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has set about attaining it and the student in having such a work brought to his hand. R. C. T.

MY JOURNEY TO LHASA. By ALEXANDRA DAVID-NEEL. *London: Wm. Heinemann Ltd.* 1927. 9×6 *inches;* xviii+310 *pages and illustrations.* 21*s*

Madame David-Neel has performed a very courageous and a very difficult feat in travelling to Lhasa from China in disguise. Those who know the terrible cold and the disgusting dirt of Tibet can best appreciate the endurance it must have required to live as she did for months in Tibetan houses of the poorest type and among the lowest classes. The filth of the food would alone be sufficient to deter most travellers.

The geographical results are very meagre, for there is no map attached to the book and no means of knowing exactly what route she took. But her descriptions of the ordinary life of the common folk of Tibet are of real value —of all the more value because she evidently liked and understood them. Her discomfort was acute, as she lived in a hovel in Lhasa among beggars. But they treated her " with simplicity and kindness as one of themselves." And it is surprising to hear from her that these poor wretches enjoyed life even in the depth of winter. " Everybody enjoyed the great luminous blue sky, and the bright life-giving sun, and waves of joy swept through the minds of these unlucky ones devoid of worldly wealth." This is first-hand information of real value. And it is corroborated by her experience of the simple Tibetans throughout her journey.

Her descriptions of monastic life are also of great interest, for she had lived long in monasteries and studied the Tibetan sacred books. All over Tibet are monasteries, and these do at least symbolize a lofty ideal. And if a great number of the occupants fall below that ideal, even these, Madame Neel says, " do maintain a reverence for learning and saintliness."

This being so, it is distressing to hear that hatred of white men is being sown in the remotest corners of Asia where it will thrive and spread. This may be so—or it may not. For one is conscious throughout the book of a strong anti-British sentiment founded on what certainly are not facts. She speaks of the Dalai Lama being under British suzerainty, and of the British not allowing him as much freedom as his Chinese master did. And she seems to think that it is through the British that he refuses permission " to explorers, savants, missionaries, scholars, to all, in fact, except their own agents." And the Tashi Lama is represented as resenting the servitude in which the British Government keeps his country.

But Madame Neel acknowledges that she takes little interest in politics. If she studied them at all she would know that the Dalai Lama is as independent of Great Britain as is the President of the French Republic, and has, and exercises, the right to admit or refuse to admit to Lhasa whom he will. But his decision in this matter is very greatly influenced by the feeling of the powerful monasteries at Lhasa. Against that feeling he dare not go too far.

If Madame Neel had been more fully aware of this she might perhaps have written less disparagingly of the British, who after all have done more than any other people to open Tibet. F. E. Y.

THE BREATH OF THE DESERT. By F. OSSENDOWSKI; English text by L. S. PALEN. *London: George Allen & Unwin Ltd.* 1927. 9×6 *inches;* 279 *pages and* 40 *illustrations.* 16*s*

The author makes wide reading a preparation for travel-writing; a not unworthy preparation for what is really an able, careful, and interesting piece

NOTE ON SIR FRANCIS YOUNGHUSBAND'S URDOK GLACIER

MAJOR KENNETH MASON, M.C., R.E.

SINCE plotting the map of the Shaksgam valley by the Wild Autograph, I have gone very carefully into the probable position of the Urdok Glacier. I have come to the definite conclusion, from the lie of the ridges as shown by the Autograph, considered with the latitudes and account of Sir Francis Younghusband, that the Indira Col of the Workmans lies at the head of a source of the Urdok Glacier, and that it is shown approximately one mile too far north on the Workmans' map. It is also possible that the Turkistan La is shown about the same distance too far east, on the same map.

A brief summary of my reasons is given below.

As will be seen from the map of the Shaksgam published with my paper on "The Stereographic Survey of the Shaksgam" (*G.J.* 70, 416, October 1927), on which map the watershed of the Muztagh–Karakoram Range has been dotted in according to the Workmans' map (*G.J.* 43, 232, February 1914), we plotted a ridge with a north-north-west trend, and carrying peaks 20,250, 21,300, 20,800, and 20,200. This ridge I then believed enclosed the Urdok Glacier on the east. The alignment of this ridge, if produced, meets the watershed in the vicinity of the Indira Col.

On the same map are shown the graticules of the three latitudes observed by Sir Francis Younghusband, when he was moving up the Urdok Glacier, mainly by its western lateral moraine. It will be seen that the direction of the glacier, where it is west of, and probably parallel to this ridge, and between latitudes 35° 48′ 05″ and 35° 45′ 45″ is in close accord with that shown on the sketch-map of Sir Francis. The distance between the two graticules is also reasonable, 3 miles in each case.

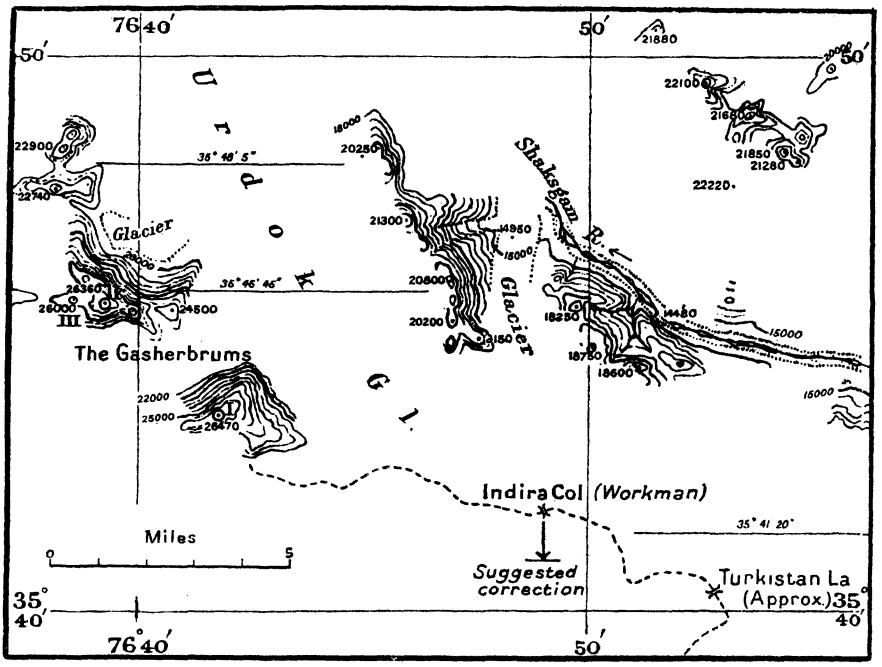
On the other hand, if the dotted line of the watershed is exact, the direction of Sir Francis' route from 35° 45′ 45″ must bend east-south-east or almost due east, and must be almost parallel to the watershed. This is neither apparent from his map nor likely from his account. The route between latitude 35° 45′ 45″ and 35° 41′ 20″ must also be at least 9 miles, which I believe is much too far to be covered in one day on such ground, and in the bad weather experienced by Sir Francis.

The glacier whose lower reach was pinnacled and is shown on my autograph map in longitude 76° 49′, east of the ridge mentioned above, is ruled out of the discussion by the fact that it joins the main valley south of latitude 35° 48′ 5″, which was observed by Sir Francis at the end of his first march up the Urdok, whose lower reach is hummocked with moraine.

Now if we assume that the Indira Col is south of the last latitude taken by Sir Francis, viz. 35° 41′ 20″, we can fit in the head of the Urdok Glacier to suit all considerations. It must be remembered that the upper

portion of the Siachen Glacier basin was not surveyed by Grant Peterkin, nor by any one else. I have in my possession a note by Peterkin that the Workmans' map here is unreliable, being sketched from photographs. Any one who knows the extreme difficulty of judging distance when walking over soft snow at high elevations, will readily allow that a mile error in the *estimation* of a distance on the ground or from a photograph is very easy to make.

If we accept this position of the Indira Col, then " the large glacier flowing north-north-east," which was seen from it, is the Urdok. The " long splintered rock-ridge " is the continuation of the ridge surveyed



Part of the map illustrating Major Mason's Stereographic Survey of the Shaksgam (*G.J. October* 1927)

by us and mentioned above.* One source lay about 5000 feet below the Indira Col, at an altitude of about 15,500 feet,† while to the west, on the eastern flanks of Gasherbrum I is another.

The " wide-trunk " glacier, seen from the Turkistan La, and joined by a short crevassed glacier below the saddle, is probably the glacier

* Sir Francis Younghusband describes this ridge thus (*Proc. R.G.S.* 14, 212) : " The mountains on either side of the valley (*i.e.* the Urdok), especially on the eastern side, are extremely rugged and precipitous, affording little or no resting-place for the snow, which drains off immediately into the glacier below."

† Workman, whose hypsometer height of Indira Col was 20,860, reported the glacier below to be about 5000 or 6000 feet below. The height of Sir Francis Younghusband's last camp on the glacier was recorded by him as 15,355.

whose lower reach was mapped by the Autograph in longitude 76° 49′.* The " grand group of peaks " to the south-east is, I believe, none other than the Teram Kangri group, looming up through the clouds, and appearing closer than they actually were.

The high ridge containing the three lesser Gasherbrum peaks throws a long spur northwards. We mapped and contoured this with the Autograph for a distance of 4 miles. I have identified points on it in the stereoscope with points in the photograph taken by Sella and shown as Panorama F in De Filippi's book of the Abruzzi expedition. This is the ridge that divides the Urdok Glacier from the glacier which drains the area between the Gasherbrums and Broad Peak, and which was seen by the Duke of the Abruzzi's party from the Sella Pass.

Sir Francis mentions three branch glaciers entering the Urdok from the west. One of these drains the southern slopes of Gasherbrum ; the second drains from between Gasherbrum I and Gasherbrum II, III, IV. The head of a third was plotted by us immediately north of Gasherbrum II. We may compare these western glaciers of the Urdok, and its precipitous eastern wall, with those of the Kyagar Glacier which we surveyed accurately on the 1 : 50,000 scale in the Autograph.†

There may be an eastern head of the Urdok swinging round from the Turkistan La and separated from the Indira source by the " triangular massif " mentioned by the Workmans, in the same way that the two promontories—or " triangular massifs "—of the Apsarasas divide the head basin of the Kyagar. But if this is so I am inclined to believe that the Workmans' map shows the Turkistan La too far east by at least a mile. But this last depression cannot possibly be the " Younghusband saddle," for it faces east, and would not be seen until the triangular massif had been rounded by Sir Francis.

I am convinced that Sir Francis was ascending the ice-slope at the northern foot of the Indira Col, when he was finally checked by a crevasse.

* This glacier was seen by Sir Francis, *vide Proc. R.G.S.* 14, 210 : " Another glacier could be seen to the south."

† See the reduced map of the Kyagar Glacier on the same sheet accompanying my paper in the *Geographical Journal.*

Bazar, as in Rennell's day, the two courses being nearly 70 miles apart in one place. The once important Karatoya, probably swollen in early times by other Himalayan rivers that now follow variable courses of their own, has dwindled down to an unimportant stream. The Tista, which in Rennell's time flowed almost due southwards through the Dinajpur and Rajshahi districts to the Ganges, now turns off to the south-east below Jalpaiguri (more or less following Rennell's " Teesta Creek "), and joins the Brahmaputra in the neighbourhood of Chilmari. The Kosi, though it has moved comparatively little since Rennell's day, has continued that remarkable westward trend, noticeable in the case of several affluents of the Ganges, for which different causes have been suggested. The course of the Jalangi has widely altered ; the main channel of the Ganges itself has changed in numerous reaches ; while the Ichamati, down which Tavernier travelled in 1666 from near Jafarganj to Dacca, which was silting up even in Rennell's day, now contains scarcely any water during the dry months.

It is almost impossible in these days of rapid transit by rail, launch and motor, to realize the physical difficulties involved in the work carried out by Rennell and his small band of assistants in a country like Bengal as it then was, intersected by networks of rivers, largely overgrown by jungle and with but few roads worth the name—not to mention his well-nigh fatal encounter with Sannyasis in Kuch Bihar in 1766. It was under these conditions that were laid the foundations of accurate topographical survey in India, and were ripened those powers of observation and judgment that were to earn for James Rennell his pre-eminence among British geographers. C. E. A. W. O.

THROUGH JADE GATE AND CENTRAL ASIA : An account of journeys in Kansu, Turkestan and the Gobi Desert. By MILDRED CABLE and FRANCESCA FRENCH. *London : Constable & Co. Ltd.* 1927. 8×5 *inches ;* xvi+302 *pages ; illustrations and sketch-map.* 10*s*

This is one of the best books of travel of the time. The writers—two of three missionary ladies whose journeys are described—covered no new ground ; but they describe old ground with a new felicity. And what is of real value, they describe the present condition of remote parts of China and Siberia with such fairness and clearness that we feel we can actually see what is going on there.

And those conditions have changed vastly for the worse so far as travellers at least are concerned. Thirty or forty years ago there was no special difficulty in a traveller journeying, like these ladies, from the heart of China to Kansu and across the Gobi Desert to Turkestan and thence home through Siberia. But in these days of brigandage and civil war it is no mean feat. And what one admires in the narrative is the courage and good humour and good sense which these ladies displayed. Little is said about what must have been the really dreadful conditions of travel—especially for ladies—in crowded and filthy Chinese inns which the state of the country must have produced. And avoiding the common habit of travellers of spending most of the space when writing a book with accounts of their annoyances, these writers have devoted their pages almost exclusively to sympathetic description both of the country and the people.

It is a sad picture they paint. And it is melancholy to think how greatly the prestige, not only of the Russians but with them of all Europeans, and not only of Europeans but of the Chinese themselves, has fallen of recent years. The Chinese have lost not only respect for Europeans but respect for themselves. Law and order are gone. And the further one proceeds with the book the more revolted is one at the horrible messiness of things. It reads like a nightmare. There is a haunting sense of horror all round.

Yet through it all one catches glimpses of a very kindly and courteous people deserving of a better fate than this—and a people who in the midst of their misery never failed in showing gratitude to three heroic women who had devoted their lives to the welfare of China. F. E. Y.

CHINA AND FOREIGN POWERS: An historical view of their relations. By Sir FREDERICK WHYTE, K.C.S.I. *Published under the auspices of the Royal Institute of International Affairs. Oxford: University Press* 1927. 9×6 *inches;* viii+78 *pages.* 2*s* 6*d*

This is a most valuable brochure for every one interested in the political situation in China. No such compact or reliable statement exists elsewhere. It is published under the auspices of the Royal Institute of International Affairs, and was prepared by the author before he and his colleagues went to Honolulu to attend the Conference called by the Institute of Pacific Relations for July 1927. In thirty-eight pages the author presents the subject under five heads, and adds forty pages of useful appendices containing an Extract from the Mandate of Chien Lung to George III. in 1793; the Despatch of Lord Palmerston to China in 1840; an Extract from the Memorandum of the Chinese Delegation to the Peace Conference 1919; the Ten Points submitted by the Chinese Delegation to the Washington Conference 1921; the British Memorandum of 18 December 1926; part of Sir Austen Chamberlain's speech of January 1927; the British Government's communication to the League of Nations, January 1927; the Hankow Agreement of February 1927; Sun Yat-sen's Will, and a Summary of his doctrines; and the Programme of the Cantonese. The five headings of his own statement are The Period of Foreign Exclusion to 1793; of European Admission to 1861; of European Aggression from 1873; of Chinese Revolt from 1900; and The Main Features of British Policy.

The author recognizes that the periods are somewhat arbitrary. Certainly his attempt to sum up the first period in a page and a half almost forbids criticism. It may however be disputed that China was ever exclusive until the eighteenth century, or that "the West had nothing to offer to China in exchange for Chinese products"; but the statement that Trade, and not territorial aggression, was the sole motive of Great Britain, from which it has never willingly departed, is one that deserves the emphasis the author lays on it.

In his appraisement, on p. 9, of "the shrewder Chinese, among them Yuan Shih-kai," for realizing that the Emperor's "rescripts of reform were not reform itself," he is scarcely fair to the unfortunate emperor, for Yuan was one of the reformers, and his conduct towards the Emperor, his own fellow-reformers, and the Republic, have led to his being considered as a traitor to them all. The value the author places on the Anglo-German agreement of October 1900 for preventing the partition of China is justifiable.

The reasons he gives for the "mis-called 'Opium War'" on p. 34 hardly survey the situation sufficiently. There are other views than the one he states that "we pressed our claim to trade with China to the point of war," or that "we fought the First China War in order to open the closed doors of China to our merchants." The war was in fact fought, as shown in Lord Palmerston's letter in Appendix II, in defence of the Royal representative, and of British traders with their wives and children, who, after fleeing for shelter from attack, were in peril of their lives in what is now Hong Kong harbour. At the end of the so-called war, the Chinese Government was left as free as ever to suppress opium, a course in which the British Government would willingly have rendered assistance. The author makes it clear that "other nationals did not fail to

AN ARCHÆOLOGICAL TOUR ALONG THE WAZIRISTAN BORDER

SIR AUREL STEIN, K.C.I.E.

AT the beginning of January 1927 I started on an archæological tour along the Waziristan border and through the whole length of Northern Baluchistan, which kept me fully occupied until the middle of April. My object was a systematic survey, accompanied where advisable by trial excavations, of such ancient sites in the border regions between India and Iran as are likely to throw light on the connection of the prehistoric civilization which the excavations at Mohenjo-daro and elsewhere in the lower Indus valley have revealed with corresponding cultures traced westwards in Persia and Mesopotamia.

The survey began with the examination of a series of conspicuous mounds echelonned along the eastern foot of the Waziristan hills from the vicinity of Draband to beyond Tank. Mr. E. Howell, C.S.I., late Resident in Waziristan, had first directed attention to them. They proved to be composed wholly of the accumulated débris layers of ancient settlements which in the course of occupation prolonged through ages had raised the top of those mounds to heights up to about 100 feet above the adjacent ground. Erosion facilitated by the great aridity of the climate has caused the surface of these mounds as well as of those subsequently surveyed in Baluchistan to be thickly covered with pottery remains from the culture strata embedded.

Among them fragments of decorated earthenware, painted, incised or ornamented in relief, were found in great abundance and variety of design. The painted pottery from these sites in colour treatment and in certain of its geometrical patterns shows a well-marked affinity to the painted pottery subsequently collected from sites of the " chalcolithic " period in Northern Baluchistan, and also to that discovered by me in 1916 at desert sites of the same period in Sistan. On the other hand, the incised and relief-decorated pieces by their motifs recall ceramic ware found at certain Sistan sites which can be assigned to historical times preceding Sasanian rule. Having regard to the upper and lower chronological limits thus indicated and taking also account of the fact that no painted pottery of the above kind was found at those Buddhist sites on the Indian North-West Frontier which can definitely be assigned to the Indo-Scythian period, the remains of those Draband and Tank mounds may be attributed to early historical times separating the latter period from that of the " chalcolithic " culture.

The very willing assistance of the political authorities permitted the extension of my survey to tribal territory in both Northern and Southern Waziristan, where I made interesting observations on the striking parallel which the fine military roads with their fortified camps, watch towers,

etc., recently constructed for the pacification of that troublesome border, present to the Roman *Limes* systems of the early Imperial times.

The remains of an ancient stronghold examined at Idak were proved by the evidence of coins and of a ruined Stupa to date from the Indo-Scythian period. Farther north, at Spinwam, there was found a mound formed by culture strata of approximately the same epoch as noted around Draband and Tank. Above the point where the Kurram river debouches from the hills a rapid survey was made near Shahidan of extensive remains marking a fortified site which by the evidence of its painted pottery can also be assigned to the last-named epoch.

Subsequently proceeding *viâ* Razmak and the outpost of Sarwekai, I made my way under the protection of tribal Wazir headmen to the Gumal river. Remains of forts visited in the Spin plain proved to belong to late historical times. The whole area now comprised in Waziristan, barren as it is, presents a distinct interest to the student of the ancient geography of India. Its chief rivers, the Kurram and Gumal, as well as the latter's chief affluent, the Zhob, are mentioned in the famous " River Hymn " of the Rigveda under their ancient Sanskrit names of *Krumu*, *Gomati*, and *Yavyavati*. This makes it appear very probable that this region had for some length of time been in the occupation of Aryan tribes before they descended from their hills to the conquest of the Indus Valley and the Punjab plains.

The description which Hsüan-tsang, the great Chinese Buddhist pilgrim of the seventh century A.D., has left us of the territory of *Chi-chiang-na*, corresponding to the present Waziristan and the *Qiqin* of early historians, clearly shows that in his time too, centuries before the advent of Pathan tribes, this territory " under separate local chiefs but without a supreme ruler " and " abounding in sheep and excellent horses " had already a reputation not unlike its present one.

Moving up the Zhob valley, in Baluchistan territory, I found a series of ancient mounds awaiting exploration in the vicinity of Fort Sandeman, the headquarters of the Zhob Agency. Among them *Periano-ghundai*, the " Witches' Mound," is the most conspicuous, rising to fully 70 feet above the adjacent river-bed. Trial excavations carried out here proved that the débris deposits of ancient habitations composing the mound belong for the most part, if not entirely, to the " chalcolithic " period. The abundant remains of painted pottery from this site, whether exposed on the eroded slopes or excavated, are, like most of the plain earthenware too, of a superior well-levigated clay and wheel-made. The painted pieces show almost exclusively patterns executed in black over a dark terracotta ground colour. The motifs composing the painted patterns, mostly geometrical, are remarkably varied. Throughout they strikingly recall the motifs prevailing in the prehistoric pottery I discovered at desert sites of Sistan during my third Central Asian expedition. Many of these motifs are found also in the prehistoric pottery of Anau in

Transcaspia, and can similarly be paralleled from pre-Sumerian strata of certain Mesopotamian sites.

The trial excavations made at different points of the mound laid bare remains of habitations built mainly with walls of stamped clay or sun-dried bricks over rough stone foundations. Among the finds made there the numerous cinerary urns with ashes and bone fragments from cremated human bodies claim special interest. They acquaint us with the funeral customs of the period. A considerable number of smaller painted jars and cups found within them serve to show the shapes of vessels used by the living. Terracotta figurines of animals display distinct artistic skill, while the comparative frequency with which a hooded female bust of peculiar shape recurs here as well as at other " chalcolithic " sites explored suggests that the representation of some deity is intended. Finds of stone " blades " and arrowheads were made throughout in the course of the trial excavations, and their association with fragments of copper implements and small ornaments, etc., of bone and stone permits us definitely to assign the painted ceramic ware of this important site to the " chalcolithic " period of prehistoric civilization.

Painted pottery of exactly the same type was plentifully found also at two smaller mounds in this neighbourhood, those of *Kaudani* and *Moghul-ghundai*. Finds of worked stones and of bronze fragments make it quite certain that at both mounds occupation goes back to the " chalcolithic " period. Close to Moghul-ghundai an extensive cemetery was discovered with interesting remains dating from historical times. Here the hillside was found studded with many cairns of rough stones, each containing a few small pieces of calcined bones, fragments of coarse plain earthenware, and occasionally small personal relics such as iron arrowheads, knives, bronze rings, a silver bangle, etc. The relief decoration found on one small pot and the figures engraved on one seal ring prove that these curious cairns cannot be older than the early centuries of our era.

After surveying several small sites where occupation during the " chalcolithic " or early historical period was indicated by pottery débris, I then moved south-east into the Loralai Agency. Among a number of old mounds and other remains in the Bori Tahsil the once very large mound of Rana-ghundai deserves mention. Among the plentiful painted pottery covering its slopes or embedded in its " culture strata " a good deal of fine " chalcolithic " ware was found, besides pieces of coarser fabric pointing to continued or renewed occupation perhaps during early historical times.

Definite evidence of such prolonged occupation at different periods, from prehistoric down to historical times, was obtained in the course of the excavations carried out at the great mound near *Dabar-kot*. It rises like an isolated hill in the middle of the open Thal plain to a height of no less than 113 feet, and measures nearly a mile in circumference at its foot.

The great mass of painted pottery found on the slopes and excavated at lower levels displays unmistakable characteristics of the " chalcolithic " type, and finds of cinerary urns, worked stones, and small bronze objects date from the same period. The discovery in the same layers of a well-constructed drain built with burnt bricks indicates the comparatively advanced stage of civilization reached. Successive strata full of charred remains point to great conflagrations which had at intervals overtaken the prehistoric settlement. Long after its complete abandonment convenient positions on the mound had again been taken up for dwellings during pre-Muhammadan times.

Simultaneously with the trial excavations at the great Dabar-kot mound it became possible completely to clear the remains of a ruined Buddhist Stupa or relic tower discovered on a rocky hillock some 4 miles away at the entrance of the Thal plain. Its relic deposit with small gold-set jewels, pearls, beads, etc., was found undisturbed. The surviving Græco-Buddhist carvings of the base and numerous pieces of pottery jars inscribed in Indian script and language proved that this sanctuary, the first Buddhist ruin discovered in Baluchistan, belongs to the Kushan period.

At Sur-jangal in the same valley a very interesting small settlement of prehistoric times was discovered near the dry river-bed descending from Sanjawi. The cuttings made through the low mound there yielded not only abundance of ceramic ware of the " chalcolithic " type, but also a large number of stone implements such as flint blades and arrowheads. From the great quantity of flint cores, chips, etc., found there it may be concluded that the manufacture of these stone implements was being carried on for generations in this locality, the river-bed close by supplying the raw materials.

After visiting several small sites of later historical times in the hills about the Zhob river's headwaters, I subsequently surveyed numerous ruined mounds in the Pishin basin. They attest the economic importance which this large and potentially fertile tract must have claimed at all times, and which also accounts for its mention in the earliest Zoroastrian scriptures among the chief territories of ancient Iran. The painted pottery and other relics collected at those mounds indicate that most of them, though built up at first by débris deposits of prehistoric settlements, continued to be occupied during historical times. At the Sarakala mound, crowned by the walls of a ruined fort, I was specially interested to note the plentiful occurrence of ceramic ware decorated with ribbings such as my explorations in Sistan had shown to be particularly associated with remains of the Sasanian period. Thus here, too, there was evidence of that close cultural connection with Iran which geographical factors have imposed upon those westernmost border lands of India since the earliest times. My tour came to its close by the middle of April with the examination of a series of mounds towards Quetta, similar to those of Pishin.

history and dry facts are tricked out with "decorative detail," such as may be found, for instance, in the description of Jenghis Khan. It is hardly reasonable in a work of this popular character to look for solid contributions to our geographical knowledge. The writing is picturesque, though the facts are at times decorated almost out of recognition by the serious student of Chinese history. The book gives us a narrative of "a blood-stained chequer-board across which move a bewildering succession and alternation of figures—lofty ethical teachers, artists, poets, historians, monks, bandits, soldiers, courtiers, emperors and rebels, murderers and voluptuaries."

A COMMERCIAL HANDBOOK OF THE NETHERLANDS EAST INDIES. By P. C. COOTE, with a foreword by E. T. CAMPBELL. Second edition. *London: Sampson Low, Marston & Co. Ltd.* 1927. 101 *pages; map.* 3*s* (*Fl.*2.0)

First published in 1924, it is hoped in the future to issue this little handbook annually. Its object is "to inform British manufacturers and others interested in commerce as to the present position of Trade and Industry in the Netherlands East Indies." Statistics are given up to September 1926. In general a short and useful summary, here and there brevity leads to inaccuracy, and it is a little surprising to learn that new oilfields "are continually being found."

L. D. S.

SPORT AND TRAVEL IN THE HIGHLANDS OF TIBET. By SIR HENRY HAYDEN and CÉSAR COSSON. *London: R. Cobden-Sanderson* 1927. 9×6 *inches;* xvi+262 *pages; illustrations and a map.* 21*s*

Hayden was an ideal traveller, for he was a trained geologist, a keen sportsman, and an excellent hand at getting on with the people of a country. As a geologist he had long desired to reach the area of Central Tibet occupied by the great lakes. And by a curious chance he was actually invited by the Government of Tibet to visit that very region. The Tibetans were not interested in geological problems. They were interested in gold. And whether or not he found gold enough to make the fortunes of the Tibetan Government Hayden is too discreet to say. But he gives an interesting account of the geology of that desolate windswept region. And he has filled in gaps in our geographical knowledge, and thus connected up the work of Ryder in 1909 with the work of such previous travellers as Littledale, Sven Hedin, and Rockhill.

He was also able to put in useful work in quite a different part of Tibet—the narrow wooded, warm and well-watered region to the south-east of Lhasa.

Travelling in the service of the Tibetan Government every facility was of course given him, and he was received with the greatest cordiality by the Dalai Lama and the Tsarong Shapé. The result is a book and map of great geographical value. And it seems to show that Tibet which has disowned Chinese authority is probably the most orderly part of the old Chinese Empire.

F. E. Y.

SIR JOHN CHARDIN'S TRAVELS IN PERSIA. With an Introduction by BRIG.-GEN. SIR PERCY SYKES. (The Argonaut Press. Editor: N. M. Penzer.) *London: Argonaut Press* 1927. 10×7 *inches;* xxx+287 *pages, and 7 illustrations.* 28*s*

Chardin, though French by birth, finds a place in our *Dictionary of National Biography* and has a monument in Westminster Abbey, yet there is still no complete English edition of Chardin's works, and Mr. Penzer deserves our gratitude for the reissue of these volumes of the *Travels* for the first time since

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THE NANDA DEVI GROUP AND THE SOURCES OF THE NANDAKGINI: *Read at the Meeting of the Society, 9 January 1928, by*

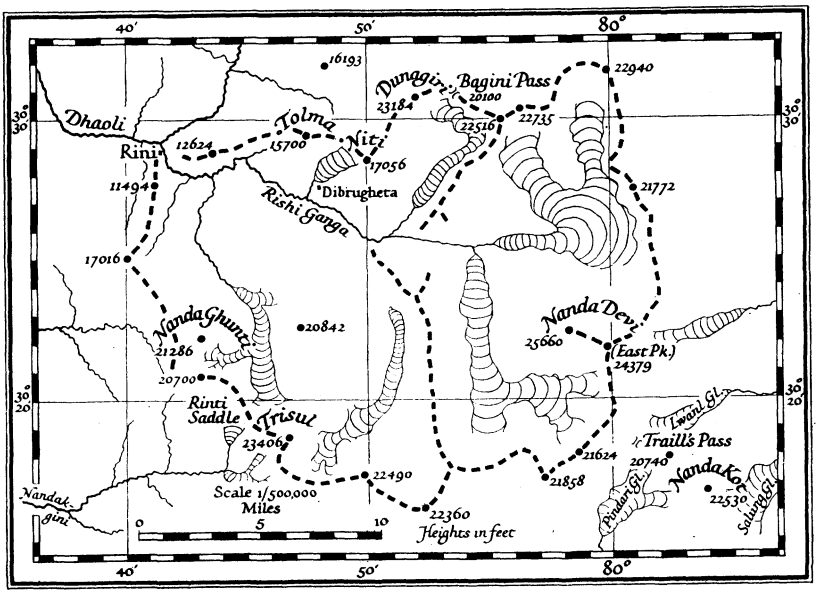
T. G. LONGSTAFF, M.D.

NANDA DEVI (25,660 feet) in the Garhwal Himalaya is the highest mountain situated entirely within British territory. There are no "political" difficulties to prevent anybody going there at any time. Its neighbourhood can be reached very quickly, easily, and cheaply from railhead at Kathgodam. In spite of this no one has yet succeeded in reaching the actual base of this grand mountain, much less in setting foot on it.

No doubt one reason is because, in this particular climatic zone, the winter snow does not disappear until June, while in the Rains travel in the southern valleys is so dangerous to health and so unbearably unpleasant. But quite apart from this the topography of Nanda Devi presents difficulties of access which I believe are unique. The mountain rises from the middle of an almost complete crater-like amphitheatre of mountains whose walls are 20,000 feet high, which has neither been crossed nor entered by any human foot. On the east the highest peak rises abruptly from the end of a buttress 2 miles long and about 23,000 feet in height, which connects it with a separate mountain, Nanda Devi East, 24,379 feet. On all other sides it rises a sheer 10,000 or 12,000 feet from the glaciers which encircle its base But this central "crater" is only part of another almost complete ring of mountains measuring full 70 miles in circumference, from the crest of which spring a dozen *measured* peaks of over 20,000 feet, including Dunagiri on the north, Nanda Devi East, and on the south Trisul and Nanda Ghungti. For 60 miles of this distance there is no known depression below 17,000 feet, and in this distance it has only once been crossed, by the Bagini Pass, 20,100 feet (see *G.J.* 31, 367). This defensive crest-line has also been reached, but not crossed, in three other places: at 19,000 feet 2 miles south of Nanda Devi East (*G.J.* 29, 202), on the summit of Trisul, and last summer at 17,000 feet on the Rinti Saddle.

Down the centre of these two concentric horseshoes flows the Rishi-

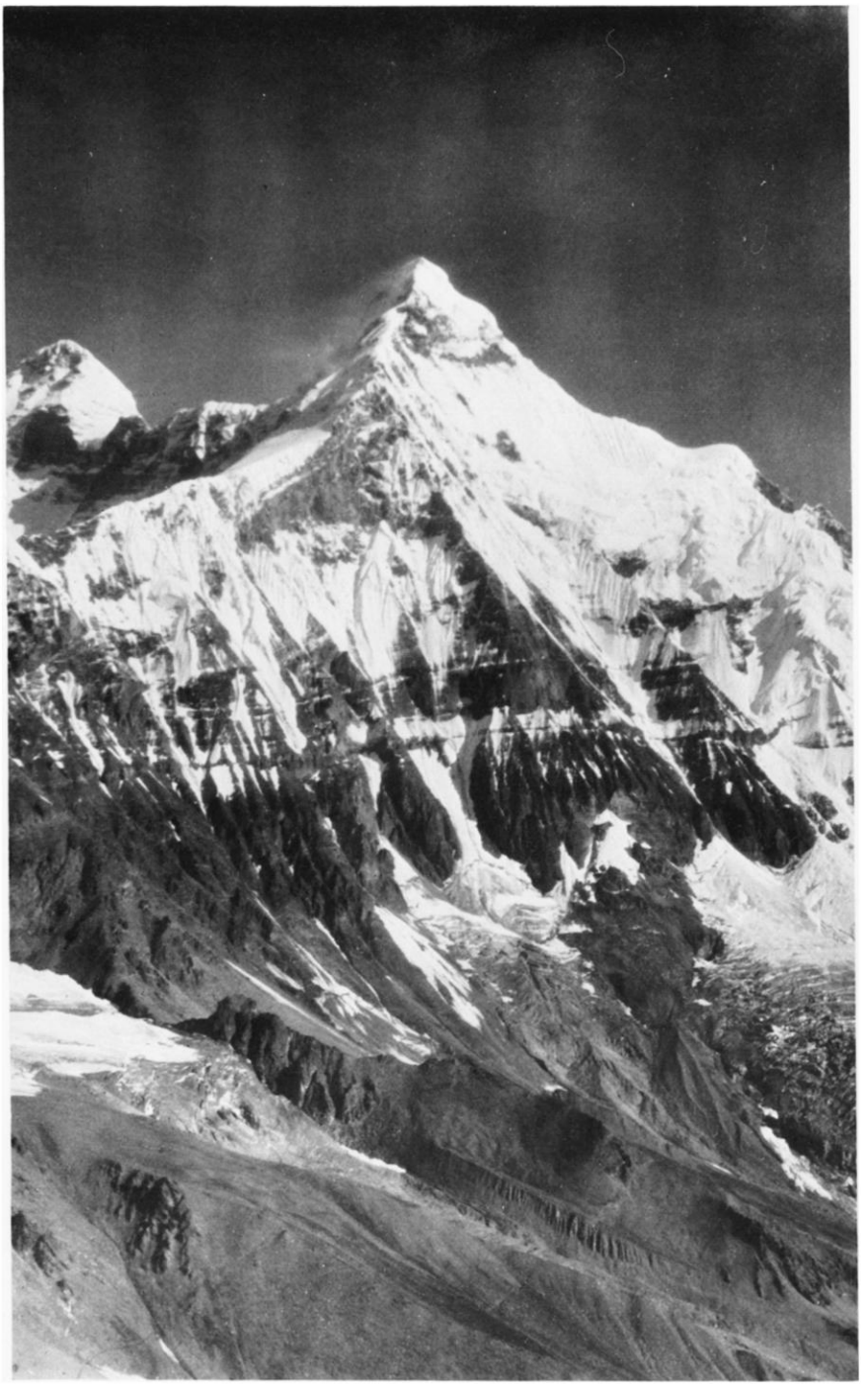
ganga, which joins the Dhaoli river at Rini at an altitude of only 6000 feet. The distance between Rini and Nanda Devi is but 20 miles, so that both the actual drop and the angle of steepness is considerably more than on the northern slopes of Mount Everest. The drainage of some 250 square miles of glaciated mountain country would be expected to make something remarkable in the way of a trench, when limited to one outlet; but however great the difficulties anticipated it would be expected that the Rishi valley would provide easier access to the inner sanctuary than climbing over a 20,000-foot wall. Yet the Garhwalis, good rock climbers and brave men as they are, affirm that the lower half of the Rishi gorge is quite impracticable. In 1883 that redoubtable mountaineer, W. W. Graham, with two celebrated guides, Emil Boss and Ulrich



The crest-lines of the Nanda Devi group

Kauffmann, tried to force the passage from Rini, but were stopped after going a very short distance by the sheer difficulties of the ground (*Proc. R.G.S.*, New Series, 6, 433). Another trouble is that this mysterious valley is " a savage place . . . holy and enchanted " into which the local people have a superstitious dread of entering, and local coolies are therefore apt to bolt at any moment from mere unreasoning fear. It is the traditional home of the Sat Rishi, the Seven Wise Men, who are now translated to the constellation of the Great Bear.

The valley has never been inhabited, but every summer the Tolma shepherds bring a few sheep and goats across the cliffs, at 14,700 feet, just west of Tolma peak (see map, *G.J.* 31, 472) to pasture for two months in the little side glen of Dibrugheta, which hangs high above



Phot. Mr. H. Ruttledge

Nanda Devi from ridge near Traill's Pass

Phot. Mr. H. Ruttledge

Nanda Devi from above Bilju–Milam road

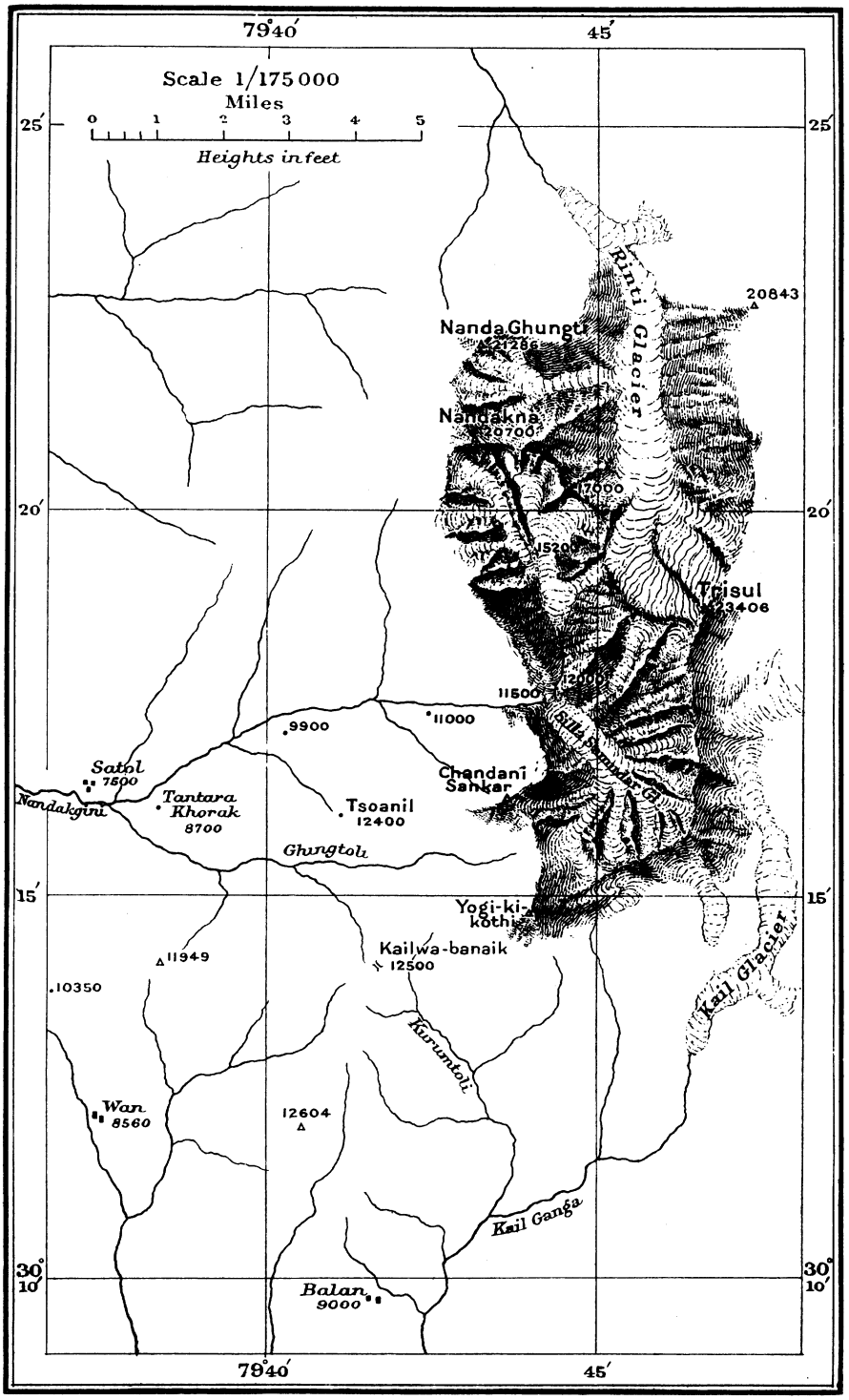
the northern bank of the Rishiganga. Using this route, both Graham's party in 1883 and General C. G. Bruce, the late A. L. Mumm and the writer in 1907, reached the banks of the Rishiganga about the middle point of its course; both parties were however defeated by the difficulties of the upper end of the gorge where the two arms of the inner crater-like amphitheatre almost close upon one another, so that the glaciers at the foot of Nanda Devi remain untrodden to this day: and when the foot is reached you find an Ushba with 10,000 feet added to her stature.

In 1905 (*G.J.* 29, 201–11 and *Alpine Journal*, 23, 202–228) and in 1907 (*G.J.* 31, 361–395 and *A.J.* 24, 107–133) I had explored practically all the approaches to this inviolate sanctuary. But a combination of adverse circumstances had prevented me, in August 1907, from pushing home an attempt to penetrate to the glacier sources of the Nandakgini river. Rising from the western foot of Trisul and from the southern slopes of the next peak on the north-west, which is definitely known to the natives as Nanda Ghungti (*i.e.* Nanda in her bridal veil), the Nandakgini river flows in a westerly direction to join the Alaknanda at holy Nandprayag. It was obvious that there ought to be a pass between Trisul and Nanda Ghungti; and that if this was an easy one it might give quicker access to the Rishi valley than the northern route used for the successful attack on Trisul in 1907. But nothing whatever was known of the topography, and diligent research has convinced me that no European had ever reached the glaciers in this neighbourhood.

In May 1927 Mr. Hugh Ruttledge, I.C.S., Deputy Commissioner of the Almora District, obtained a month's leave and invited me to accompany him and his wife on a further exploration of this valley.

He is greatly esteemed by the various peoples of his huge district for visiting even the remotest corners of it and for his devotion to their sacred Himachal: with his wife he made the only *pari karma*, or ceremonial circuit of Kailas, which has ever been performed by Europeans. In company with Col. Commandant R. C. Wilson, D.S.O., they made the first modern passage of Traill's pass in 1926. Such activities, even if unblessed by his official superiors, greatly add to his prestige as a District Officer with his people. He made all arrangements for our trip, including the enlistment in Darjiling and fitting out of six Sherpas, of whom Chettan served with the second Mount Everest expedition and Lewa with all three: Lewa was one of the two saved alive from the avalanche by Mallory, Somervell, and Crawford in 1922. Col. A. H. R. Dodd, commanding the 1st/3rd Q.A.O. Gurkha Rifles, most kindly lent us two picked men, Riflemen Khare and Budha Singh, who were of great service to us. All our men worked splendidly.

Leaving Gwaldam on May 15 we made three long marches by the Wan Pass (about 10,350 feet) to Satol, which was reached on May 17. Satol (about 7500 feet) is the highest village on the Nandakgini, and



The sources of the Nandakgini

became our base, where all servants and all but the lightest equipment were left behind. We were told at Satol that about every twelve years a regular pilgrimage was made to Silla Samudr (or Samudar), the terminal ice-cave in the glacier from which the Nadakgini river appears to rise. The name was said to mean Source of the Ocean. We were told that on these occasions two thousand goats were sacrificed there; but we were also told that exceedingly few of the pilgrims ever arrived at their journey's end—and we never found even a bone of one goat! The performance of the pilgrimage appears to be a sort of perquisite of the villagers of Satol, for the which they are paid a regular fee. I think it must be to this pilgrimage that Atkinson refers ('Himalayan Districts,' 3, 634): "The summit (of Nanda Devi) is altogether inaccessible; but over a mile below it, a *mela* or religious festival is held every twelfth year, though access to the spot is so difficult that it is reached by scarcely fifty of the pilgrims who make the attempt. Further progress is impracticable in consequence of the mural cliffs of ice which on every side encase the peak. . . ." But Silla Samudr is 15 miles south-west of the peak. There is a great erratic beside the Salung glacier, 10 miles south-east of the peak, which I was told by my coolies in 1905 was a place of pilgrimage for the worship of Nanda Devi, and in 1907 I saw a celebration in her honour at a village 30 miles west of the mountain. In the course of three journeys in this district on all sides of the mountain and during which I have always been on good terms with the villagers and hillmen, I have failed to get any evidence of a near approach to the mountain from any side: all were unanimous in denying the possibility of any access up the Rishi valley. I had been told twenty years ago that the head of the glen was guarded by a large and malevolent serpent, which some said was petrified and some said ate all comers, and we now heard that a party of travellers, who once long ago essayed a passage across the range, were destroyed by an avalanche hurled from the top of Trisul by Shiva, who was incensed at their approach to his Veiled Bride (Nanda Ghungti). While there was no suggestion of any objection to our party proceeding, no villager was willing to accompany us; nor could any detail of the route be obtained. But an old soldier, Bhawan Singh Negi, who had greatly distinguished himself in France with the Royal Garhwal Rifles, offered to do his best for us although he had never been that way himself. Our party was now cut down to the two Gurkhas and six Sherpas, with a few of our old coolies who would be sent back to Satol when the glaciers were reached.

On May 18 we climbed the steep track, past the old temple of Tantara (about 8700 feet), by which sheep and goats are taken in summer up the *Kharak* or summer grazing alp of Dagwal. Soon after passing this small temple we turned from the track into feathery bamboo jungle under the dense shadow of great forest trees, and keeping our height gradually approached the gorge of the Nandakgini to the north of us,

on our left. The track was now very narrow and sometimes precipitous At 4 p.m. we camped in dense wet jungle at about 9900 feet.

May 19 was a very hard day. Very soon the " path " quite disappeared. The dwarf bamboo got thinner as we left the oak and maple and entered the fir and rhododendron zone. Before noon we got down into the bed of the Nandakgini, here about 11,000 feet, but were very soon forced up again into snow-bent birch and mauve rhododendron jungle, very fatiguing to the passage of laden men. Opposite to us, extending along the sunny north bank of the gorge, was a beautiful forest of large crimson tree-rhododendron contrasting gorgeously with the dark foliage of great scattered firs. The last two-thirds of a mile took us two hours to cover ; our laden men were far behind, and at one o'clock we stopped to camp on the only level spot we had seen all day, the top of a birch-clad spur thrust out into the valley between two great gullies filled with winter avalanche snow. We had the usual pre-Monsoon rainstorm, which turned to hail in the evening.

I was very interested to see that we were, at about 11,000 feet, near the upper edge of a very fine continuous birch forest. This proved that we had reached a region never visited even by the hardy shepherds of Garhwal. In northern latitudes the silver birch is normally the last tree met with. It would be the same in the Himalaya were it not for centuries of grazing by sheep and goats. These, by destroying every seedling, inevitably cause the ultimate death of the forest, so that birch woods are now decidedly rare in this part of the Himalaya. I consider that the same conditions hold good in the Alps, where I have only seen well-grown birch in parts of Dauphiny which are too steep to graze. The normal existence here of these extensive birch woods naturally leads to the consideration of the real biological boundary between the palæarctic and the Indian faunal regions. In the Central Himalaya this lies at an altitude of about 12,000 feet along the *southern* slopes of the range, and not along the Indo–Tibetan water-parting, as is often assumed. This was strikingly emphasized in the upper Nandakgini valley, where from the bamboo jungles far below us the notes of tropical birds like the " Koel " contrasted with those of the (apparently) European cuckoo in the highest birch zone. The gorgeous tropical butterflies of the depths of the valley are exchanged for homely looking species above the tree-line. The Bharal (*Ovis nahura*) is also found on these southern Himalayan slopes, though it is generally considered typical of the more arid inner zone of the Indo–Tibetan water-parting. We have here a beautiful example of high altitude compensating for low latitude in its effect on the faunal character of a region.

Next day we continued on our way, almost at once having to cut steps across a steep, broad snow-filled gully. This was followed by steep slopes through the last of the dwarfing birch forest to another snow gully across which steps had to be cut. At last we got down to the bed

of the torrent, here flowing in the narrowest throat of the gorge between the far projecting southern curtain of Nanda Ghungti and the slightly less precipitous northern spur of Chandani Sankar. Ahead of us we saw a distinctly snake-like moraine curling round the true right bank of the Silla Samudr glacier, which apparently blocks the head of the glen directly under the western foot of Trisul. Crossing the stream by a snow bridge we reached the crest of the moraine three hours after leaving our previous camp, which was about a mile distant. The snout of the glacier descends to about 11,500 feet: its face is fairly steep, and although the right lateral moraine is double, showing a former much greater breadth and thickness of the ice, no sign of active retreat is evident at the present time.

We now realized that the sources of the Nandakgini lay in a T-shaped valley. A partially glacier-filled glen flows due south from Nanda Ghungti: the valley filled by the Silla Samudr glacier descends towards the north between Chandani Sankar and the western face of Trisul; these unite at the western foot of Trisul, where the Nandakgini river starts on its westerly course. Our way lay up the northern glen, in the mouth of which we camped (about 12,000 feet), sending our Almora coolies back at once and keeping only the two Gurkhas and six Sherpas.

The next two days were spent by the Ruttledges in reconnoitring, while I made photography and the map an excuse for a much-needed rest. The Silla Samudr glacier seemed to be stationary, while those flowing south from Nanda Ghungti appear very shrunken and choked by morainic deposits, but were still so deeply covered with snow that it was impossible to define their snouts with certainty. My map is merely a rough sketch, based on the 1-inch G.T.S. sheet, with details filled in from photographs. Unfortunately there are no observed peaks south-west of Trisul, and we were much too close under the summit of that mountain even to be sure of identifying its actual summit. We afterwards obtained the names Chandani Sankar and Yogi ki Kothi for the two most prominent outliers of Trisul on the south-west; but neither had been intersected, though both can be recognized on the G.T.S. 1-inch sheet.

The peak which is locally known as Nanda Ghungti is the Nandakna (20,700 feet) of the G.T.S. Synoptical, vol 35, p. 345, and chart No. 53N, but shown without name or altitude on the 1-inch sheet: Burrard and Hayden (pp. 6, 19) refer to it as $\frac{\text{Pk}76}{53\text{N}}$ Nandakna 20,700 feet. I have not ventured to alter this nomenclature, but have left the name Nanda Ghungti attached to peak 21,286, which is 2 miles due north of "Nandakna," as on my old map published in the *G.J.* 31, 372. Yet it seems certain that as the northern peak is invisible from the south, it is this southern peak which is the Nanda Ghungti of the people; also

I suspect that Nandakna is merely an alternative or a corruption of Nandakgini, the name of the river.

From a little south of the summit of Trisul a great buttress juts out westward. This soon curves toward the north-west and rapidly decreases in height. This jagged north-west buttress supports on its northern face a vast shelf of glacier which, descending on to the Rinti glacier, ultimately discharges into the Rishi valley on the north. But in one place this great northern shelf-glacier overflows through a slight depression in this steep north-west buttress of Trisul, and discharges south-westward to feed the Nandakgini river, which we have been following. Just north of this western overflow glacier there is an obvious passage up a 1000-foot gully to the top of this north-west buttress of Trisul, and which would lead straight on to the high shelf-glacier on the north face of Trisul. It is therefore a potential pass across the local water-parting. But the lowest depression in the Nanda Ghungti–Trisul ridge lies farther north, at the head of the glen we had entered. Here steep but easy snow-slopes (May 24) led up to a perfect snow-saddle, which is the obvious pass over to the Rinti glacier on the northern side of the range. For this we suggest the name Rinti Saddle : as it has never been crossed it should not be called a pass. Its height is about 17,000 feet. My Watkin aneroid was out of order, and we had to depend on a small but good aneroid which Ruttledge had brought. We got our height all the way from Satol by registering the differences from camp to camp both going and returning. By this means we were able to put our highest camp at 15,200 feet : the Rinti Saddle is about 1800 feet above this. It is obvious however that all the altitudes determined by us are mere approximations.

On May 23 we took a still lighter outfit and ten days' food up to a camp at about 15,200 feet on the highest moraine outcrop of the eastern-most of the two Nanda Ghungti glaciers. The site was most exposed, but conveniently close under the lowest snowy gap (our Rinti Saddle) in the ridge between Trisul and Nanda Ghungti. The Sherpas despise tents, and made a far better camp than ours under a big boulder on the moraine. We suffered daily from hail or snow-storms accompanied by thunder or high winds. Such weather made the condition of steep snow-slopes dangerous. On May 24 we reached the Rinti Saddle in three hours' easy going up steep and rather soft snow-slopes. New avalanches were lying at the foot of the still steeper slopes on both sides of us, as we approached the pass. Just south of the pass is a curious depressed hollow basin, giving the impression of local subsidence. From the crest of the pass we had a splendid view down on to the head of the Rinti glacier, which was very heavily snow-covered and disappeared to the north-west, flowing between Nanda Ghungti (21,286 feet) and the long precipitous northern spur of Trisul which terminates in peak 20,842 feet. A portion of the south-west ridge and the glorious summit of Dunagiri (23,184 feet) was visible over the north-west ridge of peak 20,842 feet

on the far side of the Rishi valley, giving us a very welcome check on our position. But the saddle on which we stood was heavily corniced, and at our feet snow-slopes, which we knew must be dangerous, fell away steeply for about 2000 feet to the head of the Rinti glacier. In my opinion it would be quite possible to make the descent on the north in good snow conditions; but the passage would demand much time and great care to effect safely. To reascend the pass from the north would be easier, but would take the best part of a day. If the slope was ice, then neither ascent nor descent would be practicable.

Since that part of the Rishi gorge into which the Rinti *nala* debouches has never been traversed, it was probable that we should have to return by the same route. We regretfully gave it up. But we were all three set on breaking through this redoubtable barrier. If we slept only one night on the Rinti glacier we could claim an absolutely new pass to our credit! As we looked back up to the summit of Trisul, ascended just twenty years ago, and still the highest peak whose complete ascent is undisputed, we realized that, if the snow would hold, it would be a simple matter to traverse left-handed from our Saddle and so gain the crest of the serrated north-west spur running down from Trisul, and look over on to the great shelf-glacier which drapes its north-western face. An hour's cautious traversing brought us to the crest, and to our great surprise we found ourselves only a few feet above the level of the shelf-glacier, which farther towards Trisul overflows through a gap in the ridge in steep icefalls over on to the south-west or Nandakgini side. The first part of the descent on the north side was apparently very easy, though not without danger from seracs falling from a smaller shelf-glacier higher up on the north-west face of Trisul. We could not see the actual junction of our shelf glacier with the main ice-stream of the Rinti glacier itself, but decided that this alternative route was well worth trying, and that we would take over enough outfit to enable us to sleep on the Rinti glacier and then return by the same route. By now the snow was in pretty bad condition, and the descent of the steep slopes back to our camp was not without moments of anxiety.

Our good fortune now deserted us—or the gods were angry. On May 25 we had a bad storm which continued all night and blew down the Ruttledges' little tent. Next day of course climbing conditions were impossible, and in the evening the cliffs of Nanda Ghungti and Trisul stood out ominously clear. On May 27 we left camp in desperation at 6 a.m., we three lightly and the two splendid Sherpas, Chettan and Lewa, heavily laden. We meant to rush the passage and go at least far enough to see the actual junction of the shelf-glacier with the Rinti glacier, returning in our old steps the same night. We dare not be caught on the far side of the pass by another of these pre-monsoon snow-falls. We had chosen the next *couloir* on the north to that by which the great shelf-glacier sent down an overflow tongue above our camp. We made

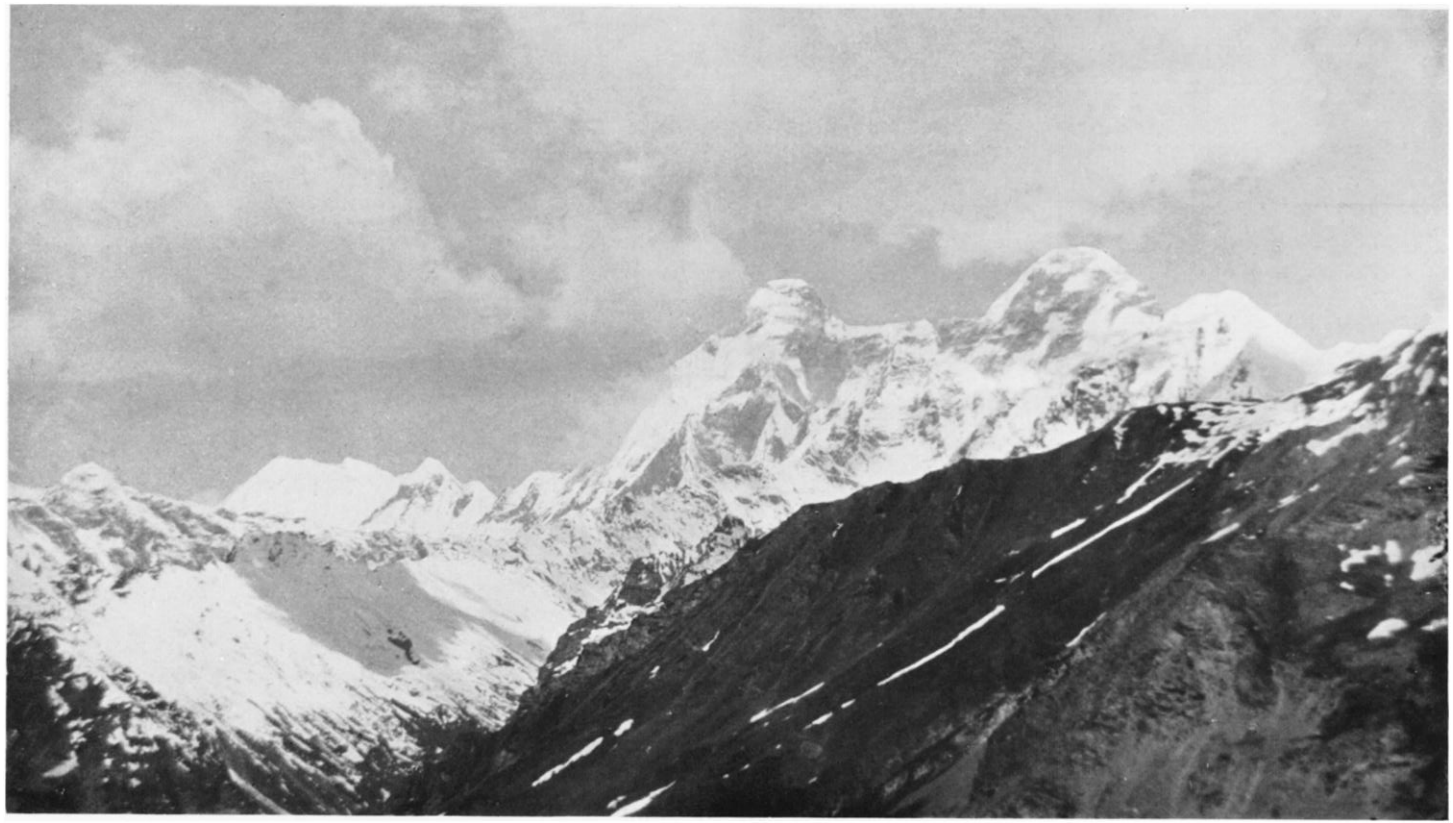
the first 1000 feet quickly and found the snow in the lower part of the *couloir* fairly safe : the way was clear to the crest of the ridge, little more than an hour above us. But for some time we had been alarmed by the look of the weather in the west, and it was now evident that we were in for a very heavy snowstorm. We turned tail as it commenced. We had a bad day in camp and a worse night. There were 9 inches of fresh snow next morning, and as it was still snowing and our gully would be impossible for several days, we struck camp and descended. Snow had fallen at our lower camp (12,000 feet) and the Whymper tent was blown down. The hot days made the new snow dangerous, and we deemed it wise to shift our camp out of this narrow side glen and on to a safer site under the cover of the " Snake Moraine " beside the snout of the Silla Samudr glacier ; it was also drier and warmer. Our caution was justified, for as we left this camp on the morning of May 30 we were enveloped in the snow-dust and rushing wind caused by an invisible avalanche, which I think must have fallen very near our former camp.

Instead of returning to Satol down the gorge of the Nandakgini, we spent five unforgettable days traversing the Chandani Sankar–Dagwal ridge, camping first at the upper limit of the birch forest and then at the upper limit of the fir belt ; halcyon days of ravishing beauty, with the great peaks of Nanda Ghungti and Trisul floating serene above the deep forest-filled ravine of the Nandakgini. Picking up more supplies at Satol, we despatched our baggage to Gwaldam by the Wan pass and struck out ourselves across the great outlying ridge south-west of Trisul over the Kailwa-banaik (about 12,500 feet) and Kurumtoli to Balan, the highest village in the valley of the Kailgunga, and so along the Nauali ridge down into the valley of the Pindar.

It is a grand bit of country, seldom visited because of the difficulties of supplies, but Ruttledge's *bandobast,* and the endurance of our Sherpas and the two Gurkhas, proved equal to every emergency. Day after day we wandered along high bare grassy ridges with beneath us incredible glens clothed in forest growing at the steepest angle ; and always with the snows to look up to, ever changing but ever beautiful. I have to thank my two companions for giving me a pilgrimage more care-free and more full of delight than any other I have made in Himachal.

DISCUSSION

Before the paper the PRESIDENT (Col. Sir CHARLES CLOSE) said : This evening we are to spend in the High Himalaya, and our guide is to be Dr. Longstaff. Those who are Fellows of our Society need no introduction to Dr. Longstaff, but there may be those who are not Fellows in this hall, and I should say that Dr. Longstaff is an intrepid mountaineer who has climbed in three continents : in the Alps and the Caucasus, in the Himalaya, and in the Rockies. He reached the summit of Trisul. He has made two journeys to Spitsbergen, and he was a member of the 1922 Expedition to Mount Everest. With those credentials you may be quite sure that we shall have a very interesting account of the problem of Nanda Devi. I ask Dr. Longstaff to give his account.



Nanda Devi from 14,350 *feet on Qalganga Ka Pahar*

Phot. Mr. H. Ruttledge

Phot. Mr. H. Ruttledge

West shoulder of Nanda Kot from Névé of Pindari glacier

Dr. Longstaff then read the paper printed above, and gave some account of the papers by Mr. Ruttledge and Col. Commdt. Wilson which follow; and a discussion ensued.

General WAUCHOPE: I have for many years been indebted to Dr. Longstaff. When he first met me, somewhere in the Himalaya, he advised me to visit the district of Trisul, and the vivid picture he has drawn of these mountains has laid me and all of us under a deep debt of obligation. I sometimes think that my friend Dr. Longstaff, who is a man of science, divides mankind into two classes: those fortunate mortals who have visited Trisul, and those less fortunate beings who have not had that privilege. But, speaking as a soldier, I cannot agree. I divide mankind into three classes: those who have never seen Trisul; secondly, those poor creatures, like myself, feeble, fearful, and infirm, who have had the privilege of visiting Trisul but have never succeeded in reaching its peak; and the third class, which is numerically very small—I rather think it is confined to one individual—contains those who have been to Trisul, solved its problem, and gained its summit.

Dr. Longstaff gave us such a vivid picture of these incomparable mountains that it would be an impertinence on my part if I were to attempt to add anything to what he has said, but I would like to make a couple of comparisons. There are many people who would of all buildings in India give first place to the Taj Mahal. They say while the other buildings are greater in size and may have greater grandeur, no building combines such lightness and strength, such perfection of setting, and such simplicity of design and beauty of ornament. I do not happen to agree. But I think that the argument used as regards the Taj Mahal may be applied, with far greater force and justice, to Trisul and Nanda Devi. I well remember when I first visited that country, fourteen years ago, it was in the month of May. The steep sides of the deep valleys were covered with dark green woods and bright green pastures. The valleys between them were all gold and yellow with ripening corn; the streams half hidden with wild roses and jasmine; among the pomegranate, bohinias, and other trees, all in full flower, were birds, mostly Asiatic, whose brilliant colouring I shall never forget; and higher up one came to those woods of rhododendron that Dr. Longstaff showed in one photograph, like Joseph's coat a mass of many colours. Farther up, far above the haunts of the animals and birds I had been shooting, one gained an incomparable view of the serene beauty of Trisul and Nanda Devi. I have never seen any view which inspired me with feelings of such reverence and awe. Sometimes I think that when we climb 10,000 or 20,000 feet above sea-level it is not only our bodies we raise to that height. I believe it happens sometimes that our minds are also uplifted to a higher plane. You may remember when Victor Hugo is discussing the great poets of the world he says of Shakespeare in a fine phrase that Shakespeare is a promontory into the infinite; a promontory along which we poor mortals may clamber and climb and gain a vision of things that are ordinarily hid from our mortal eyes. When first I looked upon that marvellous vision of Nanda Devi and Trisul, I felt that they well deserved the words of Victor Hugo, and may well be termed "Headlands into the Infinite." It is for recalling that vision to us to-night, and for his brilliant exposition of these mountains, that we have to thank Dr. Longstaff.

Brig.-Gen. Hon. C. G. BRUCE: I cannot speak without first referring to the recent loss of our companion, Arnold Louis Mumm, and I must also remind you that that particular expedition to which Dr. Longstaff has referred, to the

north side of the Nanda Devi range, was a secondary thought; that we had almost arranged for the first exploration of Mount Everest. The expedition had been financed and was ready to start entirely through the generosity of Dr. Longstaff and Mr. Mumm. It was only owing to political difficulties that it was found necessary to switch off to a further exploration of Dr. Longstaff's own particular stamping ground, so to speak, the Nanda Devi range. We had on that occasion the full support of the Viceroy, then Lord Minto. Without his help it would have been extremely difficult for us to have fitted out an expedition on the lines of that which we took into Garhwal, itself an extraordinarily bare country.

Dr. Longstaff has not quite brought out what an exploration of Nanda Devi means, because he is a great deal too modest. I must let you into the secret. When we made our great attempt to explore the Rishi valley it was impossible, from the point of view of cold, of outfit, kit, and possibly capacity, to take with us local men. We had to follow up the glacier which lies to the north of the group, the great Bagini glacier, fairly early in the year (in May, in fact) and be prepared to cut ourselves off from all help for ten days—tents, cooking apparatus, even some spirit for fear we should not find wood, food for two of the hungriest guides I have ever seen, besides being the strongest, for four very hungry and strong Gurkhas, for Dr. Longstaff, and for, no bad trencherman, myself. Dr. Longstaff and I had a very formidable rifle each and adequate ammunition to carry also. We camped with our full loads up on Bagini glacier at a height of 18,000 feet. From there we had to go with our packs on our backs over the Bagini Pass, 20,100 feet, the climb to the pass requiring a great deal of step-cutting on the part of the Brocherels. That was the easy part. Then we had to go down that steep cliff shown in the slide, needing 500 feet of rope. That was a real teaser with our heavy loads. I remember that particularly because the heaviest load of all was carried by Alexis Brocherel, who had elected to come down last. Just before I had started he asked me to exchange loads. I had his load in addition to my rifle, and the remarks I made are not recorded except by Dr. Longstaff . We had a very rough time, but eventually landed on the Arhamani glacier and had to follow it down for some miles. The last to come down were Dr. Longstaff and myself. In one place we had to sling ourselves down on about 60 feet of rope with our loads. Dr. Longstaff shot burhel, and it will give you some idea of the difficulty encountered in the Rishi valley if I tell you that we were never able to get back to our cache of burhel meat when we made a second advance up the valley. On the second advance we were camped at the junction where we could see that extraordinarily difficult side valley which leads to the foot of Nanda Devi itself and the way up to Trisul, and from there Dr. Longstaff with his companions made the ascent of Trisul, which still remains to this day the highest actual summit yet reached by any human being. There they had an experience which has stood us very well indeed since. They were camp-bound at 20,000 feet in a real blizzard, and there they thoroughly understood what a blizzard means when continued for two nights and a day at that altitude. Every one had to come down for the purpose of food and rest exactly in the same way as the Mount Everest Expedition in 1924. Over that height a real storm will take it out of you quite as much as a very hard day's work.

Dr. Longstaff in the pluckiest possible way went out this last year to continue his explorations, and I think it is a matter of very great congratulation that he was able to do so. We have now at any rate in Kumaon a most sympathetic Deputy Commissioner, and there is no doubt that he will continue the explora-

tions of this splendid group. There is a little still to be learned, but there is an enormous amount still to be done of what we might call minor exploration in the rest of the range.

I think I am right in saying that in Garhwal, within an area equal to Glamorgan and half Monmouth, there are no less than eighty peaks over 20,000 feet. To the north also lies another field, well known in mountaineering history, Kamet and Ibi Gamin. Attempts have been made on both of them, and they have been explored by Dr. Longstaff himself. There is still in the same neighbourhood a little exploration to be done, too, in connection with the source of the Alaknanda. It looks a comparatively simple geographical problem; the mountaineering difficulties are not known. We hope some day some one will tackle it and be able to push his way up the Sathepanth glacier and over to the other side and descend near Gangotri somewhere and complete the circle of the source of the Ganges.

It may interest you to know that the companions who chiefly accompanied Dr. Longstaff, not only on his first attempt on Trisul but also on his subsequent explorations on the southern face up the unknown valley of Sonadhunga, were two Gurkhas, one of whom got the M.C. in the war, retiring desperately wounded; the other retired with the honorary rank of captain, both going about as far as they could under the circumstances. Of course his Gurkha companion on the ascent of Trisul was the well-known sub. Karbir, who had travelled so much with Sir Martin Conway. It is also interesting to me that a certain number of Sherpas from Darjeeling took part in the last exploration, with Mr. Ruttledge and Dr. Somervell. They are first-class people, but I must point out that in the neighbourhood of Milam among the Milamwals and also among the Dhanpurias there are men who would do equally good work if they had the opportunity of training that the Sherpas have had. A certain number of the Dhanpurias, I believe, have enlisted in the Garhwal Rifles and have done first-class work. That is a source which might easily be tapped to help other explorers to push their way into that part of the world and save the expense of importing men, besides which it would give a great stimulus to local activities.

Col. E. F. NORTON: I should like to add my tribute to Dr. Longstaff for his fascinating lecture. Widely as Dr. Longstaff has travelled and widely as he has climbed, he has told us to-night about the country which he has made peculiarly his own and of which he can speak with an authority which nobody else can claim. In those halcyon days before the war I spent seven years on the banks of the Ganges, and thence on rare occasions, when a shower of rain cleared away the dust haze, about 150 miles away along the northern horizon like a picture thrown on a screen, we used sometimes to see that great outer range of the Himalayas—a wonderful panorama, with those two great mountains, Nanda Devi and Trisul, the central figures. In those days we, having eyes to see, saw not. We concentrated our activities entirely on three other pursuits: we used to spear the grey boar; we used to shoot tiger and other big game in the foothills and in the jungles of the Central Province; and if we wanted a change of air we used to go to the Himalaya and shoot sheep and goats, and the Kashmir stag. I am wrong: we had a fourth pursuit. We used to do a little soldiering in our spare time. I for one, when I got leave to Europe, used to spend every week of it in the Alps. Yet we never dreamed of attempting the giants of the Himalayas. We little knew that on one of those very days on which we could see those great peaks to the north of us, perhaps at that very time, an Englishman was reaching the top of one

of them and thus constituting a world's record for the highest peak that has ever been climbed.

Later, when I became associated with the Mount Everest Expeditions, I foresaw that they might lead to a recognition among Englishmen in India of the possibility of the Himalaya as a playground from the Alpine point of view; and from what we hear of the two new mountain clubs which they are starting in India it looks as if my hopes may be fulfilled. If it was the Mount Everest Expedition which directed the attention of Englishmen in India to the mountaineering aspect of the Himalaya, it was the enterprise of men like General Bruce and Dr. Longstaff which demonstrated what could be done with a small bundobust, which showed the way to what a poor man with limited resources of time and money could achieve. I think this movement is undoubtedly going to gain ground in India, and when it does the pioneers will gain that tardy recognition which is the reward of those who do not broadcast their achievements in books but, like Brer Rabbit, "lie low and say nuffin'."

The PRESIDENT: We are very glad to hear from Col. Norton that two mountain clubs have been formed in India. No doubt one of these days they will amalgamate. The formation of a mountain club is a thing that ought to have taken place long ago, but we are glad to hear that it is now being carried out. We are sure that if they do start they will have a very long and successful career. Dr. Longstaff this evening has said very little about himself, but I think that we should remember his record for the highest summit, made on Trisul many years ago, remains unbroken. We have not now the means, or the opportunity, of celebrating his exploits in the Bhotia manner, but in your name I am sure I shall be right in thanking him for his lecture and for the very admirable slides which he showed us, which did, in some small way, convey to us the majesty of the Himalaya. We also thank Mr. Ruttledge, who provided many of the photographs and some of the information, and Colonel Commandant Wilson, for their contributions to this evening's meeting.

NOTES ON A VISIT TO WESTERN TIBET IN 1926

HUGH RUTTLEDGE, I.C.S.

THE traveller wishing to enter Tibet from the Almora district of the United Provinces has before him a choice of three main routes. The first goes by the valleys of the Sarju and Goriganga to Milam, a distance from Almora of 110 miles, and thence over the Untadhura, Jainti, and Kingribingri passes to the Tibetan market at Gyanima, some five marches from Milam. The other two routes are identical with each other as far as Khela, in the valley of the Kali river, our frontier against Nepal; from this place the Darma valley branches off to the north, past the lovely Panch Chulha peak, and at its head lies the Nuë, or Darma pass, leading direct to Gyanima. The other, and easier, route is up the Kali valley *viâ* Garbyang to the Lipu Lek pass, within easy reach of the big market at Taklakot. On this route is encountered the famous, or rather notorious, Nirpania cliff, the worst part of which can now be turned by a *détour* along the Nepalese bank of the river.

The valleys above named pierce the central chain of the Himalaya, and are the home of the Bhotias, a people probably of Tibetan origin, though now professing the Hindu religion. They have a monopoly of the trade between India and Western Tibet, a monopoly of which no one is likely to deprive them while communications remain in their present state.

Undoubtedly the easiest of the passes is the Lipu Lek, 16,750 feet high. This can be crossed by mules and ponies eight months in the year; but it should not be treated with contempt, for I know a Bhotia who lost his toes on it in November, three or four years ago. The Bhotias of Chaudans and Byans, the northern pattis of the Kali valley, usually cross into Tibet in July and return in October. Taklakot is about 7 miles across the border.

Under orders from the Government of India, I visited Western Tibet in 1926 to investigate conditions of trade between the Tibetans and the Bhotias. The latter carry up every year grain, rice, cloth, and various kinds of haberdashery, returning with wool, borax, and salt. But for them Western Tibet would probably starve, as the high altitude of most of the plateau, and the nomadic habits of the people, render cultivation impossible.

Before the British expedition to Lhasa in 1904 no officers had, so far as I know, visited this part of the country on duty. But in 1905 Mr. C. A. Sherring, of the Indian Civil Service, was deputed to report on trade and to cultivate friendly relations with the officials. He described his experiences in 'Western Tibet and the British Borderland.' He was followed, in 1908 and 1911 respectively, by Messrs. Cassels and Stiffe, of the same Service, acting under similar orders. Since then a number of complaints from Bhotias concerning trade restrictions had accumulated, and it was thought desirable to have them inquired into.

I was fortunate in obtaining permission to be accompanied by my wife and by Colonel Commandant R. C. Wilson, D.S.O., M.C., Indian Army; and after some preliminary work in the Johar and Darma valleys—the latter being reached by way of the Rálam pass—we crossed the Lipu Lek on July 10 and pitched camp at Taklakot. I need not

Mr. Ruttledge's route into Western Tibet

add anything to the descriptions of this part of the country published by Dr. T. G. Longstaff and Mr. Sherring. A violent wind, blowing unexpectedly from the east, expedited the pitching of tents, and we settled down to four days of official calls, interviews, and business discussions. The place of the Jongpen, who was away at Lhasa, was more than adequately supplied by his wife, a lady of determination and much business

acumen. We had the good fortune to witness, in the monastery, the "Gugu" ceremony, or spring blessing of the people. This was extremely well arranged and conducted by the chief lama, who is appointed from Lhasa. His dignified courtesy provided a pleasant contrast to the manner of his monks, who appear to be turbulent and ill-disciplined.

Some light was shed on local politics by a strike of the local villagers, who have to provide forced labour to the Jongpen and the monastery. The lady incumbent was quite equal to the occasion; she called in the Church, and as the lay and ghostly authorities of the place thoroughly understand one another, the strike collapsed.

News was received here that the newly appointed Senior Garpon, or "Viceroy," was on his way from Lhasa to Gartok. He would pass through Barkha, north of the sacred lakes, and this afforded the hoped-for opportunity to continue our journey northwards, instead of making straight for Gyanima, as an interview with the great man was highly desirable. Accordingly, on July 16 we left Taklakot, turned the eastern end of the ridge, passed the Jumla mart of Gungung Samba, and faced north. For some 3 miles the going was fairly level, but after passing the tomb of Zorawar Singh, the Sikh general who was defeated and killed here in 1841, we found ourselves breasting a long and steady ascent. To the left was the valley of the Karnali river, flanked on its farther side by low hills, and the road to Gyanima; to the right were the endless scree slopes up which Dr. Longstaff forced his way in 1905, in his attempt on Gurla Mandhata. The great mountain was fairly free from cloud, but a good view of it is not obtained till one reaches the neighbourhood of the lakes.

Up to this point there had still been a fair amount of cultivation to be seen, with here and there a house, and even a poplar tree; now, however, the road with its frequent "manis" struck boldly into the wilds, and as if to mark the change we met a picturesque mounted ruffian from the region north of Kailas. One of our Bhotia companions explained that he was an amateur dacoit. Evidently he was out of practice, for he smiled blandly, showed me his sword in its silver scabbard studded with turquoises, and posed for the camera.

We were now at a height of nearly 15,000 feet, and traversing a bare and stony wilderness studded with burtsa and scarred by occasional rocky watercourses. Towards midday the wind got up, and the sun was very powerful, while water was absent till we reached Rumgung, where is a small river flowing westwards from Gurla, past a little monastery. This is a fairly good camping-place, partially sheltered from the wind by a few stone walls and by the banks of the river; it is infinitely preferable to the bleak and inhospitable Balduk, a short distance farther on.

By the evening of July 17 we were encamped at the south-east corner of Rakhas Tal, after crossing a col of about 16,000 feet to the west of the Gurla pass. From the col there is a magnificent distant view of Kailas;

in the middle distance lie the blue waters of Rakhas, studded with a few islands and bounded by low hills which are a riot of red and brown and green. A strong and steady west wind was driving the waters of the lake in little waves against the south-eastern shore ; and here we met a party of three Dokpas, on their way to Taklakot with sheep. They were armed with the muzzle-loader of the country, with the usual forked rest attached to the muzzle, and a beautiful tassel pendent from the latter. The breech was carefully protected from the driving sand by a parti-coloured cloth. Swords in scabbards bright with silver incrustations and turquoises completed their armament.

The water of the lake is sweet. On one of the islands near the southern shore is said to reside, wrapped in contemplation, a sadhu from Muttra, to whom a year's supply of food is taken across the winter ice. In the previous winter the ice gave way beneath the provision party and they were drowned ; my informants could not say whether any further attempt was made to reach the unfortunate hermit. The Hindus of the party appeared to have scant veneration for Rakhas.

On the morning of July 18 we crossed the neck of land which separates Rakhas from Mansarowar, a distance of only $3\frac{1}{2}$ miles, to Ghosal Gumba. The elevation of this part of the neck is some 300 feet above the lakes. It is well covered with burtsa, and abounded in upland hares (*Lepidus hispidus*) and a kind of field rat, all very tame.

The water of Mansarowar also is sweet. The Hindus, and even one or two of the Bhotias, occupied themselves with a highly superficial ceremonial bathe ; I attempted a swim, but was forced by the cold of the water to come out very soon. However, I was pronounced to have acquired merit by the performance.

At this place we saw no birds, but in the course of next day's march to Jiu, partly along the shores of the lake, we saw a fair number of bar-headed goose (*Anser indicus*) and Brahminy duck (*Casarca rutila*). Sand grouse (*Syrraptes tibetanus*) were plentiful among the low hills. About 3 miles short of Jiu lies a large borax bed, now in disuse. Since the War the export of borax has declined very rapidly.

Jiu monastery is built on an isolated rock, about 100 feet above the shore ; it is a foundation much favoured by the Dokpas, and must be one of the dirtiest in Tibet. It overlooks a well-defined channel running westwards from Mansarowar to Rakhas. We found a little sandbar, about 3 feet high, keeping out the waters of the former ; but it seemed likely that water had recently flowed, as there was a chain of pools which, to the west of the monastery where there are some hot springs, merged into continuous water. The latter did not appear, at the time, to be in motion ; the Bhotias and Tibetan yak-drivers, however, assured me that they had seen water actually flowing from Mansarowar to Rakhas, three or four times in the last ten years ; and that in 1925 it was necessary to wade through it at Jiu. I satisfied myself, by the

aneroid, that there is a difference of some 50 feet in the altitude of the two lakes, Mansarowar being of course the higher. Heavy rain, which does sometimes occur in this region, might easily break down the little sandbar. Next day we crossed a channel about 20 yards broad, coming down from the hills to the north-east. It enters the first channel just west of Jiu, and undoubtedly carries water when the snow is melting or after heavy rain. The west wind was terrible at Jiu, coming up-channel rom Rakhas, and it lasted nearly all night.

The road, or rather series of tracks produced by the habit of yaks to advance across country in line, now turned off north-west, towards Barkha; and we entered a region, first of low sandhills covered with burtsa, and then of open plain, one of the great grazing-grounds of this area. At the northern edge of this plain rise suddenly the lower buttresses of Kailas. Barkha itself is by no means easy to find, as it lies under a bank, and is invisible till one is right on top of it. In any case there is not much to see, this headquarters of the Barkha Tarjum consisting of two mud houses and a courtyard. Here the post from Lhasa to Gartok changes, and the Government trader stacks his China tea, of which he will afterwards dispose by forced sales to the people, while he lays in merit by visits to Mansarowar or Kailas.

Whatever the defects of Barkha architecture, there are none in its views. To the north Kailas, alone and unrivalled, the perfect shiwala; to the south the gigantic ramparts of Gurla Mandhata; and far beyond them, yet visible in this clear atmosphere, the Himalaya. East and west stretches the illimitable grass plain, dotted with sheep and yaks, occasional black dots showing where the Dokpas and Nekarias are encamped.

Fortune smiled on us here; the Garpon was not expected for five or six days. Obviously, therefore, the moment was ripe for a pilgrimage round Kailas, and this began on July 21 with a march to Dorchan, where the " parikarma " route branches off to the west for the orthodox clockwise circuit of the mountain. Dorchan is a Bhotanese foundation, entirely free from Tibetan interference.

The place was full of interesting types: nomads from the north, one of them a smartly dressed youth armed with an old but well-kept Russian Army rifle, and accompanied by an equally smart wife whose fur toque was the admiration of us all; pilgrims from Kham on the Chinese frontier; big hulking Nekarias, soi-disant traders, but obviously of doubtful respectability; beggars of every description; and three devoted Hindus from the Central and United Provinces, recently robbed, and miserably cold and underfed, requiring assistance. One cheerful party of Tibetans was busily engaged in performing the parikarma, a distance of 28 miles, once a day for twelve consecutive days, thereby acquiring sufficient merit to last a lifetime. The altitude of Dorchan is about 15,200 feet.

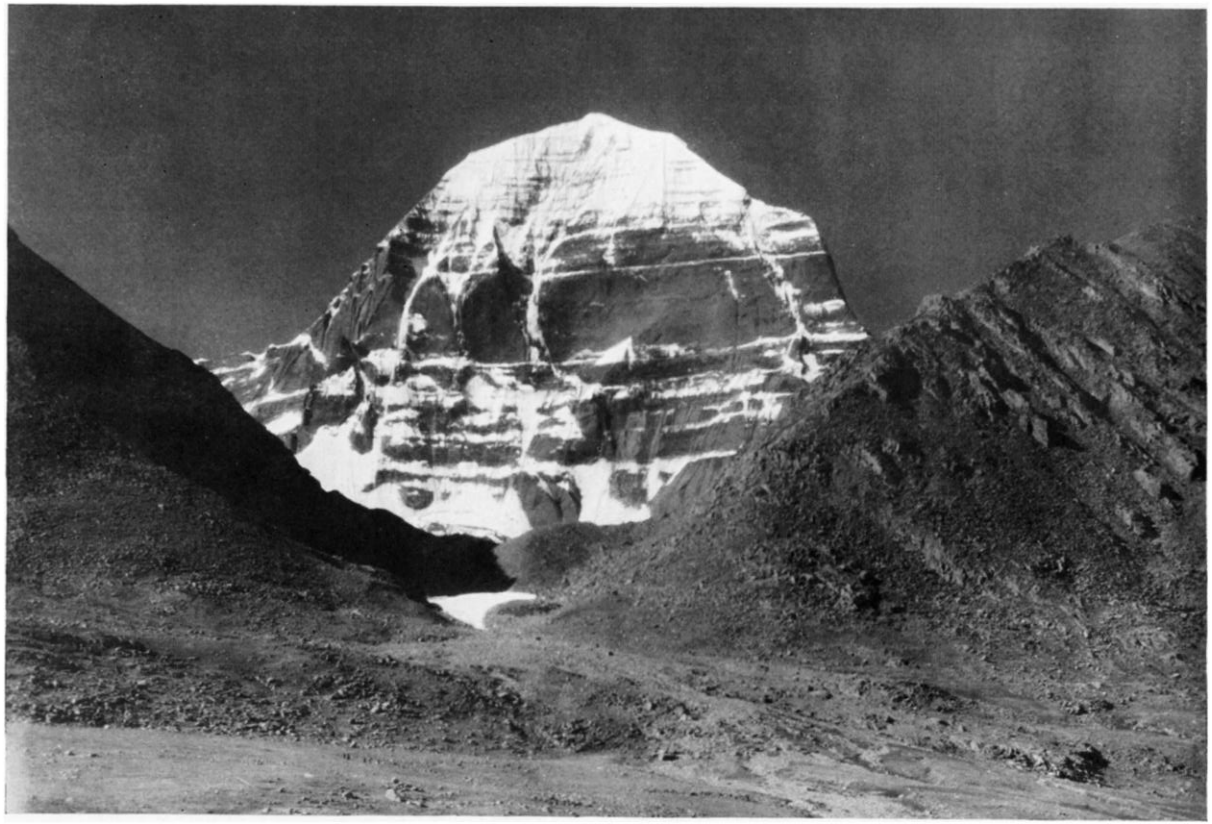
Leaving at 7 a.m. on July 22, our main party set off westwards along

the well-worn track, marked every few yards by manis and chortens which have to be passed on the left. Colonel Wilson and a Sherpa porter struck off up the nearest valley, bent on an exploration of the approaches to the mountain, while we continued westwards for about 3 miles, and then turned north to gain the western flank, up a gaunt and awe-inspiring valley, the true left side of which is formed by the terrific limestone precipices of Kailas. Some 3 miles up this valley lies the little Nandiphu monastery, with a staff of three men and one woman; and close by are a few caves in which hermits are walled up for prolonged meditation. It is a grim spot, but the staff were friendly and cheerful, and showed us their images and library with pride. The deputy chief, whose superior was away at Khojarnath, took particular pains to display one fierce-looking image, explaining that as police were few in the country it was necessary to guard against thieves by more ghostly means. This monastery also is a Bhotanese endowment.

Soon after leaving this place we were assailed by a storm of hail and sleet, but soon the white summit of Kailas was again visible through a cleft in the limestone curtain; one of the wildest rifts it has ever been my luck to see. The rocks on this side drop sheer into the valley for thousands of feet; gigantic slabs, showing almost no trace of weathering. Somehow or other, Colonel Wilson and his Sherpa companion found their way down faults in this face, and to our great relief rejoined us at Dindiphu monastery, on the north side of the mountain, in the evening. Theirs was a fine bit of mountaineering.

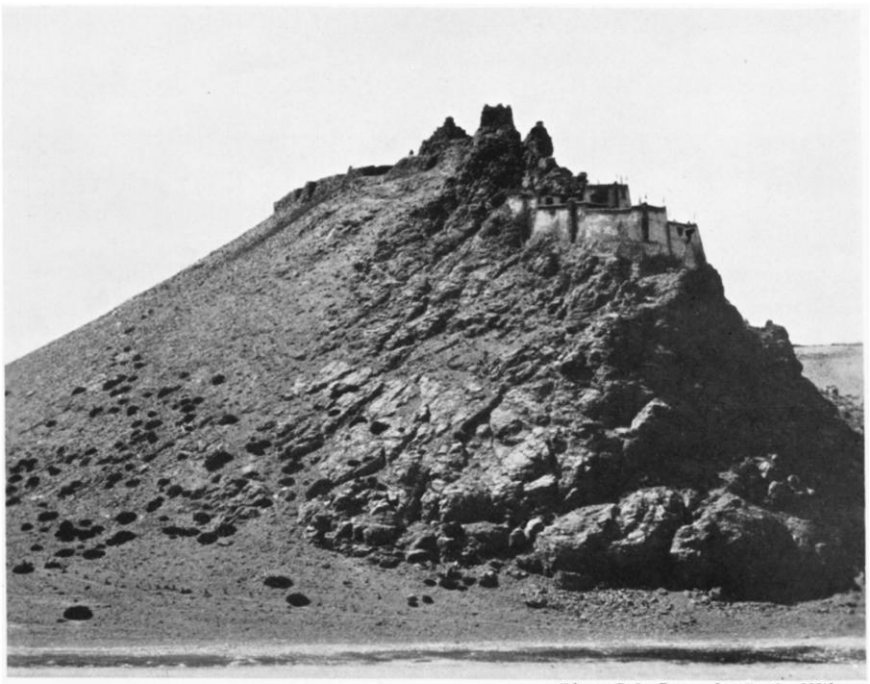
The little Dindiphu monastery is a Lhasa foundation; it lies in a desolate wind-swept valley, at a height of a little over 16,000 feet. To the north are the lower ridges of the Kailas range, some 18,000 feet high, mere rubbish heaps of loose limestone, with patches of snow in the gullies. Southward there is only one thing to see—the immense north face of Kailas, a precipice of about 6000 feet, utterly unclimbable. Near the summit (22,028 feet) there is some ice and snow, the whole crowned by a big cornice; but for the most part this face is of perpendicular limestone slabs, of a brown and chocolate colour, far too steep to hold snow, and entirely unbroken.

Next morning, July 23, broke fine, and we left at about 8.30 to climb the 2000 odd feet which lead up to the sacred "Gauri Khund," a frozen lake at the end of the long north-east ridge of Kailas. The Hindus went fasting, and felt the altitude a good deal, though the ascent is gradual and nowhere difficult. By 11.15 we were all at the Dolma pass (18,600 feet). Here is an enormous boulder, gay with flags and streamers, round which both Hindus and Bhotias went in solemn procession, murmuring prayers. I estimated the area of the lake to be, roughly, 7 acres; it was frozen over except at the sides, where the hot sun had melted it a little, and ceremonial bathing, mostly symbolic, was possible. Here I was surprised to see a solitary bee.



Phot. Mr. H. Ruttledge

North face of Kailas from Dindiphu



Phot. Col. Commdt. R. C. Wilson

Jiu Monastery

Phot. Col. Commdt. R. C. Wilson

The Darma Gorge from near Nangling

From this point the north-east ridge springs up steeply for 1000 feet or so, and then carries on at an easy angle for about 2 miles till it articulates with the north-eastern arête leading sharply to the summit. An ascent might be just possible by this route; but we made no attempt, as I was afraid of missing the Garpon, and also the weather did not look at all propitious. Before leaving, the Hindus and Bhotias enacted a pretty little ceremony: they insisted on sharing food with us, declaring that caste was in abeyance at this spot, and that this act would ensure our meeting in another life.

A steep descent, down execrable boulders and scree, led to a beautiful green valley watered by a river; a complete contrast to the savage grandeur of the western side. Unfortunately the clouds were now coming up fast, and we never got a view of the eastern side of the mountain; but the general impression was that from this direction the angles are less severe, and that an ascent from the south-eastern corner should offer the best prospects of success. For the most part the permanent snow-line appears to be at about 19,000 feet. By evening we were encamped at the Jumtilphu monastery, another Bhotan foundation; and from here could again see the great plain of the lakes. Enormous herds of sheep were coming down from the north-east on their way to Gyanima.

On the morning of July 24, after a visit to the monastery, six of us abandoned the regular track, of which 6 miles remained to Dorchan, and struck up a valley westwards, hoping to see something of the mountain from this side. After some hours' scrambling we reached a watershed at about 18,000 feet, but were again disappointed, for though everything was clear towards the lakes, Kailas itself was wreathed in cloud. So we descended upon the Kyangda monastery, under the south face, and here found about a dozen monks, led by a little man, who appeared not too pleased by our visit, but showed us the interior, with its beautiful lacquer and brass work, and well-kept images. In a corner was a monk reading a manuscript, marking each sentence by beating a drum at his side. There was a suit of chain armour, said to be a relic of Zorawar Singh's army.

Returning to Dorchan, we found that the new Garpon had arrived, but had inaugurated his *régime* by setting off for the parikarma. So we had to wait for his return, in bad weather; and met him on the 28th. The interview with him was both interesting and pleasant; he is of a good Lhasa family, and has charming manners and quick perceptions.

The journey from Dorchan to Gyanima, *viâ* Lajindak and Rinjinchu, needs little description. At Lajindak we appeared to be encamped by the first continuous water of the Sutlej, though I think that Rakhas Tal, about 6 miles away, may be considered to be the source, as between stretched a long chain of pools. The water of the Sutlej was brackish and unpleasant.

The name Gyanima is applied to two markets, 4 miles apart, the summer headquarters of the Johar and Darma Bhotias. It is a well-watered plain, shut in to the north by hills, and terribly exposed to the west and east winds. No houses are permitted here, and hail and sleet storms appear to be frequent. Here we met the British Trade Agent and the Tibetan Government trader—the Jung-Chun—a most amusing and sagacious person, fully alive to the iniquities of his traffic.

Three days were now devoted to official calls and diplomatic discussions, and on August 3 we said good-bye to our Tibetan and Bhotia friends, and started for the three days' march to the Kingribingri pass, *viâ* Guniyangti and Thajang. Here, as everywhere else on these plains, almost the only vegetation seen, apart from the occasional grass, was the cushion-like *Caragana pygmœa*, for which name I am indebted to my friend Rai Shiv Ram Kashyap Sahib, Professor of Botany at the Government College, Lahore, an indefatigable traveller who accompanied us all the way from the Lipu. Here also we saw many kyang, mostly very tame.

On the evening of August 5 we found ourselves held up by a little glacier river in spate, near Charchin at the foot of the Kingribingri; but by starting early next morning we were able to cross the icy water and accomplish the long march *viâ* the Kingribingri (18,300 feet), Jainti (18,500 feet), and Untadhura (17,700 feet) passes to Dung, near Milam. Near Charchin and on the top of the Kingribingri we found, for the first time, fossils in considerable quantities. They were mostly, I think, ammonites. The Rai Sahib had found one or two at Dorchan.

Colonel Wilson and my wife and I completed our return to civilization, accompanied by two Gurkhas and four Bhotias, *viâ* Martoli, the Lwanl Gadh and Traill's pass, last crossed in 1861 by Colonel Edmund Smyth. The pass has probably become more difficult since it was crossed in 1830 by Traill, owing to the retreat of the Pindari glacier, and is now only suitable for mountaineers.

Thus ended, at Almora, some 600 miles of enjoyable trekking, performed entirely on foot to the scandal of right-thinking Indians and Tibetans. Our little retinue appreciated, as much as we, the opportunity to visit Kailas, and for much of our pleasure we were indebted to the labours and companionship of Kunwar Kharag Singh Pal, a scion of the old Rajwar family of Askot, who in 1905 accompanied Dr. Longstaff and Mr. Sherring.

NOTE ON THE CHANNEL CONNECTING THE LAKES MANASAROWAR AND RAKAS

COL. COOMMDT. R. C. WILSON, D.S.O., M.C., I.A.

ACCORDING to the map "India and Adjacent Countries," Sheet No. 62, 1/1,000,000, the altitude of Manasarowar is 14,900 and of Rakas 14,850. The channel joining the northern extremities of the lakes is some 2 miles in length.

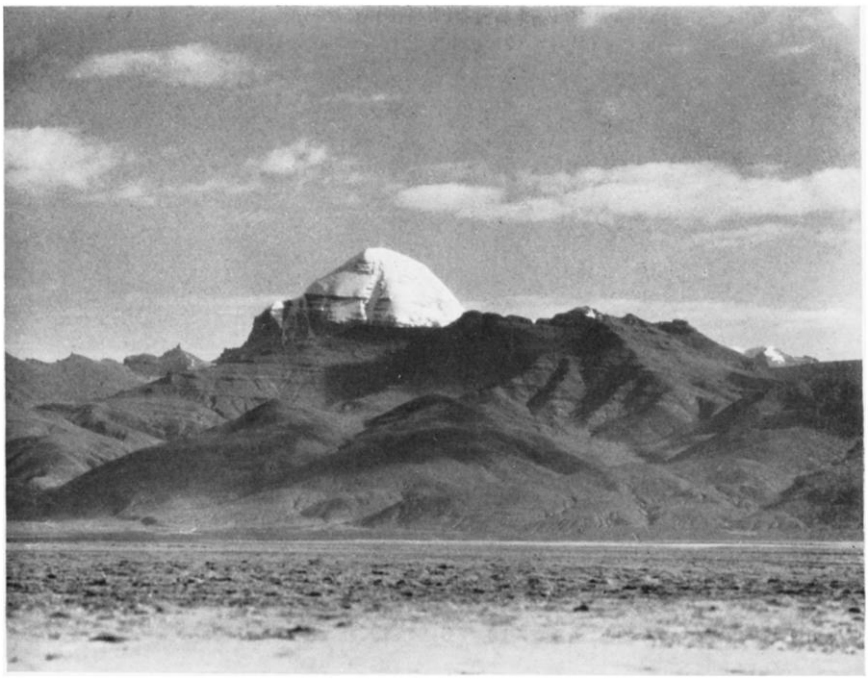
I arrived at Jiu monastery (at the manasarowar entrance of the channel) on 19 July 1926. At this time of year the snow which feeds the lakes should have been in process of melting, and a certain amount of rain, the "overs" from the Indian Monsoon, should have been falling. The two lakes should therefore have been full, and one would have imagined that, if water ever flows from Manasarowar to Rakas, it would have been doing so. At the time of my visit, however, the channel was dry except for an occasional pool, and the entrance to the channel from Manasarowar was blocked by a bar of sand and shingle. To judge by the lines of debris on the shore of Manasarowar, that lake was falling rather than rising.

Among the party with whom I was were several prominent Bhotia merchants who had often visited the district and knew it well. I inquired of them as to the channel; they all said that it was unusually dry and that they habitually crossed it at Jiu monastery and were accustomed to wading it, the water being halfway up their thighs. They accounted for its present dry state by the late spring (the snow was not yet melting at its full rate) and the exceptional dryness of the year. The plain, they said, should have been covered with grass and the sheep well fed, whereas the plain was bare and the sheep thin.

It seems to me that this evidence of the Bhotias is conclusive on the point that the channel is usually flowing during the summer months. To disbelieve their evidence is to assume that they make a habit of wading a stream which can be crossed dryshod, as we crossed it, within a couple of hundred yards.

There are indeed other ways of accounting for the pools of water we found in the channel. One is that the channel has feeders other than the Manasarowar Lake; and another is that the water arrives there by seepage from the lake, underground. Both these conditions probably obtain; but the feeder depressions exist on the north bank only; they are too insignificant to merit the name of streams, drain a comparatively small catchment area, and would carry water to the channel only immediately after a heavy storm. Seepage undoubtedly exists.

In 1846 Capt. Henry Strachey said that the channel connecting the two lakes was 100 feet wide, 3 feet deep, and was flowing rapidly from east to west. Maybe it would require an unusually wet year to reproduce these conditions to-day, but in a normal year the water does undoubtedly flow. In 1926, at the time of our visit a rise in level of perhaps a couple



Phot. Mr. H. Ruttledge

Kailas from Barkha

Phot. Col. Commdt. R. C. Wilson

Gurla Mandhata from Manasarowar lake

Phot. Mr. H. Ruttledge

Channel between Manasarowar and Rhakas from west side of Jiu

of feet would have been sufficient to have caused Manasarowar to break through the bar and fill the channel.

Another interesting point in the drainage of these parts is the destination of the three main streams (east, west, and centre) flowing south from Kailas Parbat. According to the lie of the country the water of these three streams, which are of considerable size, should flow into Rakas or into the channel of the Sutlej west of Rakas. Actually I could see no signs that any of this water reached the lake above ground. The streams break up into many channels after leaving the foothills, and, within a few miles, have disappeared. The water must find its way into the lake and into the Sutlej, but does so underground.

The first signs of water we found in the Sutlej was about Lajindak, where the river enters the hills; here there was a small trickle. The porous character of the soil can hardly have changed, and one must either assume that the channel of the Sutlej leading out of Rakas was cut by flood water in unusually wet years or else that the rainfall of this part of the country has decreased in recent times.

Note by Dr. T. G. Longstaff.

I camped at the Mansarowar end of the channel on 30 July 1905 and found conditions very similar to those described above. The late Pandit Gobaria of Garbyang said that he had seen water flowing in the channel, directly from Mansarowar, "many years ago." My companion, Mr. C. A. Sherring, I.C.S., secured a good panoram of the whole channel, which is on view in the upper corridor at Lowther Lodge: this is reproduced in Sherring's 'Western Tibet' (Arnold, 1906) on p. 271: on pp. 284–5 are some remarks on the Sutlej channel from Rakas Tal. Granted that progressive aridity is taking place, very little change could be expected in twenty years; but since Henry Strachey's visit the change is considerable. It is to be hoped that future travellers will copy Col. Commandant Wilson's example both in making and recording their observations at this test point

MOUNTAIN CLUBS FOR THE HIMALAYA

FROM time to time during the past forty years travellers and explorers have suggested that the foundation in India of a Society with objects akin to those of the Alpine Club would be likely to prove of invaluable aid to geographical and scientific exploration of the great ranges of Central Asia. But to those on the spot, to Anglo-Indians, there seemed many obvious and practical difficulties in the way of carrying out any such suggestions. Himalayan exploration, it was alleged, demands both more time and expense than the average Englishman in India can afford ; distances are great and transport is onerous ; guides and porters, in the Alpine sense of those terms, have to be created. And after these difficulties had been faced and overcome there remained always frontier barriers and official restrictions, liable to be strictly enforced by an unsympathetic Secretary of State.

Yet before the end of the War there had come a perceptible change in the atmosphere. The lapse of years had brought with it not only a series of important scientific expeditions by travellers or Survey Officers into the previously unexplored wastes of the Karakoram beyond Kashmir, but incursions by wandering sportsmen or Members of the Alpine Club into different regions of the Himalaya, in Kumaon, or Sikkim, or Gharwal. General Bruce had spent the best part of a lifetime in training his Gurkha soldiers and making them expert snow- and ice-men. Mountaineering was in the air, not only in official circles but in the highest quarter. Already, in 1905, Lord Curzon, during his Viceroyalty, had written to Mr. Freshfield asking for his services at home in securing the joint support of the Royal Geographical Society and the Alpine Club for an attack to be made on Mount Everest under official auspices. Thwarted at the time by the objections of the Nepalese Durbar and the strained condition of our relations with Tibet, it was not till 1921 that Lord Curzon was able to see his project put into execution. It was inevitable that the three years of dramatic conflict between Man and Mountain which ensued should be watched with the keenest interest by our countrymen in India, and that as a consequence its tragic end should have stirred their minds in the direction of some action commemorative of so heroic an adventure.

No form of memorial, we believe, could have been adopted more appropriate or more welcome—not only to the friends of all who took part in the late assaults on Mount Everest, but to all travellers and mountaineers—than that which has been chosen simultaneously at Delhi and Calcutta. It has taken the shape of the formation of Societies whose primary object is to be that defined in the Rules of the present Alpine Club—the promotion of mountain climbing and mountain exploration, and of a better knowledge of mountains through literature, science and art.

For the following particulars as to the two Indian bodies in question we are indebted to their respective Honorary Secretaries—Mr. Allsup and Major Kenneth Mason.

In order of date the first Club to be founded was that started at Calcutta, with the title of " The Mountain Club of India," under the Presidency of General Bruce. It already numbers some seventy members, mostly residents in Calcutta. General Bruce informs us that it owes its inception mainly to the energy of Mr. Allsup, who has taken infinite pains in its organization. In the Sikkim Himalaya it should find a readily accessible field for exploration. There its members may see to the opening and improvement of paths to the glaciers, fill in the gaps in Prof. Garwood's map, and emulate the feats accomplished by the late Dr. Kellas with no aid but that of native guides and porters.

If it can succeed in establishing a substantial refuge near the head of the Zemu glacier, the long eastern spur of Kangchenjunga and the base of Siniolchum might be fully investigated.

Unconscious of the movement at Calcutta, steps were being taken about the same time in influential quarters at the seat of the Government at New Delhi to start a Himalayan Club which should have all the advantages of official and departmental support and sympathy, and might through its branches and its relations to the Survey hope in time to cover the whole of Northern India. The Commander-in-Chief, the Governor of the Punjab, and the Surveyor-General were amongst those who supported the project and agreed to become Founder Members. In this state of affairs the active promoters of the Delhi Himalayan Club, Sir Geoffrey Corbett and Major Kenneth Mason, met and engaged in friendly conversation with the Secretary of the Calcutta Club. They agreed that there was plenty of room for both bodies, and that while the Calcutta Club was not in a position to deal adequately with the Himalaya as a whole its independent existence would, at any rate for the present, be an advantage to the common end in view.

The next formal step to be taken was the issue at Delhi on December 20 last of a circular letter signed by Sir G. Corbett and Major Kenneth Mason proposing that a Himalayan Club should be formed " with the object of assisting Himalayan travel and increasing our knowledge of the Himalaya in all its aspects, and with a scope not less wide than that of the Alpine Club." The promoters pointed out that, " apart from the assistance that such a Club would give to its own members, it might be of great value to the Survey of India, to the Geological Survey and other scientific departments, and also from the point of view of military intelligence and training in mountain warfare," adding that they had been informally assured of the interest of the Departments of Government principally concerned. The headquarters of the Club it was proposed should be at Simla. In conclusion they referred to the formation of the Mountain Club of Calcutta and expressed a cordial

hope that the two kindred bodies might cooperate, if not coalesce, in the future.

The circular above quoted was followed on February 17 last by an Inaugural Meeting of the Himalayan Club held at Delhi, at which the Chairman, Field-Marshal Sir William Birdwood, was nominated the first President of the Club. The following officers were elected: Vice-Presidents, Major-General K. Wigram and Colonel Commandant E. A. Tandy. Sir G. Corbett was appointed Honorary Secretary, and Major K. Mason Honorary Editor. Local secretaries were appointed for Kashmir and Kumaon, and correspondents for Lahore, Razmak and Peshawar.

Sir F. Younghusband and Mr. D. Freshfield were invited to become Founder Members. Mr. Freshfield has also accepted the Honorary Membership of the Calcutta Club.

The Club was assured of the sympathy of the Viceroy and the support of the Heads of the various Departments. Starting under such favourable auspices we may feel confident that the newly formed Clubs will prove equal to their task and do much to add to our knowledge of the greatest mountains in the world. D. W. F.

THE LIFE OF GEORGE NATHANIEL, MARQUESS CURZON OF KEDLESTON. By THE EARL OF RONALDSHAY. Volume I. *London: Ernest Benn, Ltd.* 1928. 10×6 *inches;* 318 *pages, and illustrations.* 21*s*

In this first volume of the life of Lord Curzon is included an account of the numerous journeys he took as a preparation for his main career. The volume also contains a picture of him as a man. It is therefore, probably more than the volumes to follow, the one in which this Society would be most interested.

Though handicapped from his youth by a severe physical disability—curvature of the spine—Lord Curzon was an inveterate traveller. He covered no actually new ground. But in spite of the pain he must have suffered, he rode long distances in Persia, Central Asia, on the Indian Frontier, and in Afghanistan. And what was chiefly remarkable in his travels was the assiduity with which he worked up his subject beforehand and the irresistible manner in which he overcame those human obstacles which stood in the way of his access to the territories he had set his heart on visiting.

Once he had made up his mind to visit a certain country he would, here in London, read every available book and report about it and make the fullest use of the knowledge already gathered by previous travellers. Then he would have to persuade the authorities concerned to let him visit the region selected. The regions he selected were usually territories involved in some burning political question of the day, and permission to visit them was not easy to obtain. The Government of India, for example, had after deliberation in Council officially informed him that they could not grant him permission to travel to the Pamirs and Afghanistan. But a personal visit to Simla removed that particular obstacle and he made his journey to Hunza, the Pamirs, Chitral, and then to Afghanistan.

No less remarkable than his assiduity in preparing for a journey was his diligence in carrying it out. He was indefatigable in his inquiries and pertinacious—to the point of exasperation—in his arguments about policy with the local officials. But the result was a book full of information and recommending a policy the grounds for which were argued out with great cogency.

This much was perhaps known before. What we are now indebted to Lord Ronaldshay for is bringing out a side of Lord Curzon's character which had not been so well realized. He had undoubtedly a "superior" manner which caused much offence. But he had also this other side which was not so apparent to the public and which it is well should be known. He was, Lord Ronaldshay shows, a genial companion and a staunch friend. He was like a boy in his enthusiasm. Curiously enough he was very sensitive to criticism, and what is most remarkable, he had his moments of humility. Lord Curzon himself has put on record that he was never in the society of able men without recognizing their intellectual superiority.

In the field of geography this trait of humility was certainly evident. He was fond enough of travel and had travelled sufficiently to know what exploration meant. And for explorers he had an admiration in which not the slightest taint of his traditional superiority was to be traced.

For bringing out this side of one of our Presidents this Society owes much gratitude to Lord Ronaldshay.

Lord Curzon's pluck in the face of such severe physical disability as he suffered from throughout his life is too obvious to need emphasis.

FRANCIS YOUNGHUSBAND

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SOME VALLEYS AND GLACIERS IN HUNZA: *A paper read at the Evening Meeting of the Society on 23 January 1928 by*

CAPTAIN C. J. MORRIS
3RD Q.A.O. GURKHA RIFLES

DURING the summer of 1923 I was climbing in Switzerland with Mr. Henry F. Montagnier, a Fellow of our Society, and a prominent member of the Alpine Club. Sitting on the balcony of his chalet one evening, Mr. Montagnier expressed a desire to undertake another journey to the Himalaya—he had already been there some twenty years ago—and asked me if I would accompany him, provided the necessary leave and permits could be obtained. At that time we had an idea, only roughly formulated, of going up to Kashgar by the ordinary Leh route, and returning to India *via* Hunza and Gilgit; but without having arranged anything definite I returned to India in the autumn of that year.

I was in Kashmir during the summer of 1926, and whilst passing through Srinagar, took the opportunity of calling upon Sir Aurel Stein in order to discuss with him our proposed journey. Sir Aurel was most helpful and gave me much useful information about travel in Central Asia. He did not anticipate that we should meet with any particular difficulty, but suggested that the journey proposed was a little dull in view of the fact that we should not leave a perfectly well-known high-road. In the meantime however both Mr. Montagnier and I had sent in our official applications to travel to Kashgar in 1927, and in view of the fact that constant references between the various Government Departments, as well as to China, were necessary, we thought it best to keep to our original plan.

Mr. Montagnier arrived in India towards the end of March and we travelled up to Srinagar together, arriving at that place on the 20th. I had already received permission to travel in Chinese Turkestan, but a few days later my companion found that he could not obtain the necessary passports, though he was accorded permission to travel anywhere in Hunza and the neighbouring British territory. This necessitated a change of plans, and we were a little undecided as to what to do. Fortunately Sir Aurel Stein was again in Srinagar, and at his suggestion we resolved

to travel direct to Hunza as soon as the passes were open, thence to establish a base in the vicinity of the Shingshal pass, or possibly beyond it, and from that place to work forward and try to explore the unknown country between the farthest point east in the main Shaksgam valley reached by Sir Francis Younghusband in 1889, and the most westerly point reached by Major Mason's Shaksgam Expedition in 1926, and thus fill in the small but doubtless highly interesting blank patch on the map. This was not to be, however, for reasons which will be explained later; but I have included in this paper some hints and suggestions which I hope may be of use to some future party intending to explore this region.

We were disappointed at having to make this last-minute alteration to our plans, but the thought of travelling in quite unknown territory compensated us for a great deal. I had long wished to see Hunza and its people; but the journey to Hunza is long and costly, rather beyond the means of the average soldier in India, and it was only due to the kindness and hospitality of Mr. Montagnier, who paid the entire expenses of our expedition, that I was at last enabled to visit this most fascinating country.

We left Srinagar on 12 May 1927 by boat, arriving at Bandipur, on the far side of the Woolar lake, two days later in heavy rain. Here we received news that heavy snow had fallen on the Tragbal, thus delaying our start for a day. Profiting by the experience of the Vissers in 1925, I had decided to employ only porters until we reached the Astor valley, and this arrangement enabled us to go steadily forward without a check. On the night of the 21st we crossed the Burzil pass, heavily coated in snow but in good condition, and with the pass behind us the onward journey was monotonously free from incident. Arrived at Gilgit on May 31 we found that the Political Agent, Major Loch, had made all arrangements for our onward journey, and had also asked the Mir of Hunza to provide us with a corps of specially selected men who would carry our loads when once we left the main valley.

There is still some exploration to be done in Hunza territory, for this reason, that through the main valley of Hunza runs the easiest route to Central Asia, the goal of most travellers that way. Many have passed, but few have thought it worth while to stop and explore. Sir Francis Younghusband was, of course, the pioneer. After him came General Sir George K. Cockerill, who also covered much new ground, and many years later called the attention of Fellows of our Society to the fact that there was still a large unexplored area in this comparatively accessible part of Asia (*G.J.* 60, 2, August 1922). In 1925 the Visser Expedition performed a prodigious amount of work and cleared up the majority of the remaining problems. The story of that expedition is familiar from the recent account in the *Journal* (68, 6, December 1926) and from the charming book written later by Madame Visser ('Among the Karakoram Glaciers,' Visser-Hooft, Arnold 1926).

The main Hunza valley is, of course, well known and has been often

described. It is, however, so impressive and leaves such different impressions on different people that I feel it will not be out of place to describe my own briefly here.

Crossing the river at Gilgit one soon turns north into the Hunza valley. For the first march or so the scenery is not particularly striking, being monotonously barren and rocky, only relieved here and there by patches of cultivation round the infrequent villages. Leaving the little hamlet of Chalt we passed through a series of well-cultivated and prosperous-looking villages, of which the most interesting is undoubtedly Nilt. The fort, of which but little now remains, is on the top of a steep precipice. By climbing above this place under heavy fire, and so gaining command of the fort, the late Colonel (then Lieutenant) Manners-Smith gained the Victoria Cross in the little Hunza campaign of 1891, so admirably described by Knight in his 'Where Three Empires Meet.' Looking up the valley behind Nilt there is a truly wonderful but very foreshortened view of Rakaposhi at close quarters; all the more wonderful from the fact that one suddenly turns a corner and there right before one is this enormous mass of snow and ice.

A few miles higher up the valley closes in somewhat, and at Tashot, where the river is spanned by a modern suspension bridge, we crossed into Hunza territory. The gorge here is very narrow and precipitous, Rakaposhi rising majestically above everything. The valley soon opens out again, and there are many fruit trees and crops in plenty. The path was gay with wild roses and lined with aromatic trees, which gave off a perfume strangely reminiscent of orange blossom. The journey from here on to Baltit was a sheer delight, for every turn in the road brought fresh glimpses, either of Rakaposhi or of the wonderful mountain behind Baltit, Boyo Shubran, of which Boboli Moting, or the "Finger Peak," is the most prominent feature.

A little below Baltit is the village of Aliabad, some 7000 feet above sea-level, and from this place one obtains what I would venture to call one of the finest mountain views in the world, certainly one of the most magnificent in the whole Himalaya. The height of Rakaposhi has been computed at 25,550 feet; Aliabad has an uninterrupted view of some 17,000 or 18,000 feet of snow and ice. As we passed there was hardly a cloud in the sky, and the wonderful array of hanging glaciers and precipitous ice-cliffs gleaming in the brilliant sunlight and rising vertically above the emerald fields of the village was a sight never to be forgotten.

We were now joined by our surveyor, Torabaz Khan, and his servant, whose services had kindly been lent by the Surveyor-General in India. Torabaz had been unable to join us before we left Srinagar and had now reached us by arduous double marches, of which he did not in the least complain.

The Mir had sent ponies to meet us at Aliabad, and the short journey up to Baltit was accomplished with speed and comfort. His picturesque

capital is built round the sides of a rocky knoll, on the top of which stands the ancient castle of the Mirs, dominating the whole valley. The wonderful impression of impregnability and aloofness which the scene leaves upon the mind is heightened by the terrific snow-capped crags which appear to rise almost sheer behind the village. The castle is approached through a veritable rabbit warren of alleys and byways, and one eventually gains access to the principal building by a rickety staircase, its wooden hand-rail smoothed and polished by the rubbing of countless hands. Here are stored all the Mir's treasures: presentation swords, gimcrack clocks, a set of Russian china crudely coloured; on the floor a modern Bokharan carpet; on the walls a varied assortment of pictures, photographs of former Political Officers, oil paintings, and a portrait of a late Archduke of Austria, cheek-by-jowl with a highly coloured advertisement of a well-known patent food. But turn for a moment to the window and here is a panorama which almost defies description. Immediately below are the roofs of the surrounding houses, each with a large square hole in it, the sole means of ventilation in Hunza houses. Behind stretches mile after mile of cultivated land, emerald green just now with the fresh young shoots of the wheat. The village of Aliabad is just visible in the far distance, and Rakaposhi towers over all. Here of old the Mirs of Hunza held their Courts, and the people from the street below did homage to their ruler as he showed himself at the castle window.

The people of Hunza do not know Rakaposhi by that name, but as Dumani, the " Mother of the Clouds." I believe that in early days an officer was touring in the district of Bagrot on the other side of the mountain, and there was given the name Rakaposhi.

We spent some days in Baltit, as beyond that place supplies are not obtainable, and it was necessary to make careful arrangements with the Mir, who agreed to forward our various necessities at stated intervals. During our stay the Mir entertained us to dinner one night with a musical entertainment. First one of the court musicians sang old Persian songs to his own accompaniment on the *Rabab*, a many-stringed instrument not unlike a lute. The one on which he played was said to have been brought from Kabul more than a hundred years ago. Later on the dining-table was removed, we seated ourselves round the walls, and the Mir's orchestra, salaaming as they entered, grouped themselves on the floor. There were five performers: two Saronais (sometimes replaced by two flutes), two tenor drums played with the flat of the hand, and two little drums like miniature tympani, giving different notes and played with slender sticks. I was interested to observe that these last were occasionally tuned by holding them in front of the fire to make the parchment contract. The percussion instruments were out of all proportion to the rest, and whatever melody there may have been was completely drowned by the beating of the drums.

The Malangutti glacier and Dasto Ghil

Looking down the Zardigarban towards Yazghil and Kanjut

I explained our intentions very fully to the Mir, but he himself, although perfectly willing to let us proceed, expressed grave doubt as to the advisability of exploring towards the Shaksgam at this time of the year. In the late spring, usually early in June, the snow on the great mountain ranges of Hunza starts to melt; the main river and all the streams in the numerous side valleys rise quickly and remain unfordable until the approach of the cold weather stops further melting and the rivers fall to their normal winter level. The side streams of Hunza are, for the most part, unbridged, and as the cliffs and crags with which the country abounds are difficult and often impassable, one has frequently to wade a stream fifteen or twenty times in a march. Neglect to consider this most important matter may land one in serious difficulties, for one might enter a valley just before the melting of the snow and find oneself unable to get out again for several months. This has been well brought out by Madame Visser in her book, and I stress it here as it is the principal factor on which successful exploration in Hunza depends.

We left Baltit on June 11, intending to cross into the Shingshal as early as possible. The normal method of getting into that valley is to wade the Hunza river at Pasu and proceed straight up the Shingshal gorge to Dikut, fording the river several times on the way. The snow water had already started to come down when we reached Pasu, and, while we ourselves could doubtless have got up the gorge, it would have been quite impossible to get the laden porters across the now swollen stream. When once the river has closed the gorge there is little intercourse between the peoples of Shingshal and Hunza, but it is still possible to reach the valley by crossing the arduous Karun Pir, a pass 15,932 feet above sea, and by this route we had perforce to proceed.

We camped about four hours' march below the summit. It was bitterly cold and a little snow fell during the night. Leaving early the following morning, we had a steep climb over deep snow, but the cold mountain air was delightfully refreshing after the heat of the valley below. A little before reaching the top of the pass there is a fine view to the left up the Karun glacier, at whose head is a fine peak, Karun Koh (Point 22891), but from this point not very impressive.

A strong wind was blowing when we reached the summit, and soft powdery snow was being whirled in all directions, giving the impression that steam was rising from the ridges. The Shingshal side of the pass was, most unfortunately, deep in cloud, and there was little to be seen of the magnificent array of snowy peaks which must be visible from here on a clear day. We could however look across to the gorge at Pasu, and could also see the Momhil and Lupghar Yaz glaciers, pushing their rather unattractive and dirt-covered snouts into the valley below. It was bitterly cold on top, and we stayed only long enough to take a few photographs. I hurried on, hoping to find some sort of path as soon as we got below the snow-line, but was disappointed to find none. On the

Shingshal side the whole mountain side is composed of enormous shale slopes, lying at such an angle that they are only just stationary, and one gets down as best one can. We seemed to be traversing these shale slopes for hours, and tired out, reached our camp at Dikut, a small level but uninhabited spot at the junction of the Shingshal and Lupghar Yaz streams, towards the evening.

Above Dikut the Shingshal is impassable for a few miles, as great frowning cliffs and shale slopes thousands of feet high come right down to the very water's edge, and one proceeds, even in mid-winter, when the water is at its lowest, across the Momhil stream and thence over the Unmusar spur. The bridge across the Momhil is quite a test of nerves, for, high above the river, it has no hand-rail and is approached by a narrow path which is little more than a ledge cut in the steep rock face. From here on the road presents no difficulties, but there is an extremely trying climb to the top of the Unmusar spur, whence one looks down to the Shingshal river, thousands of feet below, and away in the background is the range on which is the Karun Pir.

The whole of this region must be one of the most desolate in the world. There is not a sign of vegetation, and a solitary eagle and a few choughs were the only birds. Everything here is grim and desolate, and the general effect of the scenery is depressing in the extreme. There is no colour; only huge rock precipices and great shale slopes, rising up above one as far as the eye can see. Even the glaciers with which this country abounds are dirty and covered with débris, and the giants of the Karakoram, but for which the country could only be described as hideous, seem to lift their heads above this scene of desolation almost in disdain. The valleys themselves are on such a gigantic scale that one does not at first realize to what enormous heights the surrounding snow-peaks rise, and it is only after careful inspection that the huge hanging glaciers and ice-falls on the mountain sides are recognized and proclaim these peaks to be of the first magnitude. In this district one looks in vain for signs of former glaciation, for the friable nature of the shaly hillsides has long since obliterated any traces.

The remainder of the Shingshal valley does not differ from the scenery I have already described. One can hardly call it a pleasant country in which to travel, for there are no paths as we know them, and the day's march consists in traversing endless stony slopes, alternated with occasional scrambles amongst the boulders in the river-bed.

Before reaching Shingshal we camped one night on the edge of the Malangutti glacier. It was a relief to find a spring of clear fresh water and a few stunted willows here. The Malangutti differs from the other glaciers in this region in that it is snowy white and free from débris, but we noticed upon it a few erratic blocks of granite. At present the glacier —which was fully explored by the Vissers in 1925 and found to be 18 miles in length—runs right down to the Shingshal, but it exhibits signs

of retreat. At its head is a very steep ice-fall, and, rising behind, the beautiful peak of Dasto Ghil. In common with the Vissers, I found that General Cockerill's name for this mountain, Malungi Yaz, was unknown to the local people, who speak only of Dasto Ghil, or " The sheep-fold," as it means in the local language. The passage of the glacier presented no difficulty, and I was much amused when our porters removed their foot gear, preferring to cross the ice barefoot.

We arranged to spend several days in Shingshal, as this now appeared to be the most suitable spot in which to establish a base upon which we could draw for our further supplies. While here I managed to collect a great deal of information concerning the manners and customs of the Shingshalis, which differ considerably from those of Hunza.

We had arranged all the details for the onward journey to Shaksgam, and there appeared to be no reason why our labours should not be brought to a successful conclusion. Montagnier and I were sitting out under the trees discussing the various problems which might call for solution when a messenger suddenly arrived from Hunza with an urgent telegram, and we were greatly surprised and disappointed to learn that it ordered us on no account to proceed beyond the Shingshal Pass. I cannot, for obvious reasons, discuss the causes which led to our being stopped, and at the time the important thing was for us to decide what we were going to do. It appeared that the only other piece of unexplored country in this part of the world was the Ghujerab valley, and this had been found impassable by the Vissers. It did not seem very hopeful, but we eventually decided to try the Ghujerab as, even if defeated, we could always return the way we had come.

There is no bridge at Shingshal, but the villagers erected one for us. Stout poles were planted on both sides of the river, and between them a thick rope of plaited yak's hair was stretched. Over this was placed a wooden runner, or inverted U-shaped piece of wood, and, trussed up like fowls, we were hauled across, the first man swimming across with the draw rope. The passage of a river in this fashion is more sensational to the onlooker than to the performer, and in actual fact far less terrifying than crossing by means of a birch-twig bridge. In the former case one simply holds tight and is pulled across, the rope breaking or not as the case may be ; while in the latter one has to climb across the horrible swaying erection by one's unaided efforts—a much more difficult proceeding. The passage of ourselves, porters, and kit occupied the best part of a day, and we camped but a short distance away, at the entrance to the Zardigarban valley.

The Zardigarban valley is narrow and very steep. At its head is a little plateau, known as the Zardigarban Pamir, one of the Shingshal grazing grounds. Away to the right was the pass of the same name, across which runs the path, which we should otherwise have taken, leading to the Shingshal Pass and on to the Shaksgam. The Zardigarban here turns

sharply to the left, and it was up this valley that our route now lay. We were surprised to find that the valley was about a quarter of a mile wide. It had a stony and boulder-strewn bed, but was practically devoid of water, in spite of the presence of large ice-fields at its head. During the passage of this valley the path ascends an enormous moraine, the glacier of which must have, at some former period, entirely blocked the valley. From the top of this we obtained a view up the Shekhdalga valley, in which is a small glacier of no particular interest. We descended from the moraine, crossed the Shekhdalga, and proceeded on up the Zardigarban once more. A small torrent was now visible, passable anywhere. The sun was shining brilliantly and the radiation from the boulders in the river-bed became extremely trying. Although we were now well above 15,000 feet I have never experienced the effects of lassitude so much, nor felt such an overwhelming desire to sleep. Nor was I alone in this feeling, for I noticed that it was only with real effort that the party covered the remaining mile or so to our camping-place at Jachfarbask. Here I saw two white-capped redstarts and a solitary chough, the only signs of bird-life all day.

The camp at Jachfarbask was pitched just below the snout of the Boesam glacier, from which small showers of stones were continually falling. We spent two nights in this place, and the temperature never once rose above the freezing-point. The first evening was beautifully clear, with hardly a cloud in the sky, and looking down the valley we had a magnificent view of Yazghil, with one of the Kanjut peaks towering behind. Just before darkness finally descended upon us I saw, silhouetted against the sky-line, a large herd of burhel, but they soon scented us and quickly disappeared with a clatter of falling stones.

It was my idea, whilst at Jachfarbask, to ascend one of the higher ridges in the hope of being able to look down into the Ghujerab and fix some points for our map. With this object in view Torabaz and I, taking only sufficient porters to carry the planetables and cameras, set off to climb a high ridge at the extremity of a long line of fantastic aiguilles, to the west of camp. We toiled laboriously over rocks and shale for the first two hours, and then came to a steep snow-filled gully. From a preliminary study of this place by field glasses I had made up my mind that this was the best means of approaching the ridge, but on closer inspection I considered the snow to be too soft and steep for safety, and we therefore crossed to a ridge of rocks, hoping to gain the col by this means. We were some three hours on the rocks, which were glazed with ice in places. It now commenced to snow and the wind was bitterly cold. After reaching the top of the rocks, not without difficulty, we found ourselves faced with another snow-slope, far more dangerous than the first, on the top of which was a cornice of from 15 to 20 feet thick. This alone would have been sufficient to stop us gaining the ridge, and there was nothing left therefore but to retrace our steps. On the way down it ceased to snow, and the sun came out and dispelled the clouds, which had been gathering all

the morning, for a few minutes. The panorama which now unfolded itself made the day's efforts worth while, for we were about 18,000 feet above sea-level and well above the immediately surrounding country. Away to the south-east a magnificent vista of snowy peaks, which must have comprised most of the giants of the Karakoram, came gradually into view. First Yazghil made its appearance, soon to be dwarfed by the two Kanjut peaks, and others still bigger but many miles away. The whole horizon was one vast world of ice and snow, with glaciers coming down in all directions. I was almost glad when the clouds closed over this scene of wonder, for it would have been hard indeed to turn one's back on such a sight.

From our camp at Jachfarbask to the top of the Boesam Pir Pass took just about two hours. The going was easy but rather dangerous in one place where the path runs beneath a line of large rocks precariously balanced on the top of a small wall of ice. The height of the pass by hypsometer is 15,700. The main Boesam glacier (which flows down the Zardigarban valley) is formed by two small and very steep glaciers which flow from the peaks a little to the west, and unite just beneath the summit of the pass. To the north-east is a large snow-filled basin, formed by two large moraines, in the centre of which is a small glacial lake which was completely frozen over when we passed. We continued down the valley, which is here called the Drui valley (from the fact that it has a lake at its head, *Drui* meaning lake in the Wakhi language), and soon mounted on to a huge moraine, which completely fills the valley for a distance of several miles. Several small glaciers flow down from the lateral valleys, but so torn and tumbled is the whole place, it is almost impossible to trace the course of these glaciers once they push their way into the main valley. On the eastern side of the valley was another small range of fine snow-covered peaks, from which three more small glaciers descended. We now came to the snout of the moraine, and were surprised to note that the river issuing from it was only a few inches deep and fordable anywhere. Some of our porters had passed this spot with the Visser party, and told me that it was only with great difficulty that the party was able to cross this river at all. I must point out that we had now had a succession of cloudy days ever since leaving the Shingshal, which meant that the melting of the snow was held up for the time being. The Shingshal men who were guiding us thought that with a continuance of this weather we should be able to get right down the Ghujerab without undue difficulty.

We camped on a small pamir known as Shakshagin, and here I noted *Primula Stuartii* for the first time. Opposite the camp was a small but very steep glacier which did not quite reach the main valley. The lower Drui shows signs of having been filled with small glaciers at one time, which flowed from the many lateral valleys, the old moraines of which tend to divide the valley into a series of terraces, one above the other,

and between which are now small grassy plateaus, known locally as Pamirs. These pamirs are used by the people of Shingshal as grazing grounds for yaks and sheep. The Shingshalis also graze their flocks as far down the Ghujerab as they can get, but they never enter the Khunjerab, which is grazed only by the people of Gircha and Misgar.

The Drui joins the Ghujerab at Mandi Kushlak, a small collection of stone huts which were however unoccupied at the time. Here we were greatly surprised to find ourselves in a broad stony valley at least three-quarters of a mile wide. To the east we could see the two streams, the Ghidims and the Mai Dur, which uniting form the Ghujerab. At the heads of these two valleys are snowy peaks, which form the watershed between the Hunza and Oprang valleys. Although there are no known passes into the Oprang it seemed to us, from a careful study of the country, that several ways might possibly be found, but this would require the assistance of trained guides, as, although the ridges are not particularly high, a great deal of step cutting would be necessary. We were glad to note that in spite of the enormous ice-fields at the head of the valley the Ghujerab at present consisted of a trifling stream, only a few feet wide, across which one could jump almost anywhere.

A little way down the Ghujerab we mounted on to an enormous moraine, from the top of which we got our first view right down the valley. It looked uninviting ; the same bare brown hills, with an occasional snowy peak on either side, and the usual hideous slopes of shale, in colour a monotonous brown. The most conspicuous point in the landscape was Point 21270, a snowy peak just beyond the Chapchingal valley, through which the Vissers entered the Ghujerab. They found themselves unable to get down the Ghujerab, but from the Chapchingal crossed into the Shingshal valley by the route I have just described, but in the reverse direction.

Some few miles down the Ghujerab is joined by another valley to which we gave the name Dih, as this is the name of the little encampment at the junction. Situated at a height of 12,350 feet it is the headquarters of Sadiq, our guide, when he is in the Ghujerab grazing his flocks. He had cultivated the ground round about his little hut and grew enough wheat to support himself and his family during their stay in the valley. Sadiq, who was the only member of our party who knew the lower Ghujerab, was one of the most intrepid and careful cragsmen I have ever seen. Before taking us over a difficult place he would invariably implore us to remove our climbing boots, as he considered them a terrible handicap, which, from the point of view of a Hunza man, who depends almost entirely on balance, they undoubtedly are.

We explored the Dih valley on the day of our arrival and decided to ascend a small peak on the opposite side of the river the following day, in order to fix more points. We left camp at five in the morning, waded through the ice-cold river, and were on the top of our peak by eleven.

There was hardly a cloud in the sky, and we had a fine view of the group of mountains to the south of the Ghujerab, of which Karun Koh was the most prominent on account of its nearness. A little to the west the junction of the Spe Syngo and Ghujerab rivers was visible, and it was at once apparent that if we could force a way up the former we should be rewarded with a magnificent view of Karun Koh at close quarters.

The following day we had the camp moved only a few miles down the valley, and while this was being done Torabaz and I set out to explore up the Spe Syngo. The lower part of this valley is very narrow and precipitous, and but for the fact that there were a large number of enormous boulders in the river-bed, some of them 20 to 30 feet high, which made it possible to cross the torrent here and there, it would have been very difficult to get up the valley at all, as the alternative would have been to traverse a number of difficult rock faces. Even as it was this procedure could not be altogether avoided, and at such times progress became very slow and tedious. About 4 miles from the junction the valley forks, the glacier of Point 20147 coming down the eastern branch, and that of Karun Koh down the western. Near the junction was a small grassy plateau and the remains of a rough stone hut. This place, known as Spe Syngo Wa Dast, is used as a grazing ground in the early spring, when the river has practically no water in it and the passage of the valley presents no difficulty for either man or beast.

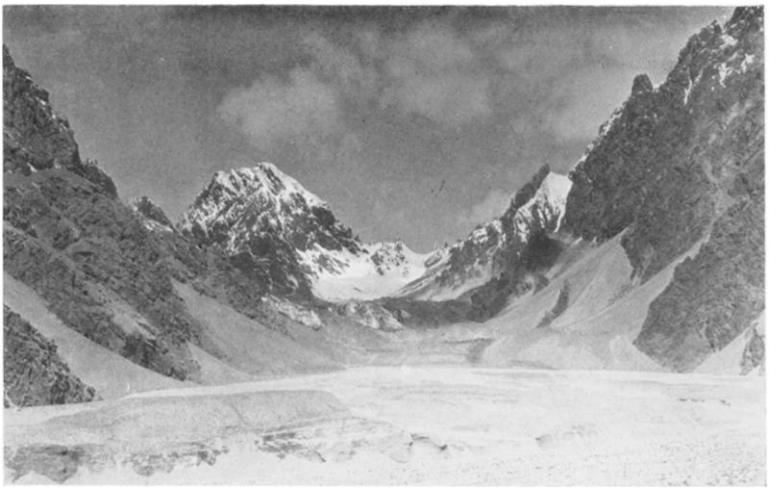
One would expect to find, in a valley like the Spe Syngo, traces of glaciation, but there has been so much erosion and the shale slopes are now so huge that any traces have long ago disappeared. For the same reasons it is not now possible to say with certainty whether the valley is U- or V-shaped, but I imagine that this, and in fact all the valleys in this part of the world, must at one time have been filled with ice. So far as we were able to judge, much the greater part of the enormous mass of snow accumulating on the mountains evaporates and does not, as might be expected, melt into the rivers.

We examined the eastern branch of the Spe Syngo first. The glacier is fairly level, uncrevassed, and shows signs of rapid advance. The principal peak at its head, Point 20147, is remarkable chiefly for the enormous number of hanging glaciers on its south-west face. Huge masses of ice thousands of tons in weight, they look as though the least puff of wind would bring them crashing down on to the glacier below. We retraced our steps and prepared to examine the western, and greater, branch of the valley. Just above the junction the valley takes a sharp turn to the west, and consequently Karun Koh, which is situated at its head, is not visible until one has turned the corner. I was prepared to find a view of some grandeur, but not for that which met our eyes. In the foreground an open grassy plain, studded here and there with clumps of *Gentiana carinata*, *Primula Stuartii*, and a brilliant white star-like flower with a splash of red in the centre. Beyond this was the glacier,

sparsely covered with rocks and débris, and again, towering behind all, the magnificent north-eastern face of Karun Koh. From where I stood some 8000 feet of the face of the mountain were visible, and so still was the day, so clear the atmosphere, that every ice-cliff on the mountain side, every glacier and pinnacle of ice, scintillated in the hard clear sunlight as though sculptured in crystal, and from the centre of the glacier below a roaring torrent issued. Slowly a small cloud came up from the west, its shadow travelling gently over the face of the mountain. It rested on one of the pinnacles of the mountain, rose slightly and dissolved in the faint breeze which was now just perceptible. The hoarse cry of a chough, soaring overhead, disturbed my reverie, and I realized that we must return. It is a day such as this that makes all the difficulties of travel, no matter how hard, worth while, and impresses the beauties of nature upon one's mind in such a way that nothing can destroy the memory of them.

The next few marches down the Ghujerab were uneventful and do not merit detailed description here. We came at last to a camping place with the name of Weir Wunak. Immediately below this place the river enters an impassable gorge, the rocks on both sides coming sheer down to the water. It looked at first as though we might be defeated after all, as, even if we ourselves were able to traverse the cliffs, I did not think it would be possible for laden porters. In this matter I sadly misjudged the powers of the men of Hunza, who this day proved themselves to be mountaineers of the very first order. At first we mounted a huge shale slope; then, crossing an easy rock face, found ourselves about 1000 feet above the river. From here we got our first view of the confluence of the Ghujerab and Khunjerab, and were surprised, and pleased, to note that a very small amount of water was flowing down the latter. We could see our camping place for the night, a small stony plateau about a mile below the junction, but how to get to it was the question; for separating us was a series of steep earth cliffs which looked impassable and horribly dangerous. Taking the ice-axes, our two Shingshali guides started to hack a way across the cliffs, in which they cut steps in the same way as one does in an ice-slope. For hour after hour we continued thus, and at the worst part of all we halted in order to help the porters across. They disdained our proferred assistance, however, and came over climbing like cats, and with never a murmur at the hardships of this day's work. After nearly twelve hours of incessant exertion we glissaded down the last shale slope, glad on arrival to refresh ourselves with the muddy river water. Montagnier, who has done a great deal of mountaineering, described this as the most extraordinary day's climbing in the whole of his experience.

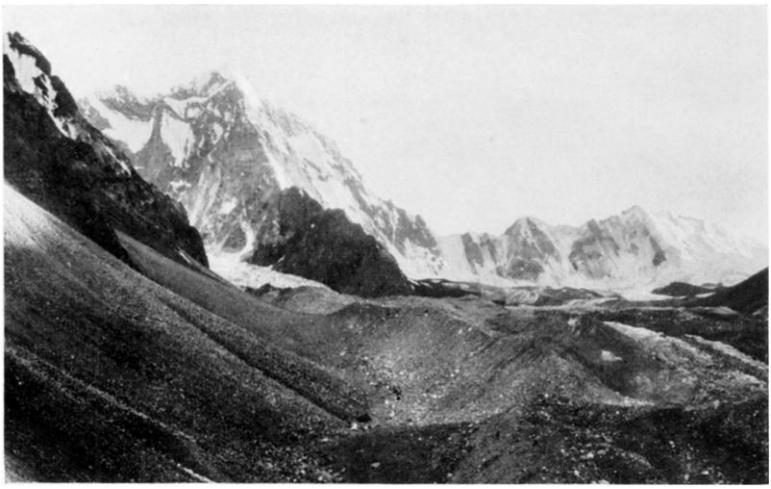
We had now to cross the river, and in spite of the fact that the last few days had again been cloudy, there was far too much water to make it possible to ford. We had brought with us several hundred feet of rope



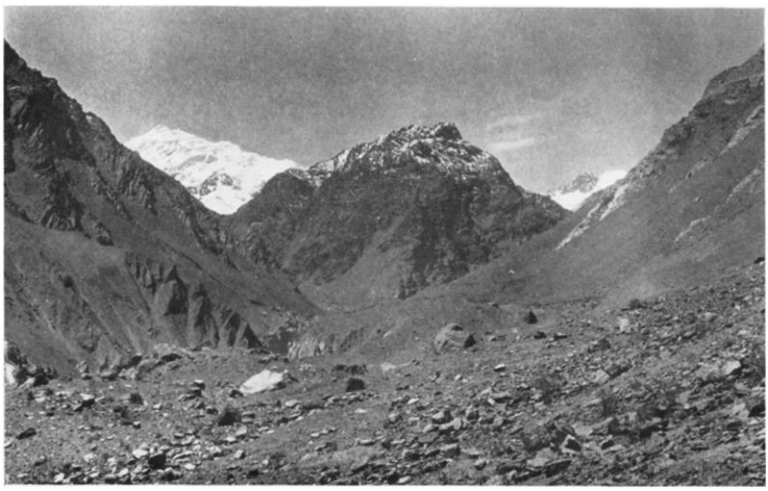
Shekhdalga valley and Boesam Pass

Looking down the Upper Zardigarban

Looking back from Unmusar spur towards the Shingshal gorge



Chillinji Pass



Spe Syngo: looking back to the Ghujerab valley

Junction of the Khunjerab and Ghujerab valleys

for use in just such an emergency as this, and finding some drift timber on the bank, proceeded to erect a bridge of the Shingshal pattern. Our cross rope sagged horribly, and we thereupon decided to strengthen it with the guy ropes of all the tents. This did not seem to make very much difference, but in the course of a few hours we got the whole party safely across, and a few days later reached Misgar, in the Hunza valley, without further incident.

On arrival at Misgar we learned that soon after our leaving Shingshal one of the glacier lakes above that place burst and caused heavy floods in the valley. It is interesting to note that such a happening was prophesied by the Vissers when they examined these lakes, though the consequences were not so dire as they predicted.

We spent some days in Misgar, where I developed the whole of the photographs taken up to date. Our intention was to fill in the next week or so by visiting the Kilik and Mintaka passes, and in the meantime I telegraphed to the Survey of India to inquire if there was any further topographical work to be done in the district. We set off for Murkushi on July 17, but on arrival at that place Montagnier was feeling the effects of the climate somewhat and decided to go no farther. Leaving him to return to Misgar I decided to carry out, by means of double stages, a rapid trip to the Pamirs, but the details of this do not come within the scope of this paper, and I accordingly make no mention of them here. I returned to Misgar on July 29 and found a letter from the Survey of India asking us to map the Chapursan valley and explore the Yashkuk and Beskiyenj glaciers. Montagnier was still feeling unwell, and it was therefore decided that he should return to Baltit and await in comparative comfort my return from the Chapursan.

Speaking generally, the scenery of the Chapursan does not differ from that of other parts of Hunza, but the valley is very wide and its stream seems to contribute the bulk of the water flowing into the Hunza river, being much bigger than either the Kilik or Khunjerab streams. There are serviceable paths on both sides of the valley, which, unlike the Ghujerab and Shingshal, is never cut off from the rest of Hunza by the rising of the river.

Some 5 miles upstream we came to what has up to date been known as the Rishipjerab valley. Rishipjerab is the name given to the small pasturage at the entrance to the valley, the valley itself being known as the Kundil. Here are the remains of an old fort and some stone emplacements, built at the time of the Hunza war to withstand a possible advance down the Chapursan valley. The Kundil valley is used as a grazing ground, is easy of access, and presents no features of particular interest. A mile or so farther on we came to the village of Raminji, at the entrance to the Lupghar, another small valley used as an occasional grazing ground.

The Chapursan produces the best crops in the whole of Hunza. There

is still a great deal of good ground not under cultivation, but the present Mir, with his usual forethought, is taking steps to establish new villages at various points in the valley and thus bring this valuable land gradually under the plough. The people of the Chapursan are, for the most part, Wakhis. Most of them came into Hunza territory many generations ago, but of late years there seems to have been a small but steady flow of settlers from Wakhan.

A few miles below Yashkuk I was surprised to notice that the whole valley was filled with earth mounds, some of them 15 to 20 feet high, with rocks and débris embedded in them, the whole covered with a thick layer of light grey mud. This formation extended nearly as far down the valley as Reshit, a distance of several miles. It is accounted for by the local people in the following legend, and on my return to Baltit the Mir also gave me the same story :

About a hundred years ago Yashkuk, of which no trace now remains, was the largest and most important village in Hunza. The people, though prosperous, were very much under the influence of a malignant demon. who had his abode in the mountains at the head of the Yashkuk glacier, This demon could be appeased only by the daily offering of a human sacrifice, and accordingly some member of the village was daily selected to offer himself as sustenance for the monster. At this time the people of Yashkuk were much given to evil living, but the demon took no notice of this provided he obtained his daily sacrifice.

One day an elderly saint, Baba Ghundi by name, appeared on the scene. He remonstrated with the people and offered to protect them against the demon if they would reform their ways. He soon went on his way, telling the people that he would reappear if called upon by name. For a time all went well, until the people, tired of living an orderly life, gradually resumed their old way, and the Demon of Yashkuk again reappeared. Baba Ghundi was called upon to help, and shortly re-appeared. He put matters right once more, but solemnly warned the villagers that if they again returned to their evil ways he would destroy their village and all its inhabitants. He again went on his way, and for a time peace reigned in the village. A few years later, however, the teaching of Baba Ghundi was forgotten and his prophecy of destruction duly came about, for without any warning a huge wave swept down the Yashkuk and completely destroyed the village. Every one was drowned with the exception of one woman, who had refused to participate in the horrible orgies of the villagers, and she is considered to be the original ancestor of the present inhabitants of the Chapursan valley.

There is now no village of Yashkuk, but the place of this name is a large grassy plateau at the junction of the two rivers. It affords perhaps the best grazing in the whole of Hunza and is reserved by the Mir for the use of his own flocks. I was interested to find the cause of the " wave "

which destroyed Yashkuk about a hundred years ago, and accordingly set out to explore the glacier.

About 3 miles above the junction the Yashkuk valley divides into two, and I explored the eastern branch first. This valley, the Kuk-ki Jerab, contains a large glacier which descends from Point 22751, a mountain which is partly responsible for the Batura glacier, that does not flow into the Yashkuk, and is now quite separate from it, although the two glaciers have at some former time been united. As soon as we entered the Kuk-ki Jerab the reason for the débris and mud in the Chapursan was at once apparent, for it was quite obvious that at one time a very large glacier lake existed there. I imagine that the Yashkuk was once much longer than it is at present, and extended past the entrance to the Kuk-ki Jerab, forming an effective outer barrier for the lake. At the same time a large amount of water must have been flowing out of the Kuk-ki, for the glacier is of no mean proportions, and being unable to escape by reason of the dam formed by the Yashkuk, made a lake, until the pressure finally became too great and the barrier gave way. An enormous volume of water and débris swept down the valley into the Chapursan, destroying the village in its course, and leaving a covering of mud which is still visible.

Towards the head of the Kuk-ki Jerab an easy pass leads into the Lupghar valley, and below this pass, on the Kuk-ki Jerab side, is excellent grazing ground which is in regular use during the summer months. A shepherd accompanied us part of the way, and it was a novel sight to see a flock of goats being driven up a glacier, a proceeding which they did not appear to mind in the least.

We retraced our steps, crossed below the snout of the glacier, and re-entered the Yashkuk, keeping to the hillside as it afforded better going than the very tumbled moraine. The Yashkuk is covered in débris and huge boulders, mostly of grey granite, nearly to its source, the peaks at the head being unimportant and of no particular height or beauty. The glacier is crossable anywhere, but it was an arduous performance to pick one's way over the heaps of loose débris and boulders which tended to move as soon as any weight was placed upon them. Although not more than 1½ miles wide it was over three hours before we landed safely on the far side. Here there was a little scrub-covered valley between the moraine and the hillside, and this too was in use as a grazing ground. From here a little track ran down to the main Chapursan valley, and we were enabled to regain our path and reach camp at Ziarat with comparative ease.

Ziarat—at one time called Baba Ghundi—is considered one of the most holy places in the whole of Hunza, for here is the shrine of Baba Ghundi, of whom we have already heard. Ghundi is the name of a place in Bokhara from whence Baba—" the venerable one "—is said originally to have come. There is a similar shrine at Ghundi which is also believed to contain the remains of the saint. This has led to a certain amount of

trouble between the people of the two places in the past, but the Hunzakuts themselves have no doubt in their own minds that theirs is the real shrine, as the following legend, told me by the Mir, goes to prove :

Baba Ghundi died and was buried at Ziarat, in the Chapursan valley, where a shrine was erected over his grave by an ancestor of the present Mir of Hunza. The people of Ghundi, as he was a native of that place, wished to remove the remains of the saint and bury them in his birth-place, but this was not allowed by the people of Hunza. The Ghundi people therefore sent a party over to Hunza with instructions to steal at least some part of the saint's remains. Arrived at Ziarat, they removed the head from the tomb and were preparing to return with it when they found they had all become lame. This lameness enabled the people of Ziarat to catch up with them, which they quickly did, and on the head being returned to the tomb the lameness disappeared.

The tomb is now credited with miraculous powers, and I noticed that it was covered with votive offerings to which my porters added their share.

A few miles above Ziarat the big Besk-i-yenj glacier completely fills the valley, a tumbled mass of snow and ice. It rises on the slopes of Point 21907, on the south of which is the at present unexplored Toltar glacier. The Besk-i-yenj glacier is some 9 miles long and appears to be advancing rapidly. It is joined by a number of small glaciers which come down from the surrounding side valleys. The small Buattar stream, over the pass at the head of which runs a track into Afghan territory, has forced itself between the hillside and the northern edge of the glacier, thus providing the curious spectacle of a river and a glacier running side by side. Towards the end of the glacier the ice becomes too thick for the river to dislodge, and here it disappears beneath the ice to reissue from the snout below. One further valley needs to be mentioned, the Irshad. This also joins the Chapursan at Besk-i-yenj, and at its head is a pass, the one in most general use, leading into Afghanistan.

The Bask-i-yenj is the true source of the Chapursan, and the valley above, that is to the west of, this place, through which runs the insignificant Buattar stream, should rightly be known as the Buattar valley, which is the name by which it is known by the local people. Before entering the main valley the Besk-i-yenj glacier turns sharply to the east, thus forming a barrier right across the Buattar valley. I saw in this place a number of unattended ponies and cows, for whom their owners apparently felt no anxiety. With the big glacier to their east, and the small but steep Buattar glacier to their west, and precipitous hillsides north and south of them, escape was impossible, and they were able to graze in perfect safety until such time as their owners saw fit to fetch them away.

Buattar was a delightful little place, covered with rich grass and bright with a mass of purple geraniums. Sitting outside my tent I saw a diminutive mouse-hare, but it was impossible to see if it differed from the Tibetan variety. Above Buattar a track runs up to the Chillinji pass,

which is 17,000 feet above the sea, and leads into the Karambar valley, but is seldom used, as although perfectly practicable it is rather difficult and arduous. We did not go up the glacier, but ascended a small rock peak from which we could see the summit of the pass, but owing to the approach of bad weather it was impossible to see any great distance.

While I was examining the various glaciers Torabaz was working steadily at the map. As rations were now running short, and there was still a certain amount of local detail to be filled in, we decided that he should remain and finish this work while I returned to arrange the forwarding of further supplies. I got back to Baltit within a week, and found Montagnier awaiting me. He had had rather an uncomfortable time owing to the heat, which at this time of the year, August, is intense during the daytime, in spite of the height of the Hunza valley. We stayed only long enough to settle our affairs and to pay our farewell respects to the Mir, but for whose excellent arrangements and personal kindness and hospitality the traveller in Hunza would indeed fare badly.

I cannot close this brief account without a word of praise for our most excellent porters. These men were with us for just over two months. During this time they were almost continuously on the move and over what is probably some of the worst country in the world for laden men. Always ready to turn their hand to anything, they were, I think, the most cheerful and willing set of men with whom I have ever travelled. One has heard many tales of the trouble given by Himalayan porters in the past to travellers previously unacquainted with the country, and Hunza has been particularly unfortunate in this respect. In order to avoid further happenings of the sort might I too suggest, as General Bruce, Sir Francis Younghusband, Col. Norton and many others have, that future travellers should take the trouble to learn at least the elements of some language intelligible to their men? This is by no means an insuperable difficulty, for a working knowledge of most Himalayan languages can be acquired in a very few weeks (but excluding Burushuski, the mother-tongue of the Hunza people, who mostly understood enough Hindustani for all practical purposes), and I can promise that the result of so doing will repay the traveller many times over, for the people of the Himalaya, like most others for that matter, work best for the man who takes a personal interest in their welfare, and this, no matter what trouble the traveller may take, is hardly apparent to them when their employer does not speak their tongue.

Some Geographical Conclusions, Notes on the Possibility of reaching the Shaksgam from Hunza, and a List of Place Names

Any one contemplating exploration in Hunza during the summer months should remember that the snowfall during the winter of 1926 was exceptionally heavy. This made it possible to work in the valleys during 1927 up to a much later date than would normally be possible.

Major Mason (*G.J.* 69, 4, April 1927) considers that for an attempt to reach

the Shaksgam viâ Hunza, the best plan would be to winter in Gilgit and set off from that place in the very early spring, returning before the snow started to melt, that is, by early June in a normal year. I am in entire agreement with this idea, and the Mir informed me that there would be no difficulty in finding porters at this season, as the fields have all been sown and the men are free.

The Shingshal route is passable for yaks during the winter, and I think the Mir, by previous arrangement, would arrange to send forward, I would suggest to Shingshal Aghzi, the bulk of the party's stores and porters' rations before the arrival of the main party. Shingshal Aghzi is a particularly suitable place in which to establish a base, as it is a convenient spot from which to work in either direction, *i.e.* either towards the Shaksgam or towards Central Asia.

No supplies of any kind whatsoever are obtainable beyond Shingshal, but mutton and milk can be procured from the grazing grounds in the vicinity of the Shingshal Pass during the summer months at such times as the flocks are there for grazing.

If the party is prepared to sacrifice a certain amount of kit it should be possible to work in this region during the summer, but they should take a light steel rope and tackle with which to make a " bridge " if necessary.

Judging by our experience in the Ghujerab, and allowing for the fact that 1927 was an exceptional year, I do not think an active party need ever fear being completely cut off by the rising of the rivers, always provided that they have plenty of time, rations, and a good supply of ropes, and are prepared for hard work; but the late winter and early spring are undoubtedly the best times.

A future party should bring plenty of empty sacks for porters' rations. The local bags of goatskin are expensive and do not last, and the people do not like parting with them.

With regard to the Ghujerab, I think the passage of this valley in a normal year would be impossible after mid-June, and it should be remembered that even in midwinter, when the water is at its lowest, it is not possible to get along the gorge just above the Khunjerab junction, and this part of the journey can only be accomplished by the somewhat hazardous traverse of the cliffs above the river. It seems that this gorge would account for the fact that the Ghujerab is used as a grazing ground by the Shingshalis and not, as would otherwise be the case, by the people of Misgar and Gircha, who as it is graze their flocks in the Khunjerab, the passage of which, at suitable seasons, does not present any difficulty.

The upper Ghujerab is wide and open and a number of flowers and small shrubs are found there. Lower down, the valley gradually narrows and the hillsides are steep and covered with slopes of shale. It is obvious that there are frequent avalanches of rock and shale on a big scale, and these, I think, would account for the absence of vegetation in the lower part of the valley, for even when a few stunted bushes or plants do manage to exist, the chances are that after a few months they are swept away in the train of some avalanche.

All the glaciers in the Ghujerab are on the south side of the valley, *i.e.* they flow from the northern faces of the mountains, and, as far as we could see, there do not appear to have ever been any glaciers flowing down the lateral valleys on the north side of the Ghujerab.

The area round about Mandi Kushlak, *i.e.* at the junction of the Drui and the Ghujerab, appears to have been at one time a large lake, of which traces still remain in the valley floor. A little below this place an old moraine nearly blocks the valley, and at one time probably did so completely. This may have caused the lake.

The area was mapped by Torabaz with the planetable, adjusted to the fixed points of the Survey of India Triangulation of 1913, and in continuation of the topographical work carried out by the Visser Expedition in 1925. Mostly on a scale of 2 miles to 1 inch, it covers a total area of some 900 square miles. (See the Folding Map following page 612.)

With regard to the place-names on the map I would ask future travellers especially to note that with few exceptions, such as large villages like Shingshal, for instance, the names do not denote villages but merely camping places known to the local inhabitants at the time. They are all names of natural objects, *i.e.* "the lonely willow tree," "the red rock," etc., etc., and in later years a future traveller, if using our map, must be prepared to find that some of the places named may be unheard of, for an avalanche may have removed "the lonely willow," and "the red rock" may have long since disappeared in the river.

Place Names in Hunza. W.: Wakhi; T.: Turki

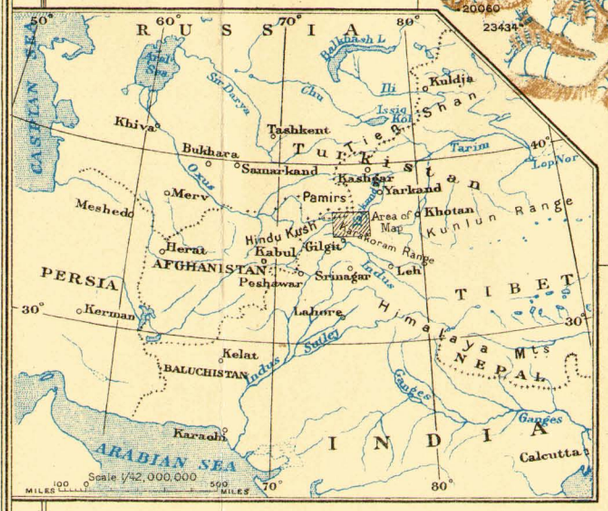
Aghzi (*W.*)	Junction of rivers.
Bandasar (*W.*)	Defile.
Boesam (*W.*)	Roof.
Bulak (*T.*)	Spring of water.
Dasto ghil (*W.*)	Sheep-fold.
Dewan (*W.*)	Pass.
Dikut (*W.*)	Bridge.
Duplaksh (*W.*)	Certain kind of grass.
Dur (*W.*)	Valley.
Ghujerab (*W.*)	*Ghu*, narrow; *Jerab*, a bad place (?).
Jachfarbask (*W.*)	*Jachfar*, the name of a man; *bask*, fallen; hence the place where Jachfar fell.
Jilga (*W.* & *T.*)	Valley.
Kara (*T.*)	Black.
Khunjerab (*W.*)	*Khun*, blood; *Jerab*, see above, from the story that a man once fell into the river and hurt himself, and his blood flowed down the valley.
Koram (*T.*)	Jagged rocks (the more usual translation of this word as gravel was not known).
Malungutti (*W.*)	The middle glacier.
Phurzin (*W.*)	*Phurz*, a birch tree; *-in*, the place of.
Pir (*W.* & *T.*)	Pass.
Shakshagin (*W.*)	Another name for a willow.
Shalghakin (*W.*)	Name of a certain plant.
Shingshal	Unknown by local people, but Mir told me it was the name of the first man to settle in the valley.
Spe syngo (*W.*)	*Spe*, white; *syngo*, any place beside a river.
Tipeskin (*W.*)	Aromatic plant.
Wada khun (*W.*)	*Wada*, mint; *khun*, roof of a house.
Yaz ghil (*W.* & *T.*)	*Yaz*, snow or ice; *ghil* (contracted form), sheep-fold.
Ziarat (*W.* & *T.*)	A shrine.

DISCUSSION

Before the paper the PRESIDENT (Col. Sir CHARLES CLOSE) said: Capt. Morris is well known to the Society as a traveller, explorer, and climber. He was a member of the Mount Everest Expedition of 1922; he is well known to those who are interested in Nepal as having done a good deal of original work

Note.

The parts shown in darker shading are from the planetable mapping of Torabaz Khan, who accompanied the Montagnier expedition, adjusted to the fixed points of the Survey of India triangulation of 1913. The areas lightly shown are from the topographical mapping of the Visser Expedition in 1925. (See "The Geographical Journal," Dec. 1926.)



N.W. FRONTIER OF INDIA

Map of

VALLEYS AND GLACIERS in HUNZA

by

CAPTN C. J. MORRIS
3rd Q.A.O. Gurkha Rifles

1927

Scale 1/400000

5 0 Miles 5 10

Heights in feet

= Bridge × Pass

Published by the Royal Geographical Society.

HUNZA
Morris

N.W. FRONTIER OF INDIA

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1927

Scale 1/400000

Miles

30'
45'
75°
Mintaka P.
15430
Kilik R.
Mintaka R.
Murkushi
Munkushi Sar
Lup Jangal
Potal
Runhil
Tangi Tuk
Udar Khun
Wadi Tang
Mulangi
Derdi
Reshitipur Sar
Shudiambe
Watwashk
Sumayar Sar
Khanwali Rich
Zada Khun
Reshit
Spinje
Sumayar
Spandrinj
Kalam Darchi
Ashri Gar
Kermin
Spandar Nisar
Chapursan R.
Misgar
Dheri Shah
Barah Bhotam
Tehri Sar
Wadakhun
Trip Sar P.
Khunjerab R.
Tapaskyn
Weir Wunuk
Bara Khun
Wain
Lupghar R.
Ghalkil
Lupghar Pir
Lupghar
Hupgarchi
Purzin
Diyar
Yarz Rich
Raminj
Raminj Sar
Rishipjerab
Darband Post
Tok Jangal
Sost-i Sar
Uwakyn i Dur
Langardari Dur
Purzyn
Khudabad
Sost
Bardam Tir
Sirsar
Gircha
Khair Tali
Murkhun
Purzyn wa Dast
Spe Syngo
Karun Koh
Karun Pir P.
Khaibar
Shunuk
Shanoz
Batura Glacier
H
U
N
Hunza R.
Shingshal R.
Dikut
Ziarat
Malangu
Pasu
Pasu Glacier
Barut
Ghulkin
Ghulkin Glacier
Gulmit Gl.
Sasani
Chamangul
Gulmit
Mombil Glacier
K
A
R
A
K
O
R
A
M
Atabad
Hunza (Baltit)
Atabad
Bulchidas
Dasto Ghil
Aliabad
Nagar R.
Buri Harar
Nagir
Guarbun Glacier
Hunza R.
Tashot
Nilt
Hispar R.
N
A
G
I
R


75°
15'
30'
45'
30'
36°
15'
Mintaka P.
15430
SARIKOL RANGE
Parpik P.
18000
19530
Parpik Gl.
Bara Khun R.
Bara Khun
Khunjerab R.
Khunjerab P.
16100
Kuksel
Trip Sar P.
Wadakhun
Tapaskyn
Weir Wunuk
Ugakyn i Dur
Langardari Dur
Purzyn
Chapchingal P.
Teghyn
Dih
Purzyn wa Dast
Spe Syngo
Spe Syngo wa Dast
Sost
Sirsar
Gircha
Murkhun
Karun Koh
Karun Pir P.
Dih Dast
Ghujerab R.
Mandi Kushlak
Mai Dur R.
Mai Dur Gl.
Mai Dur P.
Ghidims R.
Yaz Pirs Gl.
Boesam Pir P.
Jachfarbask
Shekhdalga
Shipodin Pir P.
Glagai Dast
Dikut
Shingshal R.
Ziarat
Malangutti
Malangutti Glacier
Mombil Glacier
Putput
Pamir-i-Tang R.
Shingshal
Pasu
Barut
Chamangul
Bulchidas
Dasto Ghil
25868
Yazghil Glacier
Virjerab Gl.
Khurdopin Glacier
Buri Harar
14602
Kanjut No 2
24580
Kanjut No 1
25460
Spar R.
N Z A
KARAKORAM RANGE
17439
19062
18114
17303
19105
15190
10600
20139
18379
21270
19420
20730
19253
17839
19427
20519
12657
18920
17960
14329
19741
20786
17202
19200
22891
18049
16710
15988
19864
20147
20034
16700
18300
16500
20247
18270
10697
11326
18567
24090
24030
24860
19633
25070
19915

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= *Bridge* × *Pass*

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HUNZA
Morris

in that country. On this last journey he went into Hunza principally to close up some gaps in our geography: one left by the Vissers' expedition, and one in the Shaksgam. Circumstances beyond his control forbade the second; but he and the surveyor Torabaz Khan between them have done a most excellent piece of work covering about 900 square miles. With those few words I will ask Capt. Morris to commence his lecture.

Capt. Morris then read the paper printed above, and a discussion followed.

Sir FRANCIS YOUNGHUSBAND: I should like to say what a treat it has been to me, and I am sure to you also, to see the beautiful photographs which Capt. Morris has taken of the very remarkable country through which he has just been travelling. We are much indebted both to him for his photographs and interesting description of the country and to Mr. Montagnier for having organized the whole expedition. Listening to the lecture and seeing the slides, I had a certain feeling of regret that it was not one of the officers of the Gilgit garrison who had undertaken this expedition. We have had two lectures, the one by Mr. Visser and the other by Capt. Morris, on expeditions to the Shingshal organized from outside. But it is a matter of surprise that the officers of the Gilgit Agency have not done what General Cockerill did more than thirty years ago, and that is explore the Shingshal valley.

The Hunza region is one of the most remarkable countries in the world. We have seen from the photographs what wonderful mountains there are. And undoubtedly if Capt. Morris had had time and had been there at the right season of the year, which I do not think he was—September and October, or even November, is a better season—he might have obtained still finer photographs of Rakaposhi and other magnificent peaks. What one would hope is that some enterprising officer of the Gilgit Agency would take up this work of exploring Hunza as his special interest, and with those fine Hunza men, of whom we have heard so much from Capt. Morris, make a regular exploration of the different valleys, cross over from one into the other, find out every way by which the valleys can be reached from each other in the different seasons of the year, as Lieut. Cockerill, as he then was, did in 1891 or 1892. Little has been done since then by the officers of the Gilgit Agency. But some of them might when exploring the valleys ascend the mountain sides at different points to see where it is possible to get the best views of Rakaposhi, or right over towards the Karakoram range, possibly even to K_2, so that those photographers who are not particularly good climbers might have information as to where the best views can be obtained. And perhaps later it may be our good fortune to have up there a painter, such as Col. Tanner of the Indian Survey, who could really paint those mountains.

I should like to endorse everything that Capt. Morris has said about the wonderful Hunza men, their hardihood and their enterprise. An officer in charge of the Hunza Scouts might well use those men for his explorations. He would not find it necessary to take tents, for these Hunza men in my time used to raid through the Shingshal valley and over the mountains on to the Leh route without any tents, and I had none myself in 1887. An officer going with these men and calling upon the people of the country as little as possible for transport could do work of great value to this Society.

I would also express my great satisfaction at hearing of the help and support given to Capt. Morris and Mr. Montagnier's expedition by the Mir of Hunza, whom I first knew in the year 1889, when I went through the country. He was half-brother to the then chief. I was present, and I think General Cockerill

was also, at his installation as Mir of Hunza in that picturesque capital of his in the year 1892. He has ever since remained a loyal supporter of the British Government, and I am sure this Society is indebted to him for the support which he has given to the present expedition. I hope it may be our good fortune that Capt. Morris himself will return in some official capacity to that country, perhaps in charge of the Hunza Scouts, and that he will again lecture to us and show us still more beautiful photographs.

General Sir GEORGE K. COCKERILL: To me the photographs we have seen to-night are as though I had had the opportunity of re-visiting these valleys in company with the lecturer. I think Capt. Morris has passed rather lightly over difficulties which must have been obvious to you all. Not merely are the physical difficulties of the country great. It must have occurred to you what excellent capacity for organization Mr. Montagnier and Capt. Morris possess to have organized the expedition and carried it through in the way they did without a hitch. It is not an easy matter to get numbers of men together to carry loads in a sparsely populated country such as Hunza, and to keep them happy and contented. The new country which Capt. Morris has traversed is partly to the east and partly to the west of the main Hunza valley. In the Ghujerab valley, which he first visited, he has mapped, I should say, quite 400 or 500 square miles of country which has hitherto never been visited by a white man, and added a great deal to our knowledge of the upper Chapursan valley by his exploration of the Yashkuk and other tributary valleys. The Chapursan valley has of course been visited before, not only by the Mir of Hunza in the manner the lecturer described, but by Europeans. I was there myself in 1893. I think the Mir came across the Chillinji pass either just before or just after my visit, and, a few years later, Sir Aurel Stein crossed from the Ishkuman valley and descended the Chapursan valley to its junction with the Hunza river. Those who have been through the Chapursan valley before have had other fish to fry, and passed through the valley as quickly as possible in order not to lose the opportunity of completing the task in hand. My own object when I went through it was to visit the Chillinji pass at its head, and also to visit the Irshad pass, which had never before been seen, I think, by a European. We have been told this evening how few people visit this part of the world, but by the number present here to-night one might almost think that the Hunza valley was Piccadilly. I went to the Shingshal valley with the very definite object of completing a link with Sir Francis Younghusband's work. He had come down from the north-east and reached the Shingshal pass. With the object of obtaining more complete knowledge of the various passes, he had then turned back deliberately, made a circular route to the north, and come south again to visit the other passes leading from the Pamir into Hunza. It was under his ægis and on his initiative that all my work was done. My first task was to complete the link between the Hunza valley and the Shingshal pass. So well has that difficult valley since been explored by the Vissers—whose absence to-night we all regret—and by the lecturer that I believe there are only two little portions, the gorge of the Shingshal near Pasu and the gorge of the Tang river between the Shingshal valley and the Shingshal pass which still remain to me as my own preserve. The rest of the valley which I passed through rapidly and of which I made an incomplete survey has been visited since by others who have returned with remarkable photographs and, what is perhaps better still, with very accurate and complete maps.

You saw to-night some beautiful pictures of a double-headed mountain which the lecturer called Dasto Ghil. It was discovered by me in 1892. I

could not measure its height, but I wrote of it at the time that " for grandeur of form and prominence of position there is no feature in the whole Shingshal valley more striking than this magnificent mountain." Subsequently it was measured by the triangulators of the Indo-Russian Link, and it proved to be, not as it has been shown in some of the Society's maps, 25,668 feet in height, but, as is shown in the records of the Survey of India, 200 feet higher, namely 25,868 feet. It is the highest peak of the Karakoram west of K_2. The name that I gave to it and that by which the men with me spoke of it was Malungutti Yaz. Malungutti is a little grazing-ground near the " snout " of the Malungutti glacier. Malungutti means " middle glacier," and " Yaz " is the ordinary word for glacier ice or *névé*. The name given to me obviously meant " the ice or ice-peak of Malungutti." A little higher up the glacier there is another grazing-ground with a sheep-fold. This is marked on the Vissers' map and is called Dasto Ghil. It may well be that I was misinformed and that the mountain takes its name from the higher grazing-ground. In any case, you will agree with me that Dasto Ghil is a more convenient and more beautiful name than Malungutti Yaz. I hope therefore that it may be accepted in future, if only out of compliment to the Vissers, who brought back the first photographs of this mountain and were the first to explore the glacier.

May I, in conclusion, thank the lecturer for his most interesting lecture and congratulate him on the results of his organization and initiative, hoping, with Sir Francis Younghusband, that others, including some from the Gilgit garrison itself, will be tempted to follow in Capt. Morris' tracks.

Col. LORIMER: I am that unfortunate thing, an ex-officer of the Gilgit garrison! After that, although I did intend to say something, I do not think you will expect very much from me. Nevertheless, I must first express my personal thanks to the lecturer for the most interesting account of his travels and observations in a country which I have partially seen and in which, at any rate, I am very much interested now, at a distance. Secondly, I wish to dispel any hope you may be entertaining that I am going to add to your geographical enlightenment. I am no geographer, but modern geography, as I understand it, regards nothing as alien, much less as common or unclean, which has any concern with the Earth or with life on the Earth, so I may be permitted to follow the lecturer and enlarge upon one or two of the less directly geographical, perhaps more humanistic, points on which he touched.

He introduced you to the great Baba Ghundi, much the most important person who has ever visited, travelled, or lived in the Chapursan valley. The story is told in different forms, and I happen to have another version. According to this story at Ishkuk there was a large population which was much harassed by a dragon that did not live in the distant mountain but occupied a pond in the midst of the people, who had to provide the dragon every day with one male yak, 40 to 60 lbs. of ghee, and one human being. One day a husband informed his wife that his turn had come. The wife very dutifully offered to go instead, but they had a perfect treasure of a daughter, who at once said, " No, I will go, and then you will be able to raise up other children in my place." So she took a male yak and a lump of ghee, and went off weeping. On the way she met a stately figure riding on a horse, clad in green, and carrying a lance. She salaamed to him, and he asked her where she was going. She wept again and explained about the dragon. He said, " I am going to lie down and have a little sleep; just you sit by me and look through my beard." The girl sat by him and searched accordingly, and later heard the dragon beginning to stir. She once more gave way to female weakness and shed a tear which alighted on

the old man's face. He woke up with a start and said, " What's the matter now ? " " The dragon is getting busy, sir." " Oh, don't you worry," said the old gentleman, and drew his sword, cut the dragon into pieces and strewed the ground with them. The girl went home to her people, and when they saw her coming safely back, perhaps with a natural revulsion of feeling, they were fearfully angry and said, " If you could not command the courage to go through with it you ought never to have gone." She explained that she had not come back through want of courage, but they would not believe her when she told the story of what had happened. So she showed them the pieces of the dragon, and they went and passed on the good news to the rest of the people. They also had to be shown the pieces before they would believe that the dragon had really been disposed of. That night all the inhabitants had a dream, in which Baba Ghundi appeared to them and said, " I am the person who slew the dragon. If any difficulty comes upon you, just let me know. My name is Baba Ghundi." When they woke up the people said, " We had better see if there is anything in this," and they started lamenting and howling. Presently Baba Ghundi came riding down the whole length of the Chapursan, but finding that there was nothing really the matter, he said, " There is some mistake," and disappeared again. This rather amused the people, and they thought they would try again, so they went through the same performance with the same result. Then they tried a third time, and this time Baba Ghundi appeared as a rather disreputable old man. Apparently they knew him, but they stoned him and threw mud at him. He cursed them and went off to the hut of an old woman who was rather different from the others. All she possessed in the world was one sheep giving milk ; she rushed out, milked the sheep, and presented Baba Ghundi with the milk. He blessed her and said, " To-morrow something is going to happen. Don't leave your house ; get up on to the roof, and if you have lent anything to your neighbours get it back." The old lady followed his instructions. Right enough next morning down came an immense mud flood with old Baba Ghundi riding on the top of it, and it wiped out the whole population with the exception of the little lady sitting on her roof. It spared her, her house, and her land. But she had neglected one sieve which she saw floating down on the top of the flood. She whistled to Baba Ghundi, and he fished the sieve out with his spear and handed it back—a very courteous knight. I understand that the house of the old lady still remains, as a proof of which there is the name Kampire Dior, " Kampir " meaning " old woman " and " dior " " house."

The lecturer stressed the importance to the explorer of a knowledge of the local language, and I think every one who has travelled will endorse his remarks. But when he went on to say that it was possible to get a good working knowledge of a Himalayan language in a few weeks, the duller of us may be allowed to indulge in a little envy. I think perhaps he did not mean to include the Burushaski language of Hunza, which has about twenty or thirty separate forms for the plural, four genders, which affect the verbs as well as nouns, pronouns and adjectives, and many other interesting but rather deterrent phenomena. They have sufficed to occupy my leisure for the last three or four years.

General BRUCE : I do not want to talk about geography, but about the Hunza people. When I first went up there I had a smattering of Hindustani and Punjabi, and a still smaller smattering of Kohwar, *i.e.* Chitrali, which I was able to employ in talking to the Prime Minister. Then I learnt a few, and only a few, words of Burushaski, which is very difficult and in which, apart

from the difficulties mentioned by Col. Lorimer, there is a Welsh "ll," which I personally had no difficulty in using. I think I was the second commandant of what was then the Hunza Rifles, and I found the Hunza people most charming and perfectly companionable. They are as active as any people could possibly be, and as I can see one or two members of the Alpine Club present, I may tell them that as slab climbers nobody in the world can beat the Hunza men. For very hard work in the mountains, if we had a trained body, they would not prove inferior to our best Sherpa porters. They were called out twice during the time I was in the Gilgit Agency. Once I was responsible for collecting them. Many of them came down from away up in the mountains from where their flocks were and were collected in Hunza by the evening, and from there they went to Gilgit in one march of 65 miles of very bad country indeed. In my time beyond Baltit, after you left the fort, there was no main road up; a great deal of rock climbing had to be done before you arrived at the Kilik pass. It was quite different from the main road, of which Capt. Morris showed you views. The Hunza man is very far removed from the savage. I will give you an instance of his sense of humour. In the old days he was attacked by the Nagyris. He was first threatened by the Kashmiri troops who were then in Gilgit, before we arrived in there. The Hunza men dashed down to have a slap at the Kashmiri troops as they came up the valley, beat them at Chalt, some 30 miles from Baltit, and drove them back to Gilgit. Then they heard that the Nagyris were attacking Baltit, so they went for the Nagyris, beat them, rounded them up, took every stitch of clothing off them and sent them back to Nagyr just as they were born. That had a first-class effect. The Hunza always prides himself on being more full of life and go than the Nagyr men, and the reason he gives is an excellent one because it confirms modern ideas as to the beneficial effects of sunlight. The Nagyris are cut off from sun for about four months in the year; Hunza gets the sun the whole winter. There is another fact which may bring comfort to the heart of many, and that is that quite half the Hunza people belong to the Malai sect, and in my days they grew grapes and made wine. They used it, too, and perhaps the cheerful little help they got from the wine, in spite of the fact that they live in that terrible country, has given them a better outlook on life. Who can tell? I cannot say more except this: that if there is trouble anywhere in that district it will be found that those splendid men who are absolutely devoted to our own particular rule will be of the very greatest help to us.

Dr. T. G. LONGSTAFF: I hardly dare speak, as I was also once a member of the Gilgit garrison! But there is one point I would like to make with regard to the lecture. You will remember that just as the party were about to go over the Shingshal pass with a view to begin the real work they had come for, hey were stopped by a telegram. I should not, however, dare to criticize anybody. I might want to go there myself. But I will say that it is not the military authorities that make trouble. There is always this danger of being suddenly stopped when you think everything is all clear. I will not criticize it; I won't attempt to explain it, and I would not dream of speaking the truth to you concerning it. But it is a thing which British officers even in the garrison around Gilgit are up against.

Though it is late I would beg to tell you one true story, and then I will stop. In 1907 Harold Whitaker, an officer in the Rifle Brigade, was at Ranikhet. We met over a man who had eighteen holes in him, made by a bear. We made friends while getting that man well. Whitaker wanted to go to Chinese Turkestan, to the Tien Shan, as he had a year's leave due to him. He applied

for twelve months' leave to go over the Karakoram, to Yarkand and Kashgar to shoot ibex in the Tien Shan, and spend a year up there learning something of the Turki language. He was told that he could do nothing of the sort, but that he was to go home and enjoy himself. He consulted me. He got a year's leave ex-India: eventually he went to St. Petersburg with the proper introductions. From there he was passed on to the anti-British Governor-General of Russian Turkestan, who passed him on to Kuldja, where he was passed through to the Tien Shan. There he spent a happy time, learning some Turki and other things useful to a soldier besides, and came back across the Karakoram pass three weeks before his leave was up. But the moment he reached Leh he was arrested by order of the Indian Government. That was not the work of the military department. He was held prisoner under the hospitable roof of my old friend the British Joint Commissioner in Leh, where he had a delightful time. But his regiment was very upset at having to hold a court of inquiry over the case of a Rifleman overstaying his leave. I could give you several other such cases from my own knowledge, but not another so positively comic.

I had told my friend Montagnier that as he was *not a British subject* he was pretty safe from interference (having already obtained official sanction for his route). I sympathize with his disappointment, and that of Capt. Morris, most sincerely.

The CHAIRMAN: The hour is too late to continue the discussion. I have asked Capt. Morris about the name "Dasto Ghil," and he says that is the name which was given to him. I am sure you will agree with me that the thanks of the Society are due to Mr. Montagnier for having rendered this expedition possible. We are grateful to him, and to the Mir of Hunza for the help that he gave Capt. Morris. As to Capt. Morris himself, we are delighted with the account he has given us and also with the really admirable slides which he has shown. In your name and in the name of the Society I beg to thank him.

some of the salient instances of the influence of geography on history in India. He shows why India has always tempted invaders, and gives reasons for the comparative immunity of the south. He indicates the inevitable routes of successful invasion, the places where decisive battles must be fought, the advantages of a site at or near Delhi for an imperial capital, and the reasons for the failure of arbitrary attempts to establish capitals at Fatehpur, Sikri, and at Deogiri in the Deccan. He also shows how geography favoured the Marathas in their earlier conflicts with the Moguls, and helped the Rajputs in their resistance to Muhammadan domination. The author is not afraid of making strong statements, *e.g.* that the wealth of India was " ultimately responsible for the recent Great War," that, had it not been for the Directors of the East India Company, who preferred trade to territory, Northern India up to the Indus " would have been in the hands of the English within ten years of the battle of Buxar " in 1764, and that his fellow-countrymen are, as the result of climate, " void of the instinct of enterprise." W. H. A. W.

MAGIC LADAKH. By Major M. L. GOMPERTZ. *London: Seeley, Service & Co. Ltd.* 1928. 9×5 *inches; 292 pages; illustrations and sketch-map.* 21*s*

This travel book covers no new ground, nor does it add in any way to our geographical knowledge. Such a book is often pleasant reading owing to the personal element, but ' Magic Ladakh ' cannot even be said to have that to its credit. It is only now and then that the author allows us to share his pleasures, which, judging from his opening chapter, are many. It is only fair to say that he has evidently studied the existing literature on this part of the world, and that his facts have been correctly summarized. We have chapters dealing exclusively with the history of Ladakh, its priests, its monasteries, its inhabitants, but these after a time become heavy reading. There is, however, one interesting chapter on the Nubra valley in which the author discusses its features and makes certain comparisons with which in some respects the reviewer cannot agree. Travellers who have crossed the suspension bridge built by the Indian Government over the Shyok river will read with interest that a flood at the time the author was there completely washed away this bridge. It may be noted that it is nearly a century since the last of these inundations occurred, several having taken place in the Nubra valley in the early part of the last century.

Travel books without a map showing the author's route have been the subject of severe comment by reviewers. Yet the publishers have allowed this book to appear without one. Any reader who has little or no knowledge of this region will find it difficult to locate himself on the map supplied. The photographs are numerous and show typical scenes in Ladakh.

At the time of writing the Permanent Committee on Geographical Names has not dealt with this part of the world, and possibly the author may have thought this an excuse for using his own form of spelling. The Survey of India recently published ' Routes in the Western Himalayas, Kashmir, etc.,' vol. 1, and if any attention is to be paid to spelling this should be the authority to follow. It is unfortunate that the book has taken its present form, as the author's previous attempt gave one every reason to expect something better from him than what amounts to a mere compilation of facts on Ladakh.

B. K. F.