mahsuds there had been a succession of punitive expeditions which go into the country and do a lot of damage and clear out. The effect of that was very small. It cannot be permanent. After a few years the people forget and start raiding again. Since 1919, instead of leaving the country after such an expedition, we have remained.

I was commanding the Field Force which occupied Razmak in 1923, and the effect of our occupation is extraordinary. It has completely changed the whole situation, as also has our policy of constructing good metalled roads, fit for motor transport, all through the country. This policy was advocated years ago, but was never carried out until now.

As some indication of the change, I remember when I was first up in those parts I was one of the officers told off to raise one of the frontier regiments now called the South Waziristan Scouts, with headquarters at Wana. The price of a Mahsud in those days was 600 rupees; now, as the lecturer has said, it is about 3000 rupees. The value of everything has gone up tremendously. The making of good roads and communications through the country has increased the standard of living. I do not know whether any of those present have read a novel which came out about fifteen years ago under the title of 'The New Road,' by Neil Munro. It deals with the road which General Wade drove through the Highlands about 1750, which had the effect of taming the Highlanders. That is exactly what we are doing in Waziristan—and incidentally putting a lot of money into the pockets of the Mahsuds.

I was talking to an old friend of mine, an ex-Mahsud officer who used to be in my regiment, and asking him about his pension. He told me that it was about 75 rupees a month. I said, "You must be very comfortably off." "No, not so well off as you think. Things are quite different from what they used to be. When you first came up into these parts the Mahsud was content to eat bread made from Indian corn, and you know what his clothes were—not much. And as for tea, well, he did not even get a sniff of it. Further, if he wanted to go down into Tank it took him three or four days on his flat feet. Now the Mahsuds drink tea and won't look at Indian corn bread unless obliged to. They like the best white flour which they get from Tank. And look at their clothes, very different from what they used to be. And when they come into Tank to see relations or shop in the bazaar they do not come on their flat feet; they get into a motor. That all costs money." That gives you an idea of how the standard of living has gone up. There is no doubt that in providing communication and making good roads you raise the wants of the natives, civilize them, and bring money into the country.

As the lecturer remarked, things are so quiet now that you will not see any

Mahsuds going about with rifles, and I am convinced that in five or ten years' time you will find the country will disarm itself if we continue the present policy, as I hope we shall. The next step—and we are commencing now—is to continue the road from Sarwakai to Wana and occupy the latter place with Regulars, connecting up Wana with Razmak. Then you will have the country in your hands. It is a most beautiful country. I took Lord Kitchener through there for the first time up from Wana, and next time I went through a year or two later with Sir John Donald from the opposite side.

Captain Hay mentioned the trouble with fleas, and so on. Well, the Mahsuds are not very clean, and always sleep without any clothes on on account of the vermin. I remember in an irregular corps which had a number of Mahsuds in it, we had one night a practice alarm to see how quickly they could turn out. We noticed that the Mahsuds were a very long time, and found the reason was that they were all hunting for their clothes in the dark !

Brigadier WILSON-JOHNSTON: I would like to thank the Royal Geographical Society for giving me this opportunity of being present to hear my friend Captain Hay recount his deeds and misdeeds. The President told us that Captain Hay had been in charge of the Mahsud territory for some three or four years, and there is no doubt that the rapidity with which the people are settling down and accepting British rule is due in no small measure to the tact and ability of Captain Hay. He is typical of the political officer on the North-West Frontier of India. Whenever there is trouble it is the Political Officer who pushes out to see what it is all about, and if there is no trouble, off he goes to Pre-Ghal or elsewhere to see whether there is any coming.

I think you will agree that Captain Hay's expedition to Pre-Ghal proves entirely to our satisfaction the soundness of the methods we have adopted on this part of the North-West Frontier of India.

Mr. RONALD GOOD (Natural History Museum): The small collection of plants which Captain Hay was able to make and send home during his trip proved of very considerable interest, not only because it came from a region very poorly represented in the collections in this country, but also because the region is very interesting from the point of view of plant geography.

A considerable distance to the north-east of Pre-Ghal, where the Indus comes out of the main Himalaya mountains, three of the most important floral zones of the Northern Hemisphere meet. The main Himalayan chain and the line joining its western extremity to the Caspian forms the southern limit of what is called the Central Asiatic flora. A line drawn from Kashmir almost due south to Baroda forms the line of junction between the Mediterranean-Oriental region on the west and the Indo-Malayan region on the east. That is, of course, a very broad view; and all these regions can be divided and subdivided, with the result that within a comparatively few hundred miles of Pre-Ghal quite a number of different floras are represented, and it becomes interesting to see how far these various floras are represented on Pre-Ghal itself.

Although the mountain lies actually within the Mediterranean-Oriental region its elevation means, of course, that it bears some sort of vegetation different to the general vegetation at its base, and one would expect that vegetation to be largely or entirely Himalayan. Of the thirty-two species which Captain Hay collected, about half a dozen belong to floras so widely distributed in the Northern Hemisphere that their occurrence on Pre-Ghal is not significant; that is to say, one would expect to get them anywhere within northern temperate regions or at high altitudes farther south. But of the remainder, about five were definitely western species, and the rest all Himalayan. Of these five western species no less than four occur on the Himalayas. The one species that does

not occur there is an Afghan endemic species, so that the flora of Pre-Ghal is almost entirely Himalayan.

I endeavoured, by worrying geological friends, to ascertain their opinion as to the time Pre-Ghal was uplifted, but without much success. Apparently, one is justified in thinking that its uplift dates subsequently, or at any rate not prior, to the main uplift of the Himalayan chain, and that main uplift appears to have begun in the eastern end and travelled towards the western end. Thus perhaps Pre-Ghal became a mountain after the main bulk of the Himalayan mountains, and that, of course, is important from the botanical point of view because, as is now well known, the Western Chinese mountains support what is the richest Alpine and temperate flora in the world, and I think there is very little doubt that the Himalayan flora, which is also very rich, has largely originated from the Western Chinese mountains. The Himalayan mountains were uplifted subsequently to these latter and formed new country along which the Chinese plants migrated, and it appears that Pre-Ghal in turn received its flora from the Western Himalayas.

Lord RONALDSHAY: It is a good many years since I was in Mahsud country, in fact, it was in 1900 that I travelled from Dera Ismail Khan up to Tank and thence up the Gumal river to Kajuri Katch and to a little outpost known as Kashmir Kar. In those days the country between our administrative frontier and the Afghan border was indeed a veritable Alsatia, where every man did that which was right in his own eyes. I was anxious to study the zoology of the neighbourhood and to shoot a straight-horned markhor. The little escort of Border Police which insisted upon accompanying me when I went up into the mountains from Kashmir Kar took a great interest in the game up to a point; that is to say, they looked anxiously for tracks of bear or markhor, but their interest in the game suddenly vanished. When I inquired why, I discovered it was because they had found the track not of a markhor or a bear but of a Mahsud! They hurried me incontinently back into the safety of Kashmir Kar fort. As a matter of fact, I did get a shot at a bear on the way, though not a successful one.

The Petty Officer in command of the outpost had apparently received instructions from the nearest British authority to send in a report upon my visit. I heard him in the evening in animated conversation with my English-speaking bearer and inquired what he was talking about. It appeared that he was consulting my bearer as to what he should put in his report, and asking that my bearer, in his turn, should consult me. Well, I asked him what he proposed to put in the report, and the latter, as he had prepared it, read as follows: "The Sahib went out after shikar. The Sahib had a shot at a bear and the Sahib missed the bear." I said there was no necessity to lay too much stress on the last part of the report! I have no doubt that that report is still to be found on the files of some frontier outpost.

What I admired most in Captain Hay's lecture was the success with which he skated over the very thin ice of politics. I am not quite sure that General Jacob was so successful. It seemed to me now and then that his skates were in danger of going through the ice. But, after all, that is not surprising, for there is no part of the world in which geography and politics are so inextricably interwoven as they are on the North-West Frontier of India, and for the reasons which Captain Hay in his lecture indicated, though he did not lay undue stress upon them. I think I can indicate them in a sentence. A man who knew China very well once said that the problem of China was the filling of three bellies with one bowlful of rice. The problem of the North-West Frontier is very similar. It is the problem of filling three bellies with one bowlful of maize or wheat; in other

words, the problem is an economic one. The country is not capable of sustaining more than a very small population, and when the population increases beyond that limit what do the people do? Naturally they raid down into the plains and seize the food which they are not able to provide in their own country. How is that state of affairs to be brought to an end? Obviously—I am afraid my skates may go through the ice for a moment—in the way in which General Jacob suggested: by bringing money into the country which will enable the people to buy the food which they cannot themselves produce. Money can be brought into the country by the building of roads and other such measures. I have not the smallest doubt in my own mind that the change which has been brought about in the conditions of Waziristan since I visited the country in 1900 is, in the main, due to the fact that since the British have been in occupation of part of the Wazir country, they have provided remunerative employment for the people. Not only has the result of that been to raise the standard of living, as General Jacob pointed out, but to provide the people of the country with means of obtaining food without the necessity of raiding and seizing it by force.

I should like, in conclusion, to express to Captain Hay the tremendous pleasure which I have derived from what he has told us this evening and from looking at his excellent photographs. Though it is many years since I was in that part of the world, the photographs of those dry, rugged yet fascinating mountains brought back the country to me as if it was only yesterday that I had visited it. I can assure Captain Hay that to me at least, and I am sure to most other people in this audience, he has given a very real pleasure.

The PRESIDENT: Captain Hay has given us a full and admirable account of a region that most of us know very little about. I think, as he said, and as Lord Ronaldshay has indicated, it is a country which has always suffered from perennial over-population. We must not pat ourselves on the back and think we are free from that. We have several million too many in this country already, and they are increasing every year; in particular the sister isle is sending us over a large number of people who might preferably emigrate to the Dominions. The situation all over the world is exemplified not merely by Waziristan. The world-population is growing at a frightful rate. Some say it is only increasing at the rate of 10,000,000 a year; others say 20,000,000; at any rate you have only to multiply either figure by one hundred years to see what it means. It is certain that the various measures that are being taken on the North-West Frontier are all to the good, and we are very lucky indeed to have officers who can deal with the tribesmen in the way that Captain Hay managed the people that he was in charge of. In thanking him I think you will wish me to say that we all hope that his visit to Pre-Ghal will meet with the success it deserves.

Lieut.-Colonel C. H. Stockley sends the following note as a contribution to the discussion on Captain Hay's paper:

I have read Captain W. R. Hay's paper on "Pre-Ghal in Waziristan" with the greatest interest. In February 1923 I was employed in air reconnaissance over the area traversed by Captain Hay, and had to make sketch-maps of the country from the air, and then, later, in combination with aerial photographs.

The existing map, at the end of 1922, was so inaccurate in the region of the upper Dara Toi as to be not only useless but misleading. The Dashka Algad had been united with the Mandech Algad and the streams to the north-west of Wuchwam, so as to form one main valley. Not a single village east of the Dara Toi-Shawal water-parting was shown in its correct position or by its correct name, so that aircraft when flying west of Makin and north of Pre-Ghal were hopelessly at sea.

The "Map of Upper Dara Toi" was made first by sketching from the air the course of each large nullah (Algad), noting its general bearing carefully, and marking in villages as A, B, C, D, etc. A reproduction of the sketch was dropped on the Intelligence Officer, Waziristan, who filled in the names as best he could with the assistance of local intelligence agents. He then sent the sketch to the air headquarters. Strips of vertical photographs were then taken along the nullahs and a large mosaic made. A tracing was then made from the mosaic, and reproduced (by carbon) on to another large sheet. The names were filled in, the whole sheet given a slight tilt to allow for the general rise of ground from east to west, and it was photographed, a calculation being made to obtain average scale of 1 inch to a mile.

This was a very rough-and-ready method, and allowed nothing for distortion, but it was very quick (an essential at the time) and served the practical purposes for which it was made. Flying conditions were very bad, the weather being stormy, very cold, and the bumps dreadful. Heights of passes were obtained by flying the machine low over the pass two or three times, and noting the results on the altimeter. These results seem to have been relatively good, though consistently slightly in excess. Passes were detected by the tracks of men who had crossed them showing in the snow.

The Lowarai Punga in Shawal was covered with snow on the two days on which I flew over it, and, from the air, looked ideal for winter sports. There were two or three slightly smaller but similar clearings (they would be called "margs" in Kashmir) to the south of the Lowarai Punga.

The photograph of Razin and the Dara Toi shows a big ridge in front of Razin on the south. This is probably that by which Captain Hay made his descent from Pre-Ghal. I had picked it in my mind's eye as a good route up the mountain. Wuchwam village was a remarkable sight from the air. Facing south and walled in at the back by Kwajak Sar and subsidiary ridges, it was a veritable sun-trap and held much less snow than the villages several hundred feet lower down, while the sheer-sided gorges on either side made its site appear very strong in natural defence. The water-parting on the west was difficult to detect from the air, and at first it appeared as if the Garai Algad joined the Mandech Algad immediately south of the village, but this was not so.

Wuchwam was noted in 1923 as being the temporary resting-place of the bones of the Mullah Powrindah: his son having removed them from the grave at Marobi lower down the Dara Toi in fear of violation by our troops. One of the first signs of returning confidence after the occupation of Razmak was the return of the bones to Marobi.

The last mile of the Mandech Algad immediately above its junction with the Dara Toi runs through a deep gorge so narrow that it is said only one camel can pass through it at a time. Consequently nearly all traffic from Mandech goes over the Mandech Narai and down the Dashka Algad.

Colonel Stockley's note contained also certain criticisms of Captain Hay's geography in the neighbourhood of Wuchwam: these have been submitted to Captain Hay, who writes: "I think that what has given rise to the misunderstanding is probably the fact that Wuchwam—a large and scattered village—straggles across the watershed between the Mandech Algad and the Sra Tizha Algad. He has ignored the portion on the Sra Tizha side, and I have ignored that on the Mandech side, because I never saw it." The Survey of India sheets, on which Captain Hay was working, had been revised recently from Colonel Stockley's air reconnaissance, a photograph of which, with the complete text of his arguments and Captain Hay's notes thereon, have been placed in the Map Collection.